STEVENS CREEK CROSSINGS PROJECT

Public Draft

Initial Study / Environmental Assessment

Prepared by:
ICF International

Prepared for:
City of Mountain View
NASA Ames Research Center

January 2012

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STEVENS CREEK CROSSINGS PROJECT
INITIAL STUDY/ENVIRONMENTAL ASSESSMENT

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Acronyms and Abbreviations

AB 32	Assembly Bill 32
ABAG	Association of Bay Area Governments
ABC	Across Barrier Connection
ACE	Altamont Commuter Express
ACHP	Advisory Council on Historic Preservation
ADA	Americans with Disabilities Act
AFRC	Armed Forces Reserve Center
APE	area of potential effects
ARB	California Air Resources Board
ATSDR	Agency for Toxic Substances and Disease Registry
BAAQMD	Bay Area Air Quality Management District
Basin Plans	Water Quality Control Plans
Bay View Lease Agreement	Enhanced Use Lease between National Aeronautical and Space Administration and Planetary Ventures, LLC regarding Bay View Parcels 1, 2, and 4 NASA Ames Research Center SAA2-402175
BCDC	Bay Conservation and Development Commission
BMPs	best management practices
CAA	Federal Clean Air Act
CAANG	California Air National Guard
CAAQS	California ambient air quality standards
Cal-EPA	California Environmental Protection Agency
Cal/OSHA	California Occupational Safety and Health Administration
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDOC	California Department of Conservation
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGP	Construction General Permit
CH_4	methane
CHRIS	California Historical Resources Information System
City	City of Mountain View
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society

CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
COPCs	contaminants of potential concern
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CWA	Clean Water Act
dB	Decibel
dBA	A-Weighted Decibel
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control's
EA	Environmental Assessment
EIMP	Environmental Issues Management Plan
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMT	Early Period-Middle Period Transition
EPA	U.S. Environmental Protection Agency
ESA	Federal Endangered Species Act
FACW	facultatively wet
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FOIA	Freedom of Information Act
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FR	Federal Register
FWS	United State Fish and Wildlife Service
GHGs	greenhouse gases
GWP	global warming potential
HCP	habitat conservation plan
HI	hazard index
HMP	Hydromodification Management Plan
HOV	high-occupancy vehicle
HRA	health risk assessment
HSWA	Hazardous and Solid Waste Amendments

HUD	Department of Housing and Urban Development
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
L_{dn}	day-night level
L_{eq}	equivalent sound level
L_{eq}[h]	1-hour A-weighted equivalent sound level
LESA	Land Evaluation and Site Assessment
L_{max}	Maximum Sound Levels
L_{min}	Minimum Sound Levels
LOS	level of service
LRA	Local Responsibility Area
LRT	Light Rail Transit
MBTA	Migratory Bird Treaty Act
MLT	Middle/Late Transition
MMT	million metric tons
MND	Mitigated Negative Declaration
mph	miles per hour
MROSD	Midpeninsula Regional Open Space District
MRP	Municipal Regional Stormwater Permit
MRZ-1	Mineral Resource Zone
MSC	Munitions Storage Complex
MTC	Metropolitan Transportation Commission
N_2O	nitrous oxide
NAAQS	national ambient air quality standards
NAC	noise abatement criteria
NACA	National Advisory Committee for Aeronautics
NADP	NASA Ames Development Plan
NAHC	Native American Heritage Commission
NAS	Naval Air Station
NASA	National Aeronautics and Space Administration
NASA ARC	NASA Ames Research Center
NBIS	National Bridge Inspection Standards
NCCP	natural community conservation plan
ND	Negative Declaration
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1966
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide

NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	NOAA Fisheries Service
NOI	Notice of Intent
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O_3	ozone
OES	California Office of Emergency Services
OSHA	Federal Occupational Safety and Health Administration
PAL	Provisionally Accredited Levee
PEIS	Programmatic Environmental Impact Statement
PF	Public Facility
PG&E	Pacific Gas and Electric Company
Plan	City of Mountain View Parks and Open Space Plan
PM	particulate matter
PM10	PM less than 10 microns in diameter
PM2.5	PM less than 2.5 microns in diameter
PRC	Public Resources Code
PRT	Personal Rapid Transit
RCEM	Road Construction Emission Model
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
ROG	reactive organic gases
ROW	right-of-way
RQW	129th Rescue Wing
RWQCBs	Regional Water Quality Control Boards
RWQCP	Palo Alto Regional Water Quality Control Plant
SamTrans	San Mateo County Transit District
SARA	Superfund Amendments and Reauthorization Act
SCVURPPP	Santa Clara Valley Urban Runoff Pollution Prevention Program
SCVWD	Santa Clara Valley Water District
SF_6	sulfur hexafluoride
SFBAAB	San Francisco Bay Area Air Basin
SFBRWQCB	San Francisco Bay Regional Water Quality Control Board
SFRWQCB	San Francisco Regional Water Control Board
Shoreline Park	Shoreline at Mountain View Park

SIP	state implementation plan
SMaRT Station	Sunnyvale Materials Recovery and Transfer Station
SO_2	sulfur dioxide
SR	State Route
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	Toxic air contaminants
TCE	trichloroethylene
TDM	Transportation Demand Management
TNM	Traffic Noise Model Lookup program
USACE	United State Army Corps of Engineers
USC	U.S. Government Code
V/C	volume-to-capacity
VAUs	visual assessment units
VHFHSZ	Very High Fire Hazard Severity Zones
VPs	viewpoints
VTA	Santa Clara Valley Transportation Authority
WBWG	Western Bat Working Group
Williamson Act	California Land Conservation Act
WQMP	Water Quality Management Plan

Chapter 1
Introduction

1.1 Introduction

This document evaluates the potential environmental effects of the proposed Stevens Creek Crossings Project (Proposed Project), which would facilitate multimodal, east-west connections between the existing office park facilities in the North Bayshore area of the City of Mountain View with approved facilities that will soon be developed in the Bay View Area of the federally owned National Aeronautics and Space Administration Ames Research Center (NASA ARC). This document is a jointly prepared Initial Study (IS) and Environmental Assessment (EA), referred to as a joint IS/EA. This IS/EA evaluates the potential environmental effects of a locally proposed *project* under the California Environmental Quality Act (CEQA) and a Federal *action* under the National Environmental Policy Act (NEPA). For this document, the term Proposed Project will be used in referring to both the local project and the Federal action. Chapter 2, Background, Purpose, and Scope, provides a discussion of the Proposed Project and local and Federal decisions to be made; Chapter 2 also describes other uses of this IS/EA. The project alternatives, including the Proposed Project, are discussed in Chapter 3, Proposed Project and Alternatives.

1.2 Overview of CEQA/NEPA

1.2.1 California Environmental Quality Act

CEQA requires state and local agencies to estimate and evaluate the environmental implications of their actions and aims to prevent adverse environmental impacts of those actions by requiring those agencies, when feasible, to avoid or reduce significant environmental impacts. The State CEQA Guidelines are the primary source of rules and interpretation of CEQA.

CEQA requires that the lead agency prepare an IS to determine whether a "project" will have a significant effect on the environment. If the IS finds that the Proposed Project would have significant impacts, an environmental impact report (EIR) must be prepared. CEQA requires the preparation of a negative declaration (ND) when the IS finds no significant impacts (Public Resources Code § 21080(c) and CEQA Guidelines § 15070(a)), or a mitigated negative declaration (MND) when there is no substantial evidence in light of the whole record that the project, as revised by incorporation of the mitigation measures, may have a significant effect on the environment (Public Resource Code § 21064.5 and CEQA Guidelines § 15070(b)). The City of Mountain View (City) is the Lead Agency under CEQA for this project.

1.2.2 National Environmental Policy Act

NEPA provides an interdisciplinary framework for Federal agencies to prevent environmental damage and contains action-forcing procedures to ensure that Federal agency decision makers take environmental factors into account for a reasonable range of alternatives. NEPA applies to Federal

agencies and to most of the activities they manage, regulate, or fund that affect the human environment. It requires agencies to consider and to publicly disclose the environmental implications of their proposed actions through the preparation of appropriate documents. The Council on Environmental Quality (CEQ) has adopted regulations and other guidance that provides detailed procedures that Federal agencies must follow to implement NEPA.

NEPA requires the preparation of an EA when it is unclear whether an environmental impact statement (EIS) is needed, or when the project does not require an EIS but is not eligible for a categorical exclusion, unless otherwise exempted. NEPA also allows a Federal agency to prepare an EA for planning studies and similar exercises, even if the agency does not expect to take action on the subject of the study. This EA is being prepared in anticipation that the proposed Federal action will not result in significant adverse effects on the human environment. Preparation of an EA normally culminates in either a decision to prepare an EIS or a finding of no significant impact (FONSI). The National Aeronautics and Space Administration (NASA) is the Lead Agency under NEPA.

1.2.3 Joint CEQA/NEPA Document

When a project is subject to review under both CEQA and NEPA, Federal, State and local agencies are encouraged to cooperate with the lead Federal agency in the environmental review process and to prepare a joint environmental document. The City of Mountain View is the Local Lead Agency with responsibility for compliance under CEQA, and NASA is the Federal Lead Agency responsible for compliance under NEPA. The City of Mountain View is a “cooperating agency” for NEPA purposes, and NASA has likewise agreed to cooperate with the City for CEQA purposes. This document generally follows the format of a NEPA document, while ensuring compliance with the requirements of CEQA. For reference, the City of Mountain View’s CEQA Checklist/Mitigated Negative Declaration and NASA’s NEPA FONSI are provided in Appendix A. In circumstances in which more than one regulation or statute might apply, this joint IS/EA has been prepared in compliance with the more stringent or inclusive set of requirements, whether federal (NEPA) or state (CEQA).

Table 1-1 provides guidance on where CEQA- and NEPA-specific analysis can be found in this document.

Table 1-1. CEQA and NEPA Requirements

CEQA Requirement	Addressed in this IS/EA	NEPA Requirement
Table of Contents	Table of Contents	Table of Contents
Project Description	Chapter 1, 2, 3	Description of Proposed Action
Goals and Objectives	Chapter 2	Statement of Purpose and Need
Alternatives	Chapter 3	Proposed Action and Alternatives
Environmental Setting	Chapter 4	Affected Environment
Environmental Impacts	Chapter 4	Environmental Consequences
Cumulative Impacts	Chapter 4	Cumulative Effects
Significant and Irreversible Changes	Chapter 4	Significant Unavoidable Impacts
List of Preparers	Chapter 5	List of Preparers
CEQA Checklist/Mitigated Negative Declaration	Appendix A	NEPA Finding of No Significant Impact

1.2.3.1 Other Public Agencies

Approval of the Proposed Project may require action or decisions by other Federal, State, regional, or local agencies to approve permits. Additionally, CEQA requires responsible and trustee agencies to review the Proposed Project and implementation will entail coordination with other Federal, State, regional, or local regulations, policies, and related land use activities. Other public agencies that may have a permitting or consultation role may include, but are not limited to:

- United States Army Corps of Engineers (USACE).
- United States Fish and Wildlife Service (FWS).
- National Oceanic and Atmospheric Administration (NOAA) Fisheries Service (NOAA Fisheries).
- California Department of Fish and Game (CDFG).
- California Public Utilities Commission (CPUC).
- San Francisco Bay Regional Water Quality Control Board (SFBRWQCB).
- Bay Area Air Quality Management District (BAAQMD).
- Santa Clara Valley Water District (SCVWD).
- Bay Conservation and Development Commission (BCDC).
- United States Environmental Protection Agency (EPA) Region 9.
- United States Navy.
- United States Army.
- Santa Clara Valley Transportation Authority (VTA).
- Metropolitan Transportation Commission (MTC).
- Midpeninsula Regional Open Space District (MROSD).

Regulatory agencies will have an opportunity to independently review this document during the public review process. The IS/EA has been prepared pursuant to CEQA and NEPA and fulfills the procedural and content requirements of each law.

1.3 Organization of this Document

This IS/EA is organized as described in the chapters and appendices listed below. Note that Table 1-1 provides guidance on where CEQA- and NEPA-specific analysis can be found in the document.

- Chapter 1, Introduction, presents a brief overview of the IS/EA, an overview of CEQA/NEPA, organization of the document and the documents used in preparation of the IS/EA.
- Chapter 2, Background, Purpose, and Scope, presents the Proposed Project background and CEQA and NEPA regulatory framework, describes City and NASA decisions to be made, project purpose, goals and objectives, scope and a brief description of the public involvement process, and describes other uses of the IS/EA.
- Chapter 3, Proposed Action and Alternatives, summarizes the Proposed Project and alternatives considered, as well as the screening approach and alternatives considered but eliminated from further consideration.
- Chapter 4, Affected Environment, and Environmental Consequences, presents the current setting for resources that are evaluated in the IS/EA and describes the potential impacts of the Proposed Project on the environmental resources evaluated.
- Chapter 5, Persons Consulted and List of Preparers, identifies the individuals involved in the preparation of this IS/EA.
- Chapter 6, References, is a comprehensive bibliography of references cited in the text of the IS/EA, including personal communications and draft documents.
- Appendices.

1.4 Documents Used in Preparation of This Initial Study/Environmental Assessment

The following documents were used in the preparation of this IS/EA.

- NASA Ames Development Plan (NADP), Programmatic Environmental Impact Statement (PEIS), and Record of Decision (ROD).
- 1992 City of Mountain View General Plan.
- Draft City of Mountain View 2030 Gerneral Plan
- Relevant land use plans.
- Other technical documents.

Chapter 2
Background, Purpose, and Scope

2.1 Project Background

In the 2002 NADP PEIS, NASA analyzed the environmental impacts of the proposed redevelopment of NASA ARC after having acquired the majority of the former Naval Air Station Moffett Field (known today as Moffett Federal Airfield). The NADP was approved for development of an aggregate of approximately five million square feet of new development and renovation of existing buildings. NASA issued a ROD in 2002, which incorporated by reference a Mitigation Implementation and Monitoring Plan summarizing mitigation commitments under NEPA. Mitigation Measure CIR-1 of the NADP PEIS requires NASA and its development partners to implement a Transportation Demand Management (TDM) Plan to reduce trip generation by 22%.

As part of the NADP, NASA has approved the development of approximately 42 acres of land for office space, housing and support services in the Bay View Area, which will be implemented under a lease agreement between NASA and Planetary Ventures, LLC signed in 2008. Planetary Ventures is a wholly owned subsidiary of Google Inc., which is the proponent of the Proposed Project. As part of the lease agreement to develop the Bay View Area of NASA ARC, Planetary Ventures agreed to reduce trip generation.

2.1.1 Proposed Action and Project

The CEQA *project* is the Stevens Creek Crossings Project, which would facilitate multimodal, east-west connections between the existing office park facilities in the North Bayshore area of the City of Mountain View with similar facilities that are planned to be developed soon in the Bay View Area of the federally owned NASA ARC. The NEPA proposed *Federal Action* is approval of the Federal components of the new Stevens Creek Crossings Project and determining consistency with the NADP PEIS.

2.2 Local Action

The underlying purpose of the proposed City action is to:

- Respond to Google Inc.'s permit application.
- Ensure compliance with the CEQA and other applicable State, Federal, and local laws and regulations.
- To approve the Local Action, the City of Mountain View will make a determination on the final Initial Study and the issuance of local permits.

2.3 Federal Action

The underlying purpose of the proposed Federal Action is to:

- Inform NASA's review of the application for construction and use permits for the Proposed Project.
- Provide a means to ensure that the action is not inconsistent with the NADP PEIS, is in full compliance with the Enhanced Use Lease between National Aeronautical and Space Administration and Planetary Ventures, LLC regarding Bay View Parcels 1, 2, and 4 NASA Ames Research Center SAA2-402175 (collectively, the "Bay View Lease Agreement"); and meets other Federal agency objectives and State and local plans.
- Ensure compliance with the ESA, Section 404 of the Clean Water Act (CWA), NEPA, and other applicable Federal laws and regulations.

To approve the Federal Action, NASA will make a determination on the EA and on issuance of a construction permit and use permit for the Federal components of the Proposed Project for purposes of implementing the Bay View Lease.

2.4 Project Purpose, Goals, and Objectives

2.4.1 Purpose and Need

The purpose of the Proposed Project is to facilitate multimodal, east-west connections between the existing office park facilities in the North Bayshore area of the City of Mountain View with similar facilities that are planned to be developed in the Bay View Area of the federally owned NASA ARC. Separated by less than 0.5 mile, travel between these two destinations is blocked by Stevens Creek, requiring a circuitous loop through city streets and Highway 101 to make a connection. The proposed bridge crossings would allow emergency response vehicles and several thousand workers each day to travel safely and efficiently between these two major office park facilities without exacerbating the already over-subscribed Highway 101 corridor traffic problems. Additionally, the Proposed Project is designed to enable lateral access for pedestrians and bicyclists to the Stevens Creek Trail where none currently exists.

The Proposed Project is needed to provide a looped system configuration to allow safe and unimpeded passage of multiple buses and emergency response vehicles that would use this facility on a continuous basis. Private vehicular use would not be allowed. Safety design elements have been incorporated into the Proposed Project design, such as two-lane bridges that can simultaneously allow emergency egress and ingress.

Implementation of the Proposed Project would prevent further degradation of Highway 101 facilities, improve traffic circulation and non-vehicular connectivity north of Highway 101, improve traffic circulation from the south side of the City of Mountain View to the north side, improve traffic circulation and reduce traffic conflicts at NASA ARC, improve access and safety for pedestrians and bicyclists, and help the City of Mountain View meet emergency response times.

2.4.2 Goals and Objectives

The Proposed Project would achieve the following specific objectives.

- Provide for reduced single-occupancy/personal vehicle trip generation and incentivize high-occupancy vehicle (HOV)/non-motorized transit options for potential trips that would be generated through the previously approved development of the Bay View Area of NASA ARC.
- Provide new ingress and egress for City of Mountain View public safety and emergency response services vehicles to/from the Bay Trail and the Bay View Area of NASA ARC.
- Provide the VTA with new routing and service options, including additional access and stops for existing and future commercial/industrial/research office space currently underserved and/or not served.
- Preserve and enhance opportunities and access for Stevens Creek Trail and Bay Trail users—both pedestrians and cyclists.
- Increase and improve access points for the public to enjoy the Bay Trail, ancillary trails, and the bay tidal wetlands to the north of the Proposed Project.
- Support the preservation of existing regional open space by ensuring that view corridors are sustained and enhanced via the design of the Proposed Project.
- Avoid adverse impacts on Stevens Creek and the Western Diked Marsh.

2.4.3 Design Intent

The design intent of the Proposed Project is to achieve the goals and objectives listed above and fully meet the identified need in a manner that is highly responsive to policy, community, and user input, while minimizing potential environmental impacts.

The opportunity to preserve and enhance accessibility to the Stevens Creek Trail is a key criterion. The Proposed Project as envisioned would deliver a key Across-Barrier Connection (ABC) over Stevens Creek in the City of Mountain View, as identified in the Santa Clara Countywide Bicycle Plan, adopted in August 2008. Figure 4.1 of the Bicycle Plan identifies an unfunded "existing gap/potential ABC" creek crossing project at or near L'Avenida Street. The Proposed Project's new pedestrian/bicycle bridge at Charleston Road would be less than 0.5 mile from the L'Avenida Street trailhead of the Stevens Creek Trail.

The Proposed Project would substantially improve pedestrian/bicycle connections to and through the federally owned NASA ARC. It would also provide new access to the newly opened Moffett Gap portion of the San Francisco Bay Trail, consistent with the NADP PEIS and the South San Francisco Bay Salt Pond Restoration EIS and ROD. Historically, there has been no safe bicycle access to NASA ARC across Highway 101 from the south. The development of NASA ARC Bay View Area (including a new park adjacent to Stevens Creek), in concert with the Proposed Project, would provide cyclists a new commuter route, from the new Permanente Creek Trail bridge over Highway 101 (to the west), across Stevens Creek, through the Bay View Area, and into a new security gate along RT Jones Road. Cyclists and pedestrians wanting to make transit or trail connections further to the east would be able to utilize bike lane improvements planned for RT Jones Road from the Bay View Area all the way to the Moffett Boulevard Main Gate. This route would remain outside NASA ARC security perimeter.

The overarching design concept is to create two pairs of bridges at each of two creek crossings at Crittenden Lane and Charleston Road. This would be accomplished by constructing two new vehicular bridges and one new pedestrian/bicycle bridge, and re-utilizing the existing Crittenden bridge for pedestrian and bicycle use. All crossings would be open to public bicycle and pedestrian traffic. The two new vehicular bridges would be -controlled to limit vehicular uses to transit, security, Google services, and emergency response.

The two new vehicular bridges are designed to enhance the safety and experience of pedestrians and bicyclists by fully separating them from drivers and avoiding at-grade crossings on the Stevens Creek Trail. The design takes this concept a step further by separating pedestrian and bicycle traffic on the approaches to the two pedestrian/bicycle bridges to the extent feasible. Additionally, the structures for the new vehicular bridges are elevated above the Stevens Creek Trail to preserve trail user's views while clear-spanning the creek and reducing interaction with its habitats and levees. This includes elevating the eastern Crittenden Lane bridge approach on short piers where it crosses a small portion of the transitional habitat adjacent to the Western Diked Marsh wetlands to the north.

At Crittenden Lane, the existing pedestrian/bicycle bridge would remain and would be enhanced to allow direct access to the Stevens Creek Trail along the top of the west levee as well as to the unnamed trail along the top of the east levee. The existing approach to the pedestrian/bicycle bridge would be used primarily for eastbound bicycle traffic, which would be directed off of Crittenden Lane and away from the vehicular bridge with signage and striping. This abrupt approach would also be modified to provide a more gradual, slope compliant with the Americans with Disabilities Act (ADA). Another ADA-compliant approach would be added north of, and parallel to, the new vehicular bridge. This approach would accommodate westbound bicycle traffic and pedestrians in both directions. The pedestrian traffic entering or leaving this approach would be directed onto the existing sidewalk on the north side of Crittenden Lane and the bicycle traffic leaving this approach would be directed onto the existing westbound bike lane. The bike lanes on both sides of Crittenden Lane would be freshly striped and marked westward to North Shoreline Boulevard.

At Charleston Road, the new pedestrian/bicycle bridge and its approaches would allow direct access to the Stevens Creek Trail along the top of the west levee as well as to the unnamed trail along the top of the east levee. The new bridge would be sufficiently wide to accommodate two-way bicycle traffic, separated from a generous pedestrian zone.

Separate approaches to the new pedestrian/bicycle bridge would be provided for eastbound bicycle traffic and westbound bicycle traffic and pedestrians. Eastbound bicycle traffic would be directed off of Charleston Road and away from the vehicular bridge with signage and striping. Pedestrians entering or leaving this approach would be directed onto the existing sidewalk on the north side of Charleston Road. Westbound bicycle traffic would be directed onto the existing westbound bike lane. The bike lanes on both sides of Charleston Road would be freshly striped and marked westward to North Shoreline Boulevard.

All safety and information features of the Proposed Project, such as lighting, railings, pavement markings, and signage, would conform to City of Mountain View standards.

2.5 Document Scope

This IS/EA examines the potential impacts of the NEPA proposed action and the CEQA project on the following environmental resources.

- Aesthetics.
- Agricultural and forestry resources.
- Air quality.
- Biological resources.
- Cultural resources.
- Geology and soils.
- Global climate change and greenhouse gas reduction.
- Hazards and hazardous materials.
- Hydrology and water quality.
- Land use and planning.
- Public services and utilities.
- Noise.
- Recreation.
- Socioeconomics and Environmental Justice.
- Transportation and circulation.

This IS/EA also evaluates potential cumulative impacts associated with the Proposed Project.

The following environmental resource topics are briefly discussed in Chapter 4, Affected Environment, and Environmental Consequences. These resources were not considered in detail in this IS/EA because it is not likely that they would be significantly affected by the Proposed Project or its alternatives.

- Mineral resources.
- Population and housing.

2.6 Public Involvement

The public is encouraged to ask questions and provide comments throughout the entire planning process by email, direct mail or fax. Comments and feedback received will be reviewed and incorporated into the Final IS/EA, as appropriate. The lead agencies did not hold a formal scoping meeting for the Proposed Project. Comments on this document should be directed to the following Local and Federal Lead Agencies.

Randal Tsuda, Planning Community Development Director
City of Mountain View

Community Development Department
500 Castro Road, 1st Floor
Mountain View, CA 94041
randy.tsuda@mountainview.gov
(650) 903-6456

Dr. Ann Clarke, Environmental Management Division Chief
NASA Ames Research Center
Mail Stop 237-14, Bldg. 237, Room 103
Moffett Field, CA 94035-0001
Ann.Clarke@nasa.gov
(650) 604-2350

This IS/EA will also be available for viewing in the NASA Ames Freedom of Information Act (FOIA) Electronic Reading Room (online at http://www.nasa.gov/centers/ames/business/foia/elec.html), the City of Sunnyvale Public Library, and the City of Mountain View City Hall and Main Public Library.

Chapter 3
Proposed Action and Alternatives

3.1 Introduction

This chapter describes the alternatives analyzed in this document and considered by the City and NASA. The Proposed Project (and Preferred Alternative under NEPA) is Alternative 1. Alternative 2 proposes a different approach to reducing impacts on environmental resources and complying with the objectives of the Proposed Project. The No-Action Alternative is Alternative 3.

CEQA refers to the activity as a proposed *project* undertaken, supported, or permitted by a public agency, whereas NEPA refers to the activity evaluated in an EA as the proposed *action* by a Federal entity. For the purposes of this document, *Proposed Project* is used to refer to the Stevens Creek Crossings Project and all Federal, State, and local agency actions or approvals that would be issued or undertaken based on it.

3.1.1 Project Location

The Proposed Project is located in the City of Mountain View in Santa Clara County (Figure 3-1). The Proposed Project site crosses a portion of a Pacific Gas and Electric Company (PG&E) transmission line corridor, a plant nursery that is permitted within the PG&E corridor, the Stevens Creek Trail, and the SCVWD maintained Stevens Creek stream channel. Refer to Figure 3-2 for the Proposed Project context plan and land uses surrounding the Proposed Project site.

The Proposed Project area for the western bridge approaches also includes the portions of two existing public roads, the eastern termini of both Charleston Road and Crittenden Lane in the City of Mountain View. The Proposed Project area for the eastern bridge approaches is in the Bay View Area of NASA ARC facility.

Land uses surrounding the Proposed Project site include commercial office space with some light industrial development and a mobile home park in the North Bayshore Area of the City and currently vacant land in the Bay View Area on the NASA ARC facility (Figure 3-3).

3.2 Alternatives Analyzed in this IS/EA

NEPA requires that an EA consider and evaluate a reasonable range of alternatives to the Proposed Project, including the No-Action Alternative. While there is no clear rule for determining a reasonable range, NEPA provides guidance that can be used to define the range of alternatives for consideration in this document. Anaylsis of alternatives is not required under CEQA for Initial Studies.

According to NEPA, the range of alternatives required in an EA is governed by the *rule of reason*, which requires an EA to set forth only those alternatives necessary to permit a reasoned choice. An EA must consider a reasonable range of options as defined by the specific facts and circumstances of a proposed action. First, alternatives must fulfill the basic requirements of the statement of purpose and need. Second, alternatives to be analyzed should not have more significant impacts on the

environment than the proposed action or result in impacts that are indistinguishable from those of the proposed action. Third, alternatives must be able to be feasibly carried out in the context of technical, economic, environmental, and other factors. If alternatives have been eliminated from detailed study, the EA must briefly discuss the reason for their elimination (40 CFR 1502.14[a]; Forty Questions No. 1[a])

A no-action (NEPA) alternative is also required to be considered in an EA. The no-action alternative allows decision makers to compare the impacts of approving the Proposed Project to the impacts of not approving the Proposed Project.

3.2.1 Alternatives Screening Process

Alternatives for analysis in the IS/EA were considered in the context of the NEPA screening criteria described above. For the purposes of analyzing the (NEPA) Proposed Action, these criteria are articulated below in order of importance.

- The ability of an alternative to fulfill the purpose and need under NEPA.
- The feasibility of an alternative in terms of economic, environmental, legal, social, and technological factors.
- The potential for an alternative to avoid or substantially reduce one or more potentially adverse effects of the Proposed Action.

Alternatives that were determined unequivocally to fail to meet more than one of the Proposed Project objectives were dismissed from further consideration. Alternatives that met or were deemed to have the potential to meet Proposed Project objectives were additionally screened for feasibility and potential to avoid or substantially lessen significant impacts of the Proposed Action. Ultimately, the feasible alternative with the greatest potential to avoid or substantially lessen the significant impacts of the Proposed Action was carried forward for more detailed analysis in the IS/EA.

The following initial range of alternatives was developed.

- No-Action Alternative required by NEPA.
- Personal Rapid Transit (PRT) Alternative
- Modify Existing Bridge Alternative.
- Underground Tunnel Alternative.
- Two Bridge/Single Lane Alternative.
- One Bridge/Two Lane Alternative–Charleston Road Option.
- One Bridge/Two Lane Alternative–Crittenden Lane Option

Results of the conceptual alternative screening process are displayed in Table 3-1. The One Bridge/Two Lane Alternative–Crittenden Lane Option was carried forward for analysis under NEPA as the only action alternative that met the Proposed Project objectives while having potential to appreciably reduce effects associated with the Proposed Action. All of the other alternatives were determined either not to meet the purpose and need or not to show sufficient evidence that environmental effects could be significantly reduced in comparison to the Proposed Action. Alternatives eliminated from consideration under NEPA are discussed below.

Table 3-1. Conceptual Alternatives Screening

Criteria	Proposed Action/Project	No-Action/ No-Project Alternative	Personal Rapid Transit (PRT) Alternative	Modify Existing Bridge Alternative	Underground Tunnel Alternative	Two Bridge/Single Lane Alternative	One Bridge/Two Lane Alternative – Charleston Option	One Bridge/Two Lane Alternative – Crittenden Option
Project Objectives								
Provides for reduced single-occupancy/personal vehicle trip generation and incentivize HOV/non-motorized transit options for potential trips that will be generated through the previously approved development of the Bay View Area of the NASA Ames Research Park	●	○	●	⦿	●	⦿	⦿	⦿
Provides new ingress and egress for City of Mountain View public safety and emergency response services vehicles to/from the Bay Trail and the Bay View Area of the NASA Ames Research Park	●	○	○	⦿	●	⦿	⦿	⦿
Provides the Valley Transit Authority (VTA) with new routing and service options, including additional access and stops for existing and future employment centers currently underserved and/or not served	●	○	○	⦿	●	⦿	⦿	⦿
Preserves and enhances opportunities and access for Bay Trail users—both pedestrians and cyclists	●	○	●	⦿	●	●	●	●
Increases and improves access points for the public to enjoy the Bay Trail, ancillary trails, and the bay wetlands to the north of the Project site	●	○	○	○	○	⦿	⦿	⦿
Supports the preservation of existing regional open space by ensuring that view corridors are sustained and enhanced via the design of the Project	●	●	●	●	●	●	●	●

* Multi-choice options:

- ● meets criterion
- ⦿ meets the criterion somewhat
- ○ doesn't meet criterion

** n/a. Not Applicable. Alternatives that did not meet three or more Project objectives were eliminated from further analysis. The No Action Alternative does not meet the goals and objectives of the Action, but is required to be analyzed under NEPA. The PRT system did not meet key project objectives for emergency response services, public transit options, or trail enhancements.

Table 3-1. Continued

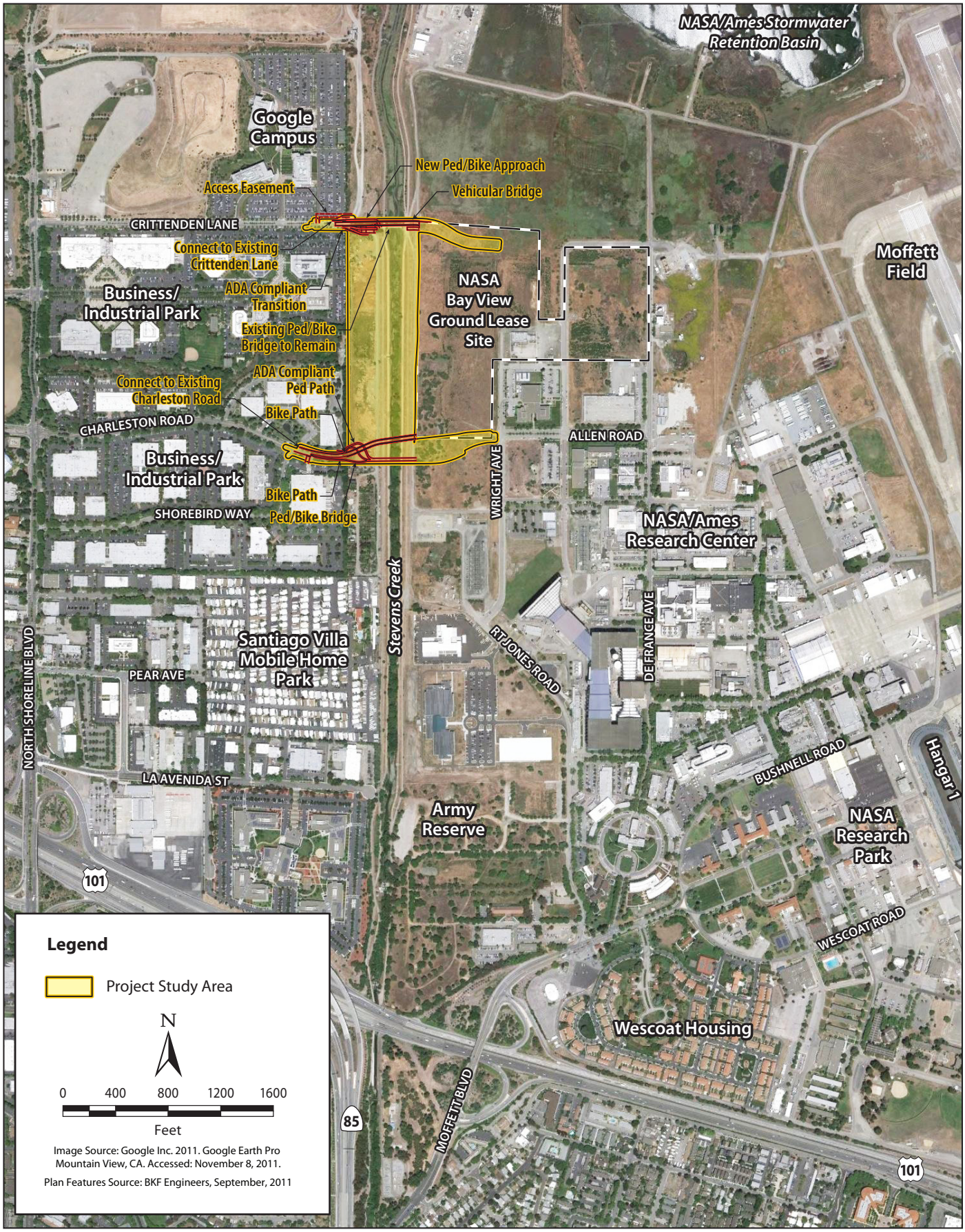
Criteria	Proposed Action/Project	No-Action/ No-Project Alternative	Personal Rapid Transit (PRT) Alternative	Modify Existing Bridge Alternative	Underground Tunnel Alternative	Two Bridge/Single Lane Alternative	One Bridge/Two Lane Alternative – Charleston Option	One Bridge/Two Lane Alternative – Crittenden Option
Project Feasibility								
Right-of-way is available	●	n/a	n/a	●	●	●	●	●
Is technically feasible	●	n/a	n/a	○	○	●	●	●
Project site is appropriately located for access to both the North Bayshore area of the City of Mountain View and the Bay View Area of the National Aeronautics and Space Administration (NASA) Ames Research Park	●	n/a	n/a	●	●	●	⦿	⦿
Project site provides adequate access to local arterial roads	●	n/a	n/a	●	●	⦿	⦿	⦿
Minimizes life-cycle costs	●	n/a	n/a	⦿	⦿	●	●	●
Meets capital cost limit of value	●	n/a	n/a	⦿	○	●	●	●
Preliminary Environmental Outcomes (in comparison to Proposed Project/Action)								
Reduces Change in the Public Viewshed	--	n/a	n/a	●	●	○	⦿	⦿
Reduces Impacts to Stevens Creek Habitats and Species	--	n/a	n/a	○	○	○	⦿	⦿
Reduces Trips on Local Road Network	--	n/a	n/a	○	○	○	○	○
Reduces Greenhouse Gas Emissions	--	n/a	n/a	○	○	○	○	○

* Multi-choice options:

- ● meets criterion
- ⦿ meets the criterion somewhat
- ○ doesn't meet criterion

** n/a. Not Applicable. Alternatives that did not meet three or more Project objectives were eliminated from further analysis. The No Action Alternative does not meet the goals and objectives of the Action, but is required to be analyzed under NEPA. The PRT system did not meet key project objectives for emergency response services, public transit options, or trail enhancements.

Figure 3-1
Stevens Creek Crossing Project
Project Vicinity



ICF INTERNATIONAL

Figure 3-2
Stevens Creek Crossings Project Context Plan

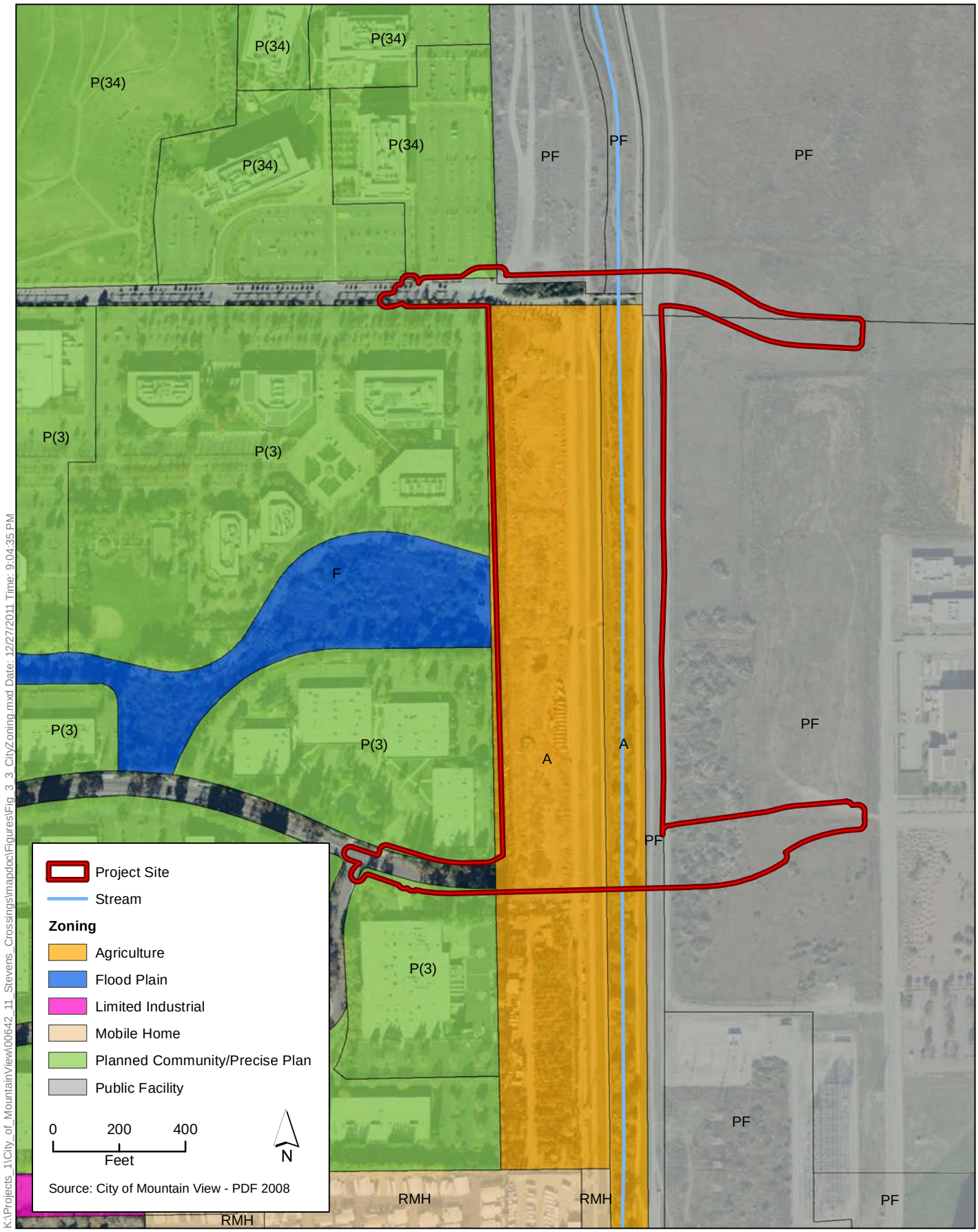


Figure 3-3
City of Mountain View Zoning

3.2.2 Alternatives Eliminated from Further Consideration

3.2.2.1 Personal Rapid Transit Alternative

Under this alternative, a PRT system would be built to cross Stevens Creek in lieu of vehicle and pedestrian bridges. PRT is a public transportation mode featuring small automated vehicles, typically carrying no more than 3 to 6 passengers per vehicle, operated by Google on a network of specially built guideways. The guideways are arranged with all stations located off the main track with frequent merge/diverge points. This approach allows for nonstop, point-to-point travel, bypassing all intermediate stations. In order to be functionally useful this system would have to be extensive enough to connect all of the existing Google shuttle stops and replace the shuttle system, increasing capital costs and resulting in an inherently different Proposed Project.

This alternative fails several criteria based on Proposed Project objectives: it would provide no access for emergency response vehicles, it would not provide VTA new routing and service options, and it would not improve trail access opportunities. For these reasons, this alternative was removed from further consideration in the screening analysis.

3.2.2.2 Modify Existing Bridge Alternative

Under this alternative, the existing bridge at Crittenden Lane would be modified to meet Proposed Project objectives to accommodate two way traffic, provide emergency response access, and accommodate pedestrian/bike traffic to the Bay View Area. This alternative would provide all of the primary use functions anticipated for the Proposed Project as listed above. The alternative would not provide increased trail access points, but could potentially enhance existing trail connections at the Crittenden Lane bridge, including providing ADA-compliant access to the crossing and dedicated bike lanes.

This alternative was eliminated from consideration due to technical feasibility issues. The existing bridge is constrained in capacity (currently only 13 feet wide) and designed such that the alternative would essentially require a completely new bridge in order to provide capacity for two lane traffic, adequate access for emergency response vehicles, and dedicated bike paths and pedestrian sidewalks. Expansion of the existing bridge would also require additional piers in the Stevens Creek channel and modification of the existing Stevens Creek levees, both of which are undesirable for construction feasibility and environmental outcomes. Additional piers would increase the potential for significant impacts to wetlands and instream habitat for federally threatened steelhead salmon. Hence, this alternative as proposed was not considered technically feasible and was withdrawn from further consideration.

This alternative was reconsidered and revised as a completely new bridge under the One Bridge/Two Lane Alternative–Crittenden Lane Option that was carried forward for analysis.

3.2.2.3 Underground Tunnel Alternative

Under this alternative, the Proposed Project would connect Charleston Road and Crittenden Lane to the Bay View Area via underground tunnel. Because the geology on the Proposed Project site consists solely of unconsolidated Bay mud, the Proposed Project could not be bored under the channel and feasibly connect with existing rights-of way at either Charleston Road or Crittenden Lane. Thus, this alternative would require cut-and-cover construction.

The tunnel alternative meets all Proposed Project objective criteria and could potentially improve access points for the Bay Trail, other trails, and the Bay wetlands north of the Proposed Project site.

This alternative also meets many of the Proposed Project feasibility criteria. However, construction under this alternative would involve unfeasibly high costs, from both a life-cycle and limit of value perspective due to the complex construction method and the maintenance of requirements for an underground structure at this location. Further, it could not feasibly be constructed in a manner that would adequately reduce potential environmental effects of the Proposed Project. The cut and cover construction methodology would result in unacceptable environmental impacts on the stream channel, associated habitats, and the federally threatened steelhead salmon that occur in Stevens Creek. This alternative was withdrawn from further consideration based on both environmental effects and capital costs.

3.2.2.4 Two Bridge/Single Lane Alternative

Under this Alternative, both vehicular crossings would be built as described for the Proposed Project, but would be single lane instead of two lane bridges to reduce the size and visual obstruction of the bridges. The alternative assumes that the pedestrian/bicycle bridges remain separate from the vehicular bridges (identical to the Proposed Project).

While this alternative is technically feasible and meets the Proposed Project objectives, the alternative still includes two bridges and would not appreciably reduce potential effects associated with the Proposed Project. Additionally, the alternative would require one way routing of the shuttle bus system, leading to increased level of service (LOS) traffic effects on Shoreline Boulevard. Preliminary analysis suggests that this alternative would have adverse environmental effects equivalent to or slightly worse than the Proposed Project regarding traffic and circulation and, thus, was withdrawn from further consideration.

3.2.2.5 One Bridge/Two Lane Alternative

Under this alternative, only one of the proposed Charleston Road or Crittenden Road crossings would be constructed as a two lane bridge with a separate pedestrian/bike crossing, as described under the Proposed Project. Under this alternative, the Google Shuttle Service would operate in a manner identical to the Proposed Project, with the exception that the 350 existing round trips (700 single direction trips) would all be routed across the new chosen bridge. This alternative could partially meet Proposed Project objectives and is technically feasible, and lessens the need to avoid and minimize environmental effects by only constructing one of the crossings.

The alternative would also potentially reduce the visual effects in comparison to the Proposed Project because only one bridge would be constructed. In determining which of the options (i.e. Charleston Road or Crittenden Lane) to advance for the analysis, the potential for reducing aesthetic impacts was the main consideration, although other issues (biological, cultural, recreational effects) were also considered.

Both one bridge/two lane options would eliminate the loop routing of the shuttles between the Bay View site and the North Bayshore Area. All the existing trips would be routed across one bridge instead of splitting trips between two bridges under the Proposed Project. Because all the existing trips would be routed on either Charleston Road or Crittenden Road. the traffic volume is expected to increase on either road (Charleston Road or Crittenden Lane) and at the intersection of the chosen road with Shoreline Boulevard. The increased volumes could potentially worsen traffic

operations and result in exceeding the City's LOS standard at these locations. (Fehr & Peers 2011:Appendix B).

The proposed Crittenden Lane crossing ultimately has the greatest potential to reduce effects because there is already a bridge crossing at this location, which helps to minimize the sense of a new bridge structure. At Charleston Road, there is no existing crossing structure for either vehicles or pedestrians and bicyclists.

The Crittenden Lane Option was carried forward for analysis as the only viable action alternative in terms of at least partially meeting the purpose and need while having the greatest potential to appreciably reduce some effects associated with the Proposed Project, although it also has the potential to increase other effects (e.g., additional greenhouse gas emissions due to traffic circulation inefficiencies). The Charleston Road Option was determined to not appreciably reduce effects associated with the Proposed Project and was withdrawn from further consideration.

3.2.3 Alternatives Carried Forward to Detailed Analysis

The following alternatives were found to be feasible or potentially feasible, to meet Project objectives, and to have some potential to avoid or substantially lessen the significant impacts of the proposed Project, and were carried forward for detailed evaluation in the IS/EA.

Alternative 1: Proposed Project.

Alternative 2: One Bridge/Two Lane Alternative–Crittenden Lane Option.

Alternative 3: No-Action.

3.2.4 Alternative 1—Proposed Project

The Proposed Project would create two new two-lane vehicular bridge crossings extending Charleston Road and Crittenden Lane across Steven Creek and into the Bay View Area of NASA ARC. Additionally one new pedestrian/bicycle bridge would be installed immediately south of the new Charleston Road vehicular bridge and ADA and safety improvements would be implemented at the existing Crittenden Lane pedestrian bridge.

The Proposed Project site starts at the eastern termini of both Charleston Road and Crittenden Lane in Mountain View. From there, the two proposed roadways and the pedestrian/bike trail would be built eastward across the adjoining PG&E transmission line corridor, over the Stevens Creek levees owned and maintained by SCVWD, across Stevens Creek, and down again into the adjacent Bay View Area that is part of the federally owned NASA ARC (Appendix C). Road and creek vehicular crossings would be constructed to accommodate emergency response and public and private transit vehicles, but no private vehicular use would be allowed. The pedestrian/bike paths would also be available for public use,., built to City of Mountain View standards.

The net effect of the Proposed Project would be to create an east-west transit connection across Stevens Creek where none currently exists, and provide new public access to the Stevens Creek Trail. It would create easy, safe, and environmentally friendly links between the existing Google facilities on the west side of Stevens Creek and the expansion of those same facilities on the east side of the Creek under a ground lease signed between Planetary Ventures, LLC and NASA. The Proposed Project facilities would be owned by Google Inc.

3.2.4.1 Project Components

The Proposed Project includes the design and construction of the following new facilities and improvements.

Crittenden Lane Vehicular Crossing

One new vehicular bridge and roadway connection aligned with the eastern terminus of Crittenden Lane and perpendicular to the PG&E right-of-way (ROW) and to Stevens Creek would be constructed. The new bridge would free-span the Creek and its levees completely; from outside toe of levee to outside toe of levee with an estimated distance of 300 linear feet (see the plan and profile views of the proposed bridge in Appendix C).

- The roadway approaches on each end of the bridge structure would consist of a 35-foot-wide, two-lane paved roadway. The vehicular lanes would be 12 feet wide, adjoined by four-foot-wide shoulders on either side. The widest point of the bridge (at the foundations on the outsides of the levees) would be 48 feet, with a curb-to-curb dimension of 34 feet.
- The existing concrete bridge would remain in place parallel to, and immediately south of the new Crittenden Lane bridge, and shall be re-utilized to separate vehicles from pedestrian/bicyclists while maintaining the connection to the Stevens Creek Trail. Within the existing Crittenden Lane ROW, safety and aesthetic improvements would include resurfacing, pavement striping, signage, lighting, and landscaping.
- Authorized utility access to and within the existing PG&E transmission line corridor and SCVWD levee structures would be maintained.
- No structures—permanent or temporary—would be built within Stevens Creek and no changes would be made to the existing levees, except for minor modifications at the new Charleston pedestrian/bicycle bridge as may be required by the SCVWD.
- In the transitional habitat adjacent to the Western Diked Marsh on the eastern approach to the bridge structure, the roadway connection to the bridge structure will be constructed on short piers to help preserve the habitat structure of this 200-foot wide wetland buffer area and allow for the construction of biofiltration swales that are planned for this buffer area.
- At or near the proposed western point of connection to the bridge roadway at the existing terminus of Crittenden Lane, vehicular traffic would be controlled for access only by high-occupancy transit vehicles, security vehicles, and emergency response vehicles. No private vehicular use would be allowed. Similar controls would be implemented at the eastern point of connection to existing NASA ARC streets.
- Construction of the new bridge could trigger a requirement to raise, or otherwise modify, adjacent PG&E transmission towers to a new height sufficient to meet a minimum 30-foot safety separation between high-voltage lines and bridge/roadway structures.
- An easement from PG&E would be required for construction of the bridge roadway connection.
- An encroachment permit and a licensing agreement from SCVWD would be required for construction of the new vehicular bridge.

Charleston Road Vehicular Crossing

One new vehicular bridge and roadway connection aligned with the eastern terminus of Charleston Road and perpendicular to the PG&E ROW and to Stevens Creek would be constructed. The bridge would free-span the Creek and its levees completely; from outside toe of levee to outside toe of levee, the estimated distance is 280 linear feet (Appendix C).

- The roadway approaches on each end of the bridge structure would consist of a 35-foot wide, two-lane paved roadway. The vehicular lanes would be 12 feet wide, adjoined by four-feet wide shoulders on either side. The widest point of the bridge (at the foundations on the outsides of the levees) would be 48 feet, with a curb-to-curb dimension of 34 feet.
- Authorized utility access to and within the existing PG&E transmission line corridor and SCVWD levee structures would be maintained.
- No structures—permanent or temporary—would be built within Stevens Creek and no changes would be made to the existing levees, except for minor modifications at the new pedestrian/bicycle bridge as may be required by the SCVWD.
- At or near the proposed western point of connection to the bridge roadway at the existing terminus of Charleston Road, vehicular traffic would be controlled for access only by high-occupancy transit, security vehicles, and emergency response vehicles. No private vehicular use would be allowed. Similar controls would be implemented at the eastern point of connection to streets within NASA ARC.
- Construction of the new bridge would trigger a requirement to raise adjacent PG&E transmission towers to a new height sufficient to meet a minimum 30-foot safety separation between high-voltage lines and bridge/roadway structures. An easement from PG&E would be required for construction of the bridge roadway connection.
- An encroachment permit and a licensing agreement from SCVWD would be required for construction of the new vehicular bridge.

Charleston Road Pedestrian/Bicycle Crossing

One new pedestrian/bicycle bridge and pathway connection aligned with the eastern terminus of the Charleston Road bike lanes, adjacent to and south of the proposed new Charleston Road vehicular bridge would be constructed. The bridge/pathway connection would link the two sides of Stevens Creek, and is additionally designed to provide new access to the existing Stevens Creek Trail located on the top of the Stevens Creek levee. At the eastern landing of the pedestrian/bicycle bridge the center line of the new pedestrian/bicycle bridge shall be no closer than 100 linear feet and no further than 250 linear feet from the center line of the new vehicular bridge. In effect, the western landing of the bridge would remain fixed and the eastern landing could occur within a defined range as shown in the plan and profile views of the proposed bridge in Appendix C.

- The design and installation of a prefabricated bridge would be based on the existing City of Mountain View structure to the north of the existing Crittenden bridge, with a levee-top to levee-top span of approximately 162 feet and a deck width of 12 to 20 feet.
- The bridge deck surface would be approximately 12 to 18 inches above the existing Stevens Creek Trail surface to accomodate increasing structure underclearance by six inches plus bridge deck framing thickness. To match the trail grade, the vertical difference would be absorbed by

repaving the Trail 100 to 150 feet in each direction, to smoothly reconcile the elevation difference.

- The new paved pathway would extend the Charleston Road bike lanes and sidewalks eastward through the PG&E transmission line corridor and across SCVWD property adjoining Stevens Creek, with the pedestrian/bicycle bridge approach crossing under the new vehicle bridge approach, to connect to the Moffett Federal Airfield pathways and bike lanes on the east side of the Creek. No structures—permanent or temporary—would be built within Stevens Creek.
- Both in- and out-bound trail approach segments would be constructed to gain approximately 13 feet of elevation from the existing low point at the terminus of the Charleston Road ROW to the high point on the bridge deck over Stevens Creek. All pedestrian trail slopes would meet ADA requirements.
- Within the existing Charleston Road ROW, safety and aesthetic improvements would include resurfacing, pavement striping, signage, lighting, and landscaping.
- Easements from both PG&E and SCVWD would be required for construction of the pedestrian/bike pathway and bridge.

3.2.4.2 Construction Methodology

The new vehicular bridges consist of embankment approaches, elevated approach structures and a main span over the levees and Stevens Creek. The embankment approaches are paved roads built on engineered fill up to a height of approximately eight feet. The elevated approaches are concrete structures supported by concrete abutments and concrete piers. The main span would be a steel pipe deck tied arch with a pre-stressed concrete deck supported on concrete piers. The length of the main span would be established to span Stevens Creek and the levees from outside levee toe to outside levee toe. On the east side, the pier-supported roadway connection for the proposed Crittenden vehicular bridge would extend all the way into the Bay View development site.

The approach embankments would be built over existing grade then paved. The elevated approaches and main spans would be constructed using falsework. Falsework between the levees—and above the ordinary high water mark —would be erected and then removed during dry season conditions only. At Charleston Road, falsework would be grounded on the maintenance roads on each side of the wetted channel.

Construction of the bridge crossings for the two roadway and the single pedestrian/bicycle pathway connections would be undertaken by equipment that would be located outside of the creek corridor. Typical equipment expected to be used for the roadway and bridge construction includes the following.

- Bulldozers, front end loaders, graders and earthmovers.
- Water trucks, soil compaction equipment and paving equipment.
- Pile drilling rigs, concrete trucks and concrete pump trucks.
- Multiple cranes.
- Multiple air compressors and generators.
- Steel and timber falsework.

In addition, trucks would be used for off-haul and on-haul of spoils and materials.

Cranes would be used within the Stevens Creek levees at Charleston Road to place the new bridge structure, utilizing the maintenance roads on each side of the wetted channel.

At Crittenden Lane, cranes would not be operated within the wetted channel and would only operate from the tops of levees.

Equipment and material staging areas for the new construction would be located within the PG&E transmission line corridor and/or within lands within NASA ARC. The planned staging area is as shown on Figure 3-4.

Construction of the pedestrian/bicycle bridge would require elevating the top of the levees at the southern crossing point by approximately 12 to 18 inches in accordance with SCVWD flood control requirements. No such minor modification is required at the Crittenden Lane pedestrian/bicycle crossing because the existing concrete bridge would be used for this purpose.

Utilities

On the west side of Stevens Creek, PG&E transmission towers would be elevated in place by 15 to 30 feet in order to raise the height of the transmission lines to maintain a required separation from the new roads.

Access

The Proposed Project area would be accessed both from the City of Mountain view and NASA ARC sides of Stevens Creek by the pathways identified in Figure 3-4. The Proposed Project area in Mountain View would be accessed from Highway 101 via North Shoreline Boulevard and both Charleston Road and Crittenden Lane. The NASA ARC side of the Proposed Project area would be accessed from Highway 101 via Moffett Boulevard, RT Jones Road, and Wright Avenue.

During construction of the Proposed Project, access to the existing Stevens Creek Trail would be restricted, affecting access to the Bay Trail. Stevens Creek Trail traffic would be detoured around the Proposed Project site for a period of up to eight weeks at each site during construction. Roadways would not be closed to traffic, and emergency vehicle access would be retained at all times.

Construction Timing

Construction of two vehicular bridges and one new pedestrian/bicycle bridge and their associated approaches and improvements plus the raising of PG&E towers is scheduled to begin in January 2013 and be completed by October 2014. The 22-month construction window accounts for weather constraints, seasonal restrictions, and other anticipated permitting requirements.

The normal working day for construction activities would be between 7:00 a.m. and 7:00 p.m. on weekdays. From time to time, construction could also occur on Saturdays between 9:00 a.m. and 7:00 p.m., but no construction would occur on Sundays or City holidays. Pile driving would be limited to between the hours of 8:00 a.m. and 6:00 p.m. Costruction requiring bright mobile lights will be prohibited.

Solid Waste Disposal

Project design would endeavor to achieve balanced cut and fill so the disposal of excess excavated materials would not be required. If necessary, the construction contractor would be responsible for disposing of excess excavated materials or refuse materials illegially dumped at the siteat

appropriate disposal sites approved by the City. Debris from the construction site or from other activities associated with the proposed construction activities would be kept away from the drainage channel. All debris would be disposed offsite at an appropriate landfill or recycling facility. Liquid construction waste would be disposed offsite in accordance with waste management and materials pollution control best management practices (BMPs) found in the Caltrans Construction Site Best Management Practices Manual (California Department of Transportation November 2000). Petroleum-based compounds would be contained and removed to an officially designated landfill authorized to accept that type of waste. Wastewater from concrete work and other construction activities would not be allowed to drain into the drainage channels. The Proposed Project specifications would contain requirements for the handling, storage, and cleanup of an accidental spill of hazardous materials, including petroleum-based products, cement, or other construction pollutants.

3.2.4.3 Operations

Operation and maintenance of the constructed Proposed Project facilities would be the responsibility of Planetary Ventures (Google Inc.). This would include regular inspections and adherence to applicable local, State and Federal standards governing the safe and regular use of public roadways, pedestrian/bicycle pathways and bridges, even though the facilities would be privately owned. Abandonment and/or removal of Proposed Project facilities by Google Inc., if ever required or proposed, would be in accordance with the directives of applicable governing agencies. After construction completion of the bridge structures, it would be Google Inc.'s responsibility to retain a structural engineer every 48 months to perform a comprehensive structural inspection in accordance with the National Bridge Inspection Standards (NBIS). A copy of the final inspection report would be submitted to the City.

The vehicular bridges would be allowed to only carry corporate shuttles, public transportation, security vehicles, emergency service vehicles, and as an emergency egress route if so designated by the City of Mountain View. The vehicular bridges would have shoulders designed to accommodate public bicycles and pedestrians, but non-motorized traffic would be directed to the pedestrian/bicycle bridges. Consistent with this approach, only the pedestrian/bicycle bridges would be ADA accessible.

The pedestrian bridge at Charleston Road would be open to all public non-motorized traffic. The pedestrian bridge at Crittenden Lane would be open to all public non-motorized traffic and vehicular permit holders issued by the U.S. Fish and Wildlife Service (FWS).

Transit, security, and Google service vehicles would be the only regular trips over the vehicular bridge crossings immediately following construction. Emergency vehicle access for City of Mountain View police, fire, and other ambulance services would be available at the completion of construction, but are anticipated to constitute only a minimal and highly variable component of the operational trips crossing the bridges. Over time, regular public bus and shuttle services may be added, but these services have yet to be defined and would be analyzed and authorized seperately.

Google Shuttle Service

Google offers an existing regular shuttle service, Monday through Friday, from public transit points in the greater Bay area to and through the company's campus. The existing shuttle route through the North Bayshore Area runs up North Shoreline Boulevard and down to the termini of both Charleston

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Figure 3-4
Access to Project Site

Road and Crittenden Lane. With the completion of the Proposed Project, the shuttle service would be extended across both bridges to serve the Bay View Area Campus.

The service would extend approximately 280 existing round trips across the bridges, equally distributed between the two crossings resulting in 140 round trips (280 single direction trips) across each bridge every day. Trips are roughly balanced between the morning and afternoon with two more trips during the afternoon service. Morning service runs from 7:00 am to 10:30 am. Afternoon service runs 3:45 pm to 10:00 pm.

3.2.4.4 Environmental Commitments

The Proposed Project is designed to solve connectivity, access, and traffic flow problems in a manner that avoids and minimizes impacts to the environment. To this end, the following environmental commitments have been incorporated into the Proposed Project.

Design Commitments

- Vehicular bridges will span Stevens Creek, its levees, and its trails, and will not introduce new structures or discharges into the watercourse or its banks.
- Existing Stevens Creek Trail will remain unchanged as a result of the Proposed Project, with the exception of enhancements including the addition of the new pedestrian/bicycle connection and bridge at Charleston Road. The vehicular bridges will cross over Stevens Creek Trail and the opposite levee-top path at a height of 12 vertical feet (from trail surface to bottom of bridge deck). No at-grade vehicle crossings of Stevens Creek Trail will be introduced as a result of the Proposed Project.
- Existing Crittenden Bridge will remain in place to preserve and enhance existing public uses of the structure. The bridge shall be re-utilized to separate vehicles from pedestrian/bicyclists while maintaining the connection to the Stevens Creek Trail. Safety and aesthetic improvements will include resurfacing, pavement striping, signage, lighting, and landscaping within the ROW.
- Impacts to the existing 200-foot wide wetland buffer adjacent to the Western Diked Marsh near the Crittenden Bridge crossing will be avoided or minimized by elevating the eastern roadway approach on short piers along the shortest possible feasible alignment through the buffer area that is consistent with safe and sound traffic engineering standards.
- To the maximum extent possible, off-site fabrication of bridge components will be specified and utilized, in order to minimize construction impacts and associated disruptions in or near the Stevens Creek corridor.

Dust Control Measures

Dust control measures will be implemented during construction activities at the Proposed Project area to minimize the generation of dust. It is particularly important to minimize the exposure of on-site construction workers to dust containing contaminants of potential concern (COPCs) and to prevent nuisance dust and dust containing COPCs from migrating off-site. Dust generation may be associated with excavation activities, truck traffic, ambient wind traversing soil stockpiles, loading of transportation vehicles, and other earthwork. The Proposed Project developer will designate an *Environmental Coordinator* responsible for ensuring that measures to reduce air quality impacts from construction are properly implemented. This person would also be responsible for notifying

adjacent land uses of construction activities and the schedule. Dust control measures will include the following:

- use water on all active construction areas at least twice daily and more often during windy periods;
- cover all hauling trucks or maintain at least 0.6 meters (2 feet) of freeboard;
- dust-proof chutes would be used as appropriate to load debris onto trucks during any demolition;
- pave, apply water two times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites;
- sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas and sweep streets daily (with water sweepers) if visible soil material is deposited onto the adjacent roads;
- hydro seed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas that are inactive for 10 days or more);
- enclose, cover, water twice daily, or apply (non-toxic) soil binders to exposed stockpiles;
- limit construction traffic speeds on any unpaved roads to 25 kilometers per hour (15 mph);
- install sandbags or other erosion control measures to prevent silt runoff to public roadways;
- replant vegetation in disturbed areas as quickly as possible;
- if necessary, install windbreaks, or plant trees/vegetative windbreaks at the windward side(s) of construction areas;
- suspend excavation and grading activity when winds (instantaneous gusts) exceed 40 kilometers per hour (25 mph) and visible dust emissions cannot be prevented from leaving the construction site(s);
- limit areas subject to disturbance during excavation, grading and other construction activity at any one time;
- prior to disturbance (or removal) of materials suspected to contain asbestos, lead or other toxic air contaminants, contact the BAAQMD; and,
- at the end of the day, cover with plastic sheeting or tarps any active soil stockpiles generated as a result of excavating soil potentially impacted by COPCs (e.g., visibly contaminated or odorous soil or soil from areas known to contain lead-based paint). Inactive soil stockpiles potentially impacted by COPCs should be kept covered at all times.

Air Quality Commitments

The contractor will be required to implement the following BAAQMD recommended measures to control construction dust emissions.

- 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 miles per hour.
- 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.
- 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 Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Biological Resource Commitments

The contractor will be required to implement the following measures to minimize or avoid impacts on Special Status Species:

California Central Coast Steelhead

- No permanent structures would be constructed within the levied Stevens Creek channel. All temporary construction activities occurring within the levied Stevens Creek channel would be limited to the summer low precipitation period (June 1 to October 15). Temporary construction activities (including bridge falsework) would occur above the ordinary high-water mark to contain any construction debris and will be removed after construction is completed.

Pacific Pond Turtle

- If initial vegetation, woody debris, or tree removal or other initial ground-disturbing activities will begin during the Pacific pond turtle nesting season (April through July), a qualified biologist will examine the study area for pond turtles and their nests 48 hours before Proposed Project activities begin. If work is scheduled to begin between April and July, it is suggested that a silt fence be erected prior to April to discourage turtles from entering the work area. If a Pacific pond turtle is observed within the work area at any time before or during Proposed Project activities, all activities will cease until such time that either (1) the pond turtle leaves the area or (2) the qualified biologist can capture and relocate the animal away from construction activity after notification to CDFG.

Hoary Bat

- A qualified biologist will examine any large trees that could contain potential nesting cavities (for maternity roosts) within 100 feet of proposed construction activities. Surveys within the study area for roosting hoary bats should take place no more than 30 days before any initial vegetation, woody debris, or tree removal or other initial ground-disturbing activities during the period of April 1 to August 31. If a hoary bat is observed roosting, a buffer of 50 feet from the work area will be established dependent upon habitat and level of proposed disturbance as determined by the qualified biologist. Hoary bats do not hibernate in this area; therefore, no survey is required September through March and any potential tree with nesting cavities can be removed during that time.

Northern Harrier, White-Tailed Kite, Special-Status Raptors, and Other Migratory Birds

- Prior to construction or site preparation activities, a qualified biologist will be retained to conduct nest surveys of appropriate nesting habitat. The survey will be required for only those aspects of the Proposed Project that will begin construction during the nesting/breeding season of northern harrier, white-tailed kite, other special-status raptors, or other migratory birds (typically February 1 through August 31).
- The survey area will include all potential nesting habitat, including the suitable nesting trees within the study area and trees that are within 200 feet of the Proposed Project grading boundaries, the buffer to be determined by the qualified biologist dependent upon habitat location and the level of disturbance. The survey will be conducted no more than 14 days prior to commencement of construction activities.
- If active nests of northern harrier, white-tailed kite, or other species protected under the MBTA and the California Fish and Game Code are present in the construction zone or within 200 feet of the construction zone, a temporary construction fence will be erected at a distance of 200 feet around the nest site (or less if determined to be appropriate by the qualified biologist according to the species and site conditions). Clearing and construction within the fenced area will be postponed until juveniles have fledged and there is no evidence of a second nesting attempt as determined by the biologist.
- After construction starts, if any nesting activity occurs within 200 feet of the construction activity, it is assumed that these birds are acclimated to noise and disturbance and no buffer is required.

Burrowing Owl

- Prior to construction or site preparation activities, a qualified biologist will be retained to conduct surveys of appropriate habitat within the study area. Because western burrowing owls occupy burrows year-round, the survey will be required regardless of the time of year. The biologist will coordinate with City and NASA biologists prior to conducting surveys.
- The survey area will include all potential burrows and foraging habitat, including all suitable habitats in the study area and suitable habitat within 250 feet of the Proposed Project grading boundaries. The survey will be conducted consistent with the Burrowing Owl Survey Protocol and Mitigation Guidelines developed by the California Burrowing Owl Consortium (1993) no more than 14 days prior to commencement of construction activities. If no burrowing owls are detected, any burrows within 250 feet can be filled to discourage occupation after construction starts.
- If occupied burrows are present in the construction zone or within 250 feet of the construction zone, a temporary fence will be erected at a distance of 250 feet around the burrow (or less if determined to be appropriate by the biologist according to the time of the year and site conditions). If construction work is conducted during the non-nesting season (September 1 to February 14), a qualified biologist may, with notification to CDFG, install one-way exclusion doors over the burrows to allow wintering birds to exit but not return to that location. If work is conducted in the breeding season and burrowing owls are located within 250 feet, clearing and construction within the fenced buffer area will be postponed until a plan is developed involving cooperation with the CDFG and implemented.

California Clapper Rail

- Although there is a low potential for California clapper rail to occur within the Proposed Project site, if work is to begin during the breeding season (January 15 to August 31) within 200 feet of suitable habitat, a qualified biologist will be retained to conduct surveys of appropriate habitat for California clapper rail. The survey will be conducted no more than 48 hours prior to commencement of construction activities and be performed at dawn or dusk which are the highest intensity vocalization periods. No survey is required if work is to be conducted in the non-breeding season.
- If California clapper rail individuals are observed or heard or active nests of this species are observed during this survey, any Proposed Project activities within 200 feet of the observation will be postponed until after the breeding season ends and a species avoidance plan is developed, involving cooperation with the FWS and CDFG, and implemented. If no individuals are observed in accordance with the survey protocols, then no buffers are required.

Invasive and/or Noxious Weeds

To avoid or minimize the introduction or spread of noxious weeds, landscaping would be designed with native species (with the possible exception of lawn areas). Invasive plants would not be used in any landscaping. Any imported soil used for landscaping must be certified as weed-free. Similarly, any erosion-control structures thatcontain hay or other dried plant material (e.g., hay bales) must be certified as weed-free. Any construction equipment operating within 76 meters (250 feet) of jurisdictional wetlands or other sensitive habitats inthe Bay View area would be washed with reclaimed water prior to use in this area to remove potential weed seeds. The construction zone would be surveyed periodically by a qualified botanist, so that any infestations of invasive species that establish within the construction zone of the Bay View area can be eradicated before the plants can flower and set seed.

Transitional Habitat

To avoid or minimize impacts to the transitional habitat adjacent to the Western Diked Marsh, the eastern roadway approach to the Crittenden Lane bridge will be elevated on short piers constructed along the shortest possible feasible alignment through this 200-foot wide wetland buffer area that is consistent with safe and sound traffic engineering standards. Other design considerations that will be included in the bridge design so as to avoid impacts to the buffer include the following:

- Drainage along the roadway and shoulder will be routed into existing stormwater vaults and to future stormwater infrastructure associated with the Bay View development, thereby avoiding stormwater-induced degradation of the buffer.
- The landscaping on the northern perimeter of the roadway within the buffer will be carefully designed to discourage unauthorized use of the buffer area. Examples of design elements include use of informational signage describing the value of preserving wetlands and natural or engineered barriers to discourage intrusion into the buffer area.
- A regular maintenance program will be enacted to remove debris that would otherwise runoff in the stormwater.

Heritage Trees

To avoid or minimize the removal of City of Mountain View regulated heritage trees, the following measures will be incorporated into Proposed Project plans and specifications for work:

- Trees that may be removed during implementation of the Proposed Project will be surveyed by a qualified arborist to document the health, structure, size, species, and other relevant data, including potential qualification as heritage trees. A report, including data collected during the tree survey, will be written and used to develop a tree preservation and mitigation plan. The tree preservation and mitigation plan will be produced and implemented to avoid impacts on regulated trees, where possible, and mitigate for the loss of heritage trees that cannot be avoided. The tree preservation and mitigation plan will be developed in accordance with the City of Mountain View's ordinances and subject to the City's approval.

Cultural Resource Commitments

The contractor will be required to implement the following measures to minimize or avoid impacts on cultural resources should they be discovered during Proposed Project-implementing activities:

- If buried cultural resources, such as chipped or ground stone, historical debris, or building foundations, are discovered during ground-disturbing activities, work will stop in that area and within 100 feet of the find until a qualified professional archaeologist can assess the significance of the find and develop appropriate treatment measures in consultation with the City, NASA, and other appropriate authority. The City and NASA will be responsible for ensuring that the treatment measures are properly implemented.

The contractor will be required to implement the following measures to minimize or avoid impacts related to the discovery of any human remains by treating human remains in accordance with PRC Section 5097.98. Should human remains be found on the site, no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains will be disturbed until:

- The coroner of the county in which the remains are discovered is contacted to determine that no investigation of the cause of death is required.
- If the coroner determines the remains to be Native American, then (1) the coroner will contact the NAHC within 24 hours, (2) the NAHC will identify the person or persons it believes to be the most likely descended from the deceased Native American, and (3) the most likely descendent may make recommendations to the landowner or the person responsible for the excavation work regarding means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods, as provided in PRC Section 5097.98.

Geology and Soils Commitments

Consistent with mitigation specified in the NADP PEIS, all new construction would be designed based on geotechnical analyses of proposed sites to determine the structural measures necessary to counter the shrink-swell potential of the soil and the risk of structural damage from ground subsidence.

The contractor(s) retained for construction and revegetation of the Proposed Project will be required to stockpile excavated topsoil so it can be reused for revegetation on the Proposed Project

site as needed. To ensure maximum topsoil recovery, topsoil will be stockpiled separately from other excavated materials.

In the unlikely case that substantial fossil remains (and particularly, vertebrate remains) are discovered during construction activities, work on the site will stop immediately until a state-registered professional geologist (PG) or qualified professional paleontologist can assess the nature and importance of the find and a qualified professional paleontologist can recommend appropriate treatment. The City and NASA or the appropriate agency will be responsible for ensuring that recommendations regarding treatment and reporting are implemented.

Global Climate Change And Greenhouse Gas Reduction Commitments

The Proposed Project construction contractor will be required to implement the following BAAQMD-recommended BMPs, to the extent feasible, to reduce construction-related GHG emissions:

- Use alternative-fueled (e.g., biodiesel, electric) construction vehicles/equipment for at least 15% of the fleet.
- Use local building materials (at least 10%).
- Recycle at least 50% of construction waste or demolition materials.

Hazards and Hazardous Material Commitments

The Proposed Project developer will work with the Remediation Project Manager within the NASA Ames Environmental Management Division during site planning and will implement the guidelines and recommendations in Planetary Ventures' Bay View Parcel Environmental Issues Management Plan (EIMP) to ensure that none of the proposed construction would expose personnel to unacceptable levels of contaminated soil or groundwater. Where the Remediation Project Manager determined that there would be a possible risk of exposure to people or clean soil or groundwater, the proposed design shall be altered to prevent such exposure if feasible. If it were not feasible to avoid exposure, protective measures shall be undertaken to minimize the risk of exposure as described in the EIMP.

Hydrology and Water Quality Commitments

To ensure that the Proposed Project complies with stormwater regulations enforced by the San Francisco Bay Region of the California Regional Water Quality Control Board (RWQCB), the developer's construction activities shall conform to permit requirements specified in the State Water Resources Control Board's General Permit to Discharge Storm Water Associated With Construction Activity (WQ Order No. 2009-0009-DWQ). Included in the Construction General Permit is a requirement for the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP will list BMPs that the discharger will use to manage stormwater runoff and the placement and use of the various BMPs during construction of the Proposed Project.

The developer shall coordinate submittal of construction plans and specifications with NASA Ames' Environmental Management Division and the City of Mountain View. The Environmental Management Division will review the construction plans and specifications, and determine the appropriate BMPs in the SWPPP to be implemented as part of the developer's construction activities. The primary objectives of the BMPs are to minimize soil erosion from the construction site(s) and to

prevent contact of stormwater with chemicals that may be used during construction. BMPs may include, but are not limited to the following:

- constructing berms or erecting silt fences at entrances to the Site, perimeters of work areas, or as needed to divert runoff from contacting exposed soil;
- placing straw bale barriers around entrances to storm drains and catch basins;
- as required by City ordinance, during significant rainfall events, covering all soil stockpiles with plastic sheeting or tarps;
- protecting and/or closing storm drains located at the Site during construction activities; and,
- storing chemical products inside buildings, sheds, or beneath water repellant tarps, and refraining from applying or dispensing chemicals (e.g., paints, lacquers, solvents, diesel fuels) outside during inclement weather.

The above BMPs are illustrative. It is anticipated that the developer will propose specific BMPs appropriate to the construction plans and specifications.

Post-construction stormwater control will be in accordance with the Santa Clara Valley Urban Runoff Pollution Prevention Program and the City's Guidelines, implemented pursuant to the Municipal Regional Stormwater NPDES Permit No. CAS612008 (the region's "MS4" stormwater permit program). For this project, the City of Mountain View is the responsible entity for requiring the developer to implement these MS4 permit requirements. As stated in the MS4 permit, the goal of these permit requirements is to reduce runoff and mimic a site's predevelopment hydrology by minimizing disturbed areas and impervious cover and then infiltrating, storing, detaining, evapotranspiring, and/or biotreating stormwater runoff close to its source.

NASA Ames Environmental Management Division and the City of Mountain View Public Works Department will review and approve the developer's BMPs. Additional BMPs and design elements may also be required by NASA and/or the City of Mountain View to protect water quality post-construction and to ensure that the quantity, rate, and duration of stormwater runoff does not increase.

Public Services and Utility Commitments

The contractor will employ Recology, the City's exclusive hauler, for roll-off boxes and construction waste hauling services.

Transportation and Circulation Commitments

The Proposed Project construction contractor will be required to develop and implement a traffic control plan to minimize and avoid impacts on traffic operation and circulation, safety hazards, and emergency access during construction of the Proposed Project. Traffic Control Plans shall be submitted to the City of Mountain View Traffic Engineer and NASA for review and approval prior to implementation. The traffic control plan may include but will not be limited to the following elements.

- Avoid creating additional delay on roadways and intersections currently operating at congested conditions, either by choosing routes that avoid these locations, constructing during nonpeak times of day, or scheduling equipment movement and heavy truck trips on Saturdays.

- Provide access for emergency vehicles at all times.
- Provide adequate off-street parking at designated staging areas for construction-related vehicles.
- Maintain pedestrian and bicycle access and circulation during construction of the Proposed Project where safe to do so. If construction encroaches on the Stevens Creek Trail, a safe detour will be provided for trail users at the nearest crossing.
- Require public notification, posting advanced notification along Stevens Creek Trail, and coordination with the City and Shoreline Park for all trail closures or detours.
- Require traffic controls in the Proposed Project area and at the Proposed Project entrance, including flaggers, illuminated signs and a temporary stop sign to slow oncoming traffic.
- Post standard construction warning signs in advance of the construction area and at any intersection that provides access to the construction area.
- When lane closures occur, provide advance notice to City of Mountain View fire and police departments to ensure that alternative evacuation and emergency routes are designed to maintain response times.
- Require that written notification be provided to contractors regarding appropriate routes to and from the construction site, and the weight and speed limits on local roads used to access the construction site.
- Repair or restore the road ROW to its original condition or better upon completion of the work.

Environmental Justice and Socioeconomic Commitments

The project applicant will provide all communications regarding the Proposed Project, including community meeting and information mailings, in Spanish and in English. Additional languages will be added if deemed necessary during Proposed Project outreach activities.

3.2.5 Alternative 2— One Bridge/Two Lane Alternative— Crittenden Option

Alternative 2 would create one new two-lane vehicular bridge crossing extending Crittenden Lane across Stevens Creek and into the Bay View Area of NASA ARC. Additionally, ADA and safety improvements would be implemented at the existing Crittenden Lane pedestrian bridge. Under Alternative 2 the Crittenden Lane improvements would be constructed exactly as described in Alternative 1 (the Proposed Project).

Under Alternative 2, the Google Shuttle Service would operate in a manner identical to the Proposed Project, with the exception that the 280 existing round trips (560 single direction trips) would all be routed across the new Crittenden Lane Bridge.

3.2.6 Alternative 3—No Action/No Project

Under the No Action alternative, the Proposed Project would not be implemented and the applicant would direct all trips into the Bay View Area as proposed in the approved NADP PEIS. The Google Shuttle System would reach the Bay View Area from Highway 101 via Moffett Boulevard, RT Jones Road, and Wright Avenue.

Chapter 4
Affected Environment, and Environmental Consequences

This chapter addresses existing environmental conditions and the Proposed Project's potential impacts on environmental resources, examining each resource in a separate subsection. The City and NASA have used their best judgment in preparing this combined IS/EA to satisfy both CEQA and NEPA requirements.

The requirements of NEPA and CEQA are not necessarily the same; similar requirements found in both statutes may have different levels of stringency, and some provisions that appear in one statute may not appear in the other. In addition, the Proposed Project is subject to federal and state environmental statutes and regulations that are separate from NEPA and CEQA but which require analyses that must be incorporated into the IS/EA. In circumstances where more than one regulation or statute might apply, this joint IS/EA has been prepared in compliance with the more stringent or inclusive set of requirements, whether federal or state.

The discussion for each resource topic consists of two sections: Affected Environment and Environmental Consequences. Affected Environment describes existing environmental conditions in the areas that would be affected by the Proposed Project and the No-Action Alternative. Environmental Consequences discusses potential environmental impacts associated with constructing and operating each of the proposed alternatives and the No-Action alternative.

Chapter 4.0 presents each environmental resource topic in its own section, as follows.

- Section 4.1. Aesthetics and Visual Quality.
- Section 4.2. Agricultural and Forestry Resources.
- Section 4.3. Air Quality.
- Section 4.4. Biological Resources.
- Section 4.5. Cultural Resources.
- Section 4.6. Geology and Soils.
- Section 4.7. Hazards and Hazardous Materials.
- Section 4.8. Hydrology and Water Quality.
- Section 4.9. Noise.
- Section 4.10. Recreation.
- Section 4.11. Transportation.
- Section 4.12. Public Services and Utilities.
- Section 4.13. Global Climate Change and Greenhouse Gas Reduction.
- Section 4.14. Land Use and Planning, Mineral Resources, and Population, and Housing.
- Section 4.15. Socioeconomics and Environmental Justice.

- Section 4.16. Cumulative Impacts.

CEQA Significance Conclusions. For each resource topic, analysts use significance criteria to identify when impacts warrant mitigation measures to help reduce their magnitude and severity. These criteria are based primarily on the State CEQA Guidelines, which generally describe the degree of negative change in any of the physical conditions within the area affected by the Proposed Project. CEQA recognizes three degrees of impact before mitigation is considered.

- **No Impact:** The project or alternative would not effect a change in the environment.
- **Less than Significant:** The project or alternative would cause a change in the environment, but that change would not be substantially adverse.
- **Significant, or Potentially Significant:** The project or alternative would cause an adverse or potentially adverse change in the environment.

Where possible, significance criteria use all applicable local, State, and Federal standards.

For each resource, the discussion identifies the level of significance prior to mitigation and indicates mitigation measures available to reduce the level of each impact.

- **Less than Significant after Mitigation:** Implementation of the measurs would reduce the potential impact to below the significance threshold.
- **Significant and Unavoidable:** Even with implementation of mitigation, the impact would remain above the significance threshold.

The *CEQA Significance Conclusion* section identifies the level of significance after mitigation.

NEPA Effect Conclusions. The Environmental Consequences section includes a discussion of construction period and project effects under NEPA. The analyses assessed whether these effects would have no effect, an adverse effect, or a beneficial effect on environmental resources.

- **No Effect:** The alternative would not alter the environmental status quo.
- **Adverse Effect:** The alternative would negatively affect the environmental resource value or quality as it exists prior to the project. These effects are qualified as minor, moderate, or substantial impacts under NEPA.
- **Beneficial Effect:** The alternative would result in improvement of the environmental resource value or quality as it exists prior to the project.

4.1 Aesthetics

This section describes existing conditions of the visual environment at the Proposed Project site, summarizes applicable regulations and policies, and analyzes potential short-term construction and long-term operational impacts on visual resources that could result from implementation of the Proposed Project.

4.1.1 Affected Environment

4.1.1.1 Study Area

The Proposed Project is located in the City of Mountain View, in northern Santa Clara County (Figure 4.1-1). The Proposed Project area for the western bridge approaches also includes the portions of two existing public roads, and the eastern termini of both Charleston Road and Crittenden Lane in the City of Mountain View. The Proposed Project area for the eastern bridge approaches is in the Bay View Area of NASA ARC facility, but is within the legal boundaries of the City of Mountain View.

Land uses surrounding the Proposed Project site are commercial office space with some light industrial development in the North Bayshore Area of the City and undeveloped land at NASA ARC.

4.1.2 Regulatory Setting

4.1.2.1 Federal

National Environmental Policy Act (42 USC 4321 et seq.)

NEPA establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings (42 U.S.C. 4331[b][2]).

4.1.2.2 State

California Environmental Quality Act and Guidelines (Section 15126.2[a])

CEQA establishes that it is the policy of the state to take all action necessary to provide the people of the state "with …enjoyment of *aesthetic* (emphasis added), natural, scenic and historic environmental qualities" (CA Public Resources Code Section 21001[b]).

4.1.2.3 Local

City of Mountain View 1992 and 2030 General Plans

The City of Mountain View 1992 General Plan (1992 General Plan) is the currently approved planning document for the City (City of Mountain View 1992), but it is anticipated that the Draft 2030 General Plan (City of Mountain View 2011a) could be approved prior to construction of the

Proposed Project. For this reason, both plans have been considered in relation to the Proposed Project. The following policies and actions from the 1992 General Plan may be applicable to the Proposed Project:

Community Development Chapter

Policy 4. Protect significant landmark buildings and features and encourage new ones.

> ***Action 4.c.*** Protect landmark structures through the development review process.

Policy 5. Encourage well-designed private development that is compatible with surrounding districts and neighborhoods.

> ***Action 5.a.*** Retain the Site Plan and Architectural Review Committee.
>
> ***Action 5.b.*** Ensure quality development by using design guidelines, specific plans, and precise plans.

Policy 10. Preserve scenic views of the natural landscape.

> ***Action 10.a.*** Use the development review process to ensure that the design, location, and size of new projects, whenever possible, preserve significant views of the mountains, Bay, wetlands, streams, and other natural resources in the city.

The following goals and policies related to trail design and the "North Bayshore Change Area" goals and policies from the 2030 General Plan may be applicable to the Proposed Project:

Trails

Trails policies encourage recreation, improve health and reduce greenhouse gas emissions by providing active transportation links to neighborhoods, parks, transit and other destinations throughout Mountain View.

Goal POS-6: An integrated system of multi-use trails connecting to key local and regional destinations and amenities.

Policies

> ***POS 6.1:*** Citywide network of pathways. Develop a citywide network of pedestrian and bicycle pathways to connect neighborhoods, open space resources and major destinations within the City.
>
> ***POS 6.2:*** At-grade crossings. Minimize at-grade crossings of major roads when building new trails.

North Bayshore Change Area Land Use and Design

Land use and design policies support an increased diversity and mix of land uses and protected open space resources and habitat.

Goal LUD-16: A diverse area of complementary land uses and open space resources.

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Figure 4.1-1
Stevens Creek Crossings Project Visual Study Area and View Points

Policies

LUD 16.1: Protected open space. Protect and enhance existing open space and habitat in the North Bayshore Change Area.

LUD 16.5: Preserve views. Limit heights of buildings in North Bayshore to preserve significant views of surrounding mountains.

LUD 16.6: Open space amenities. Encourage development to include open space amenities, plazas and park areas that are accessible to the surrounding transit, bicycle and pedestrian network.

4.1.2.4 Impact Avoidance Measures Incorporated into Project Design

Numerous measures would be incorporated into the Proposed Project to avoid impacts to visual resources in the Proposed Project area. The structures for the new vehicular bridges would be elevated above the Stevens Creek Trail to preserve trail user's views while clear-spanning the creek and to avoid its habitats and levees. As design of the Proposed Project moves forward from the schematic phase, safety and information features such as lighting, railings, pavement markings, and signage will be addressed, and will conform to City of Mountain View standards. The design of the Charleston Road pedestrian/bicycle bridge will be consistent with the design of the existing City of Mountain View structure to the north of the existing Crittenden Lane Bridge. Within the existing Charleston Road ROW, aesthetic improvements will include signage, lighting, and landscaping.

4.1.3 Effects

4.1.3.1 Criteria for Determination of Adverse Effect

Criteria for determining the effect of the Proposed Project on visual resources were based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 et seq.).

An effect on aesthetics resources was considered adverse if construction or operation of the Proposed Project would have a substantial adverse effect on the following resources.

- A scenic vista.
- Scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
- The existing visual character or quality of the site and its surroundings.
- Public views.

4.1.3.2 Sources and Methods

Identifying a project area's visual resources and conditions involves the following steps.

- Objective identification of the visual features (visual resources) of the landscape.
- Assessment of the character and quality of those resources relative to overall regional visual character.

- Determination of the importance to people, or sensitivity, of views of visual resources in the landscape.
- Identification of the resource change and viewer response.
- Determination of the level of significance that the impact would have on viewer groups.

In order to evaluate visual resources in the study area, site surveys were conducted on August 11, 2011 and October 24, 2011. Photographic documentation was compiled during these site surveys.

Definitions

The aesthetic value of an area is a measure of its visual character and quality, combined with the viewer response to the area (Federal Highway Administration 1988). Viewer response is a combination of viewer exposure and viewer sensitivity to the resource change. Viewer exposure is a function of the number of viewers, number of views seen, distance of the viewers, and viewing duration. Viewer sensitivity relates to the extent of the public's concern for a particular viewshed. These terms and criteria are described in detail below.

Visual Character

Natural and artificial landscape features contribute to the visual character of an area or view. Visual character is influenced by geologic, hydrologic, botanical, wildlife, recreational, and urban features. The basic components used to describe visual character for most visual assessments are the elements of form, line, color, and texture of the landscape features (Federal Highway Administration 1988). The appearance of the landscape is described in terms of the dominance of each of these components.

Visual Quality

Visual quality is evaluated using the well-established approach to visual analysis adopted by the Federal Highway Administration, employing the concepts of vividness, intactness, and unity (Federal Highway Administration 1988), which are described below.

- Vividness is the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns.
- Intactness is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements; this factor can be present in well-kept urban and rural landscapes, and in natural settings.
- Unity is the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the landscape.

Visual quality is evaluated based on the relative degree of vividness, intactness, and unity, as modified by its visual sensitivity. High-quality views are highly vivid, relatively intact, and exhibit a high degree of visual unity. Low-quality views lack vividness, are not visually intact, and possess a low degree of visual unity.

Viewer Exposure and Sensitivity

The measure of the quality of a view must be tempered by the overall sensitivity of the viewer. Viewer sensitivity or concern is based on the visibility of resources in the landscape, proximity of

viewers to the visual resource, elevation of viewers relative to the visual resource, frequency and duration of views, number of viewers, and type and expectations of individuals and viewer groups.

The importance of a view is related in part to the position of the viewer to the resource; therefore, visibility and visual dominance of landscape elements depend on their placement within the viewshed. Generally, the closer a resource is to the viewer, the more dominant it is and the greater its importance to the viewer (Federal Highway Administration 1988). A viewshed is broken into distance zones away from the viewer; these zones are the foreground (0.25–0.5 mile), middleground (foreground to 3–5 miles), and background (middleground to infinity).

Visual sensitivity depends on the number and type of viewers and the frequency and duration of views. Visual sensitivity is also affected by viewer activity, awareness, and visual expectations in relation to the number of viewers and viewing duration. For example, visual sensitivity is generally assumed to be higher for views seen by people who are driving for pleasure, people engaging in recreational activities such as hiking, biking or camping, and homeowners. Sensitivity tends to be lower for views seen by people driving to and from work or as part of their work (Federal Highway Administration 1988).

4.1.3.3 Visual Setting

Regional

Mountain View is located at the southern end of the San Francisco Peninsula where the Peninsula meets the Santa Clara Valley and is named for its vista of the Santa Cruz Mountains to the south. The City is highly developed and is dotted by seven mini parks, nine neighborhood parks, two district parks, and one regional park. In addition, Stevens Creek is a notable natural feature running through the City. NASA ARC and Shoreline at Mountain View Park (Shoreline Park) are located at the northern end of the City. Shoreline is the City's regional park and largest open space resource. The park is a 753-acre open space and wildlife preserve (MIG et al. 2009). To the north beyond Shoreline Park and NASA ARC lies the San Francisco Bay.

Study Area

The Proposed Project area is characterized by mostly vacant land surrounded by business park uses along the edges. The other prominent vertical features are the overhead transmission lines and towers. Although there are levees on the east and west sides, the Stevens Creek channel is the semi-natural element, which forms the spine of the area. A paved trail system runs along the creek levees and is used by pedestrians and bicyclists. There are mature trees along the eastern periphery of the buildings to the east of Stevens Creek, which shield views of the Proposed Project area from building users. Between the buildings east of Stevens Creek and Stevens Creek Trail lies the A to Z Tree Nursery. There is presence of trees in wooden containers and large nursery equipment staged along the east side of the trail.

The Proposed Project area can be characterized as an open space offering vast views within an urban setting. The visual character of the Proposed Project area is open recreational. However, it is not pristine due to presence of detracting elements, such as the overhead transmission lines and towers, buildings, and A to Z Tree Nursery equipment. Although the site offers distant views of the bay to the north and Santa Cruz Mountains to the south, these views are not of high quality due to the intervening distance and intervening urban development.

Study Area Views for Assessment

In order to analyze Proposed Project effects on the existing quality and character of views in the Proposed Project area, views from the Proposed Project must be clearly defined. Therefore, the study area was divided into six visual assessment units(VAUs) for evaluation. A VAU as used in this analysis, is the portion of the viewshed visible or potentially visible from a viewpoint (VP) in the study area from which the Proposed Project may be seen. Quality and character, as well as sensitivity of viewers, were assessed for each of the six VAUs. VAUs for the Proposed Project are described in relation to two VPs within the Proposed Project study area from which photos were taken, shown in Figure 4.1-1.

- VP-1 is on Stevens Creek Trail halfway between the two proposed bridges on the median of Stevens Creek Trail. Views from VP-1 were divided into four VAUs: VAU-1 (looking to the northwest and west of VP-1), VAU-2 (looking to the northeast and east of VP-1), VAU-3 (looking to the southwest and west of VP-1), and VAU-4 (looking to the southeast and east of VP-1).
- VP-2 is approximately 315 feet south of the eastern terminus of Charleston Road on the median of the Stevens Creek Trail. Views from VP-2 were divided into two VAUs: VAU-5 (looking to the northwest and west of VP-2) and VAU-6 (looking to the northeast and east of VP-2).

The following detailed description of the six VAUs is separated by the two corresponding VPs. VAU-1 through VAU-4 are described under VP-1, and VAU-5 through VAU-6 are described under VP-2. Refer to Figure 4.1-1 for the location of VPs, and refer to the figures included for each VAU for the corresponding views.

Viewpoint 1 (VP-1)

Visual Assessment Unit 1 (VAU-1): Northwest and West of VP-1

Existing Visual Quality and Character of VAU-1

The area to the northwest and west of VP-1 (Figure 4.1-1) consists of an agriculturally-zoned (City of Mountain View 2011b) strip of land currently used for the A to Z Tree Nursery and Shoreline Amphitheatre overflow parking, a gravel levee maintenance road between this strip of land and the levee/Stevens Creek Trail, a row of mature trees immediately west of the strip, and the business/industrial park and Google campus west of the row of mature trees. The agriculturally-zoned strip of land west of the gravel road consists of ruderal grassland, rows of trees for sale in wooden containers, nursery equipment and other vehicles; and is lined by electricity towers, poles, and lines. The row of mature trees partially screens the rectilinear buildings of business/industrial park and Google campus west of the A to Z Tree Nursery from the Proposed Project area. The visually dominant feature in VAU-1 is the clusters of PG&E electricity towers. VAU-1 displays low vividness, intactness, and unity resulting in overall low visual quality (Figure 4.1-2).

Sensitive Viewer Groups and Key Views in VAU-1

As shown in Figure 4.1-1, VP-1 is in between the proposed bridges. There are no key views in VAU-1. Sensitive viewer groups in VAU-1 are employees of the A to Z Tree Nursery, business/industrial park, and Google campus to the west and Stevens Creek trail users approaching from south of VP-1. Employees of the A to Z Tree Nursery, business/industrial park, and Google campus are considered low sensitivity viewer groups. Stevens Creek trail users are considered high sensitivity viewer groups.

1. Looking west from VP-1.

2. Looking northwest from VP-1.

3. Looking north from VP-1.

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Figure 4.1-2
Stevens Creek Crossings Project Visual Assessment Unit 1 (VAU-1)

Visual Assessment Unit 2 (VAU-2): Northeast and East of VP-1

Existing Visual Quality and Character of VAU-2

VAU-2 is characterized by riparian vegetation and ruderal grassland in the foreground and PG&E electricity towers and structures of NASA ARC in the middleground. In the foreground, a levee maintenance road runs immediately east of the levee/Stevens Creek Trail from VP-1 (Figure 4.1-1), and a strip of riparian vegetation in Stevens Creek runs adjacent to the maintenance road. East of Stevens Creek is a ruderal grassland-covered levee and riparian vegetation. Trees and rectilinear buildings of NASA ARC are visible in the middleground. To the east, the visually dominating features are the rectilinear buildings and structures of NASA ARC. There are no visually dominating features to the north east. Overall, VAU-2 displays moderate vividness (due to the striking NASA ARC structures in the middleground), low intactness, and moderate unity; for an overall moderate visual quality (Figure 4.1-3).

Sensitive Viewer Groups and Key Views in VAU-2

As shown in Figure 4.1-1, VP-1 is in between the proposed bridges. Key views in VAU-2 are of Stevens Creek and the associated riparian vegetation in the foreground to the east and the open space in the middleground to the northeast, although the view of open space to the northeast is compromised by the PG&E towers and NASA ARC structures in the middleground. Sensitive viewer groups in VAU-2 are employees of NASA ARC to the east and Stevens Creek trail users approaching from south of VP-1. Employees of NASA ARC are considered to be a low sensitivity viewer group, and Stevens Creek trail users are considered a high-sensitivity viewer group.

Visual Assessment Unit 3 (VAU-3): Southwest and West of VP-1

Existing Visual Quality and Character of VAU-3

The area west and southwest of the levee from VP-1 (Figure 4.1-1) on Stevens Creek Trail consists of an agriculturally-zoned (City of Mountain View 2011b) strip of land currently utilized by the A to Z Tree Nursery, a gravel road between the levee/Stevens Creek Trail and the A to Z Tree Nursery, a row of mature trees west of the A to Z Tree Nursery, and buildings of the business/industrial park west of the row of mature trees. In addition, the Santiago Villa Mobile Home Park is south of the nursery but is not visible from VP-1 because it is screened by fences and trees. The agriculturally zoned strip of land west of the gravel road consists of ruderal grassland, rows of trees for sale in wooden containers, nursery equipment, and other vehicles; and is lined by electricity towers, poles, and lines. Mature trees screen the adjacent business/industrial park to the west from the nursery and Proposed Project area. The Santa Cruz Mountains are visible in the background to the south and southwest, but the view is diminished by the PG&E electricity towers in the foreground. The PG&E electricity towers are visually dominant in VAU-3. VAU-3 exhibits low vividness, low intactness, and low unity. Overall, VAU-3 displays low visual quality (Figure 4.1-4).

Sensitive Viewer Groups and Key Views in VAU-3

As shown in Figure 4.1-1, VP-1 is in between the proposed bridges. Key views in VAU-3 would be of the trees in the middleground and the Santa Cruz Mountains in the background (Figure 4.1-4), but these views are compromised by the PG&E electrical towers and large A to Z Tree Nursery equipment. Therefore, there are no key views in VAU-3. Sensitive viewer groups in VAU-3 are employees of the business/industrial park and A to Z Tree Nursery to the west and Stevens Creek

trail users approaching from north of VP-1. Employees of the business/industrial park and A to Z Tree Nursery are considered a low-sensitivity viewer group, and Stevens Creek Trail users are considered a high-sensitivity viewer group.

Visual Assessment Unit 4 (VAU-4): Southeast and East of VP-1

Existing Visual Quality and Character of VAU-4

VAU-4 is characterized by riparian vegetation, ruderal grassland, and NASA ARC. In the foreground, a levee maintenance road runs immediately east of the levee/Stevens Creek Trail from VP-1 (Figure 4.1-1), and a strip of riparian vegetation runs adjacent to the maintenance road. East of Stevens Creek is a ruderal grassland-covered levee. Trees and large rectilinear, triangular, and dome-shaped buildings of NASA ARC are visible in the middleground. The large, framed, rectilinear structure of NASA ARC is the air intake for one of the NASA Ames Wind Tunnels. According to the 1992 General Plan, those tunnels located east of the Proposed Project site are considered a city landmark. The Santa Cruz Mountains are visible south of VP-1, but the view of the mountains is diminished by PG&E electricity towers and power lines in the foreground. The large buildings in the middleground are visually dominant in VAU-4. VAU-4 displays high vividness because of some of the striking NASA ARC buildings but displays low intactness and unity. Overall, VAU-4 displays moderate visual quality (Figure 4.1-5).

Sensitive Viewer Groups and Key Views in VAU-4

As shown in Figure 4.1-1, VP-1 is in between the proposed bridges. Key views in VAU-4 are the riparian vegetation in the Stevens Creek corridor and the NASA Ames Wind Tunnels. Sensitive viewer groups in VAU-4 are employees of NASA ARC to the east and Stevens Creek Trail users approaching from north of VP-1. Employees of NASA ARC are a low-sensitivity viewer group, and Stevens Creek Trail users are a high-sensitivity viewer group.

Viewpoint 2 (VP-2)

Visual Assessment Unit 5 (VAU-5): Northwest and West of VP-2

Existing Visual Quality and Character of VAU-5

The area northwest and west of the levee from VP-2 (Figure 4.1-1) on the Stevens Creek Trail is an agriculturally zoned (City of Mountain View 2011b) strip of land currently utilized by the A to Z Tree Nursery. In the foreground, immediately west of the levee is a gravel road with nursery trailers and other large nursery equipment parked along the edges of the road. Nursery trees are in wooden containers west of the gravel road. Beyond the nursery trees, a row of mature trees screens the business/industrial park west of the nursery from the nursery and Proposed Project area. The agriculturally zoned strip of land used for the A to Z Tree Nursery is lined with PG&E electricity towers. The visually dominating features of VAU-5 are the PG&E electricity towers and A to Z Tree Nursery trailers. VAU-5 exhibits low vividness, intactness, and unity. Overall, the visual quality of VAU-5 is low (Figure 4.1-6).

Sensitive Viewer Groups and Key Views in VAU-5

As shown in Figure 4.1-1, VP-2 is south of the proposed bridges. As shown in Figure 4.1-6, there are no key views in VAU-5. Sensitive viewer groups in VAU-5 are Stevens Creek Trail users approaching from south of VP-2 and employees of the business/industrial park to the west. In addition, although

1. Looking northeast from VP-1.

2. Looking northeast from VP-1.

3. Looking east from VP-1.

4. Looking east from VP-1.

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Figure 4.1-3
Stevens Creek Crossings Project Visual Assessment Unit 2 (VAU-2)

1. Looking south from VP-1.

2. Looking southwest from VP-1.

3. Looking southwest from VP-1.

4. Looking west from VP-1.

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Figure 4.1-4
Stevens Creek Crossings Project Visual Assessment Unit 3 (VAU-3)

1. Looking south from VP-1.

2. Looking southeast from VP-1.

3. Looking east from VP-1.

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Figure 4.1-5
Stevens Creek Crossings Project Visual Assessment Unit 4 (VAU-4)

1. Looking north from VP-2.

2. Looking northwest from VP-2.

3. Looking northwest from VP-2.

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Figure 4.1-6
Stevens Creek Crossings Project Visual Assessment Unit 5 (VAU-5)

not in the range of VAU-5, residents of the Santiago Villa Mobile Home Park south of the A to Z Tree Nursery may be able to view this VAU. Both of these viewer groups are considered high-sensitivity user groups.

Visual Assessment Unit 6 (VAU-6): Northeast and East of VP-2

Existing Visual Quality and Character of VAU-6

VAU-6 is visually dominated by riparian vegetation along the Stevens Creek channel. In the foreground, a levee maintenance road runs immediately east of the levee/Stevens Creek Trail from VP-1 (Figure 4.1-1), and a strip of riparian vegetation runs adjacent to the maintenance road. Structures of NASA ARC are completely screened from view by riparian vegetation to the east. PG&E electrical towers are visible in the middleground to the northeast, and power lines run over the riparian vegetation. VAU-6 displays low vividness, moderate intactness, and low unity. Overall, VAU-6 exhibits low visual quality (Figure 4.1-7).

Sensitive Viewer Groups and Key Views in VAU-6

As shown in Figure 4.1-1, VP-2 is south of the proposed bridges. The key view in VAU-6 is the riparian vegetation in the Stevens Creek corridor. Sensitive viewer groups in VAU-6 are Stevens Creek Trail users approaching from south of VP-2 and employees at NASA ARC. Employees of NASA ARC are a low-sensitivity viewer group, and Stevens Creek Trail users are a high-sensitivity viewer group.

4.1.3.4 Project Effects

This section discusses potential short-term (construction) and long-term (operational) effects on visual resources that could result from implementation of the Proposed Project. The criteria for determination of adverse effects are described in Section 4.1.4.1. Because the Proposed Project is not located within a state scenic highway, there would be no effect to scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway; there is no further discussion of potential effects related to this criterion. The discussion of effects by VAU below covers the remaining three criteria.

Effect AES-1	The Proposed Project could affect scenic vistas, existing visual character, and public views in and of VAU-1.
Level of Effect	This impact is considered minor adverse under NEPA and less than significant under CEQA.

Discussion

The following discussion of potential effects to scenic vistas, existing visual character, and public views in and of the VAUs is separated by short-term (construction) and long-term (operational) effects.

Construction Effects

VAU-1

Construction of two vehicular bridges and one new pedestrian/bicycle bridge and their associated approaches and improvements plus the raising of PG&E towers is scheduled to begin in January 2013 and be completed by October 2014. The 22-month construction window accounts for weather constraints, seasonal restrictions, and other anticipated permitting requirements. There would be no evening construction requiring bright mobile lights. As described in Chapter 3, Proposed Action and Alternatives, equipment and material staging areas for the new construction would be located within the PG&E transmission line corridor west of Stevens Creek and/or on lands within NASA ARC east of Stevens Creek. Equipment expected to be used for the roadway and bridge construction includes trucks, bulldozers, front end loaders, graders and earthmovers, water trucks, soil compaction equipment, paving equipment, pile drilling rigs, concrete trucks, concrete pump trucks, cranes, air compressors, and generators.

As discussed previously, the area west of Stevens Creek is currently used for Shoreline Amphitheatre overflow parking and the A to Z Tree Nursery. As described in Study Area Visual Assessment Units, above, for VAU-1, this area is lined with PG&E electricity towers, poles, and lines. In addition, there are A to Z Tree Nursery trailers and other large nursery equipment and vehicles present in this area (Figure 4.1-2). Therefore, additional construction equipment west of Stevens Creek associated with the Project would not adversely change the existing visual character of VAU-1. Although construction staging would slightly alter existing public views in VAU-1, the visually character in VAU-1 would not be substantially altered.

Construction effects are considered temporary and are therefore minor adverse under NEPA and less than significant under CEQA. In addition, to the maximum extent possible, off-site fabrication of bridge components would be specified and utilized, in order to minimize the duration of construction impacts and associated disruptions in or near the Stevens Creek corridor, which would further reduce temporary effects from construction.

VAU-2

See the first paragraph of the construction effects discussion for VAU-1 for a description of construction equipment, duration, and methodology. As discussed, vacant lands within NASA ARC east of Stevens Creek could be used for construction staging. Therefore, the staging area could be within VAU-2.

As discussed in Chapter 3, Proposed Action and Alternatives, construction equipment would be located outside of the creek corridor. The potential construction staging area is an open, ruderal grassland area. As described in Study Area Visual Assessment Units, above, views in VAU-2 beyond the levee consist of an open, ruderal grass area and trees and rectilinear buildings of NASA ARC (see Figure 4.1-3). Staging construction equipment in this area would temporarily alter views and visual character in VAU-2. In addition to construction and materials staging, steel and timber falsework between the levees would be erected to assist in bridge construction. This would temporarily alter the existing visual character of the Stevens Creek corridor in VAU-2.

The existing visual character of the area in VAU-2 would be temporarily altered during construction. However, A to Z Tree Nursery equipment and PG&E towers and lines are visible in VAU-1, which is directly west of VAU-2. In addition, there are PG&E towers and NASA ARC structures visible in the

1. Looking north from VP-2.

2. Looking northeast from VP-2.

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Figure 4.1-7
Stevens Creek Crossings Project Visual Assessment Unit 6 (VAU-6)

middleground to the northeast. Viewers are therefore accustomed to seeing large equipment and industrial visual elements in VAU-2.

Although construction staging would alter existing views and visual character in VAU-2, these effects are considered temporary and are therefore minor adverse under NEPA and less than significant under CEQA. Also, to the maximum extent possible, off-site fabrication of bridge components would be specified and utilized, in order to minimize the duration of construction impacts and associated disruptions in or near the Stevens Creek corridor, which would further reduce temporary effects from construction.

VAU-3

See the first paragraph of the construction effects discussion for VAU-1 for a description of construction equipment, duration, and methodology. As discussed, equipment and material staging areas for the new construction could be located within the PG&E transmission line corridor west of Stevens Creek.

The existing visual character and construction effects in VAU-3 would be the same as described for VAU-1 because the existing visual character in VAU-3 is the same as for VAU-1.

These temporary construction effects would be minor adverse under NEPA and less than significant under CEQA.

VAU-4

See the first paragraph of the construction effects discussion for VAU-1 for a description of construction equipment, duration, and methodology. As discussed, vacant lands within NASA ARC east of Stevens Creek could be used for construction staging. Therefore, the staging area could be within VAU-4.

As described in Study Area Visual Assessment Units, above, views in VAU-4 beyond the levee consist of trees and large rectilinear, triangular, and dome-shaped buildings of NASA ARC; including the air intake for the NASA Ames Wind Tunnels (see Figure 4.1-5). The construction methodology and effects in VAU-4 would be the same as described for VAU-2 because the existing visual character in VAU-4 is similar to that of VAU-2.

These temporary construction effects would be minor adverse under NEPA and less than significant under CEQA.

VAU-5

See the first paragraph of the construction effects discussion for VAU-1 for a description of construction equipment, duration, and methodology. As discussed, equipment and material staging areas for the new construction could be located within the PG&E transmission line corridor west of Stevens Creek.

The existing visual character and construction effects in VAU-4 would be the same as described for VAU-1 and VAU-3 because the existing visual character in VAU-3 is the same as for VAU-1 and VAU-3.

These temporary construction effects would be minor adverse under NEPA and less than significant under CEQA.

VAU-6

See the first paragraph of the construction effects discussion for VAU-1 for a description of construction equipment, duration, and methodology. As discussed, vacant lands within NASA ARC east of Stevens Creek could be used for construction staging. Therefore, the staging area could be within VAU-6.

As described in Study Area Visual Assessment Units, above, views of NASA ARC buildings to the east beyond the east levee of Stevens Creek are completely screened from view by the riparian vegetation of Stevens Creek from VP-2 in VAU-6 (see Figure 4.1-7). The construction methodology and effects in VAU-6 would be the same as described for VAU-4 because the existing visual character beyond the levee in VAU-6 is almost identical to that of VAU-4.

These temporary construction effects would be minor adverse under NEPA and less than significant under CEQA.

Operational Effects

VAU-1

Figure 4.1-8 shows existing and simulated views looking north towards Crittenden Lane from VP-1. See Figure 4.1-1 for viewpoint locations. The required raising in place of the existing PG&E towers on the west side of Stevens Creek is represented in the visual simulation. As discussed in Study Area Visual Assessment Units, above, VAU-1 is the view to the northwest and west of VP-1; and low-sensitivity viewers in VAU-1 are employees of the A to Z Tree Nursery, business/industrial park, and Google campus to the west and northwest; and high-sensitivity viewers in VAU-1 are the Stevens Creek Trail users approaching from south of VP-1. In addition to viewers within VAU-1, NASA ARC employees may also be able to view changes in VAU-1. As discussed previously, NASA ARC employees are considered low-sensitivity users. Currently, VAU-1 displays low visual quality.

Stevens Creek Trail users in VAU-1 heading north would be exposed to views of the western end of the new Crittenden Lane Vehicular Bridge and the raised PG&E towers in VAU-1, and would also pass under the clear-span bridge as they head north past Crittenden Lane. Employees of the A to Z Tree Nursery, as well as some employees of the business/industrial park and Google campus to the west, are also likely to be able to view this portion of the bridge and the raised PG&E towers. As discussed in Chapter 3, Proposed Action and Alternatives, the existing Crittenden Lane Pedestrian Bridge would remain in place. The existing clusters of PG&E electrical towers are currently the visually dominant feature in VAU-1, and views of the A to Z Tree Nursery trailers and other large nursery equipment are also present in VAU-1. See Figure 4.1-2 for photos of the existing views from VP-1 in VAU-1.

High-sensitivity and low-sensitivity viewers in VAU-1 are accustomed to the existing, urban setting containing visually dominating PG&E towers and electricity lines and the A to Z Tree Nursery trailers and large nursery equipment, and as shown in Figure 4.1-8, the required raising of existing PG&E towers would not substantially alter existing views in VAU-1. Additionally, the proposed bridges would be similar to the existing bridges along the trail and creek and are therefore not new elements to the trail system. The bridges would be aesthetically designed and would be consistent with the existing urban visual quality of the area. Purple potable recycled water pipes (12–18 inches in diameter) would run under the bridge deck and would be covered by an architectural screen or a

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Figure 4.1-8
Stevens Creek Crossings Project Looking North at Crittenden Road Crossing from Viewpoint 1

housing for the pipe, to remove from the view of trail users passing under the bridge. Also, the bridge is likely to detract from the existing, unsightly PG&E towers, which would be a positive effect.

Therefore, this impact is considered minor adverse under NEPA and less than significant under CEQA.

VAU-2

See Figure 4.1-8 for existing and simulated views looking north towards Crittenden Lane from VP-1. See Figure 4.1-1 for viewpoint locations. As discussed in Study Area Visual Assessment Units, above, VAU-2 is the view to the northeast and east of VP-1. Low-sensitivity viewers in VAU-2 are employees of NASA ARC to the east; and high-sensitivity viewers in VAU-2 are the Stevens Creek trail users approaching from south of VP-1. In addition to viewers within VAU-2, at least some employees of the business/industrial park, Google campus, and A to Z Tree Nursery are also likely to be exposed to the changes in VAU-2. Currently, VAU-2 displays moderate visual quality.

Stevens Creek Trail users in VAU-2 heading north would be exposed to views of the main span over Stevens Creek and the western approach from the Bay View Area of NASA ARC of the new Crittenden Lane Vehicular Bridge and would also pass under the clear-span bridge as they head north past Crittenden Lane. Employees of the A to Z Tree Nursery, as well as some employees of the business/industrial park and Google campus to the west and NASA ARC to the east, are also likely to be able to view this portion of the bridge in VAU-2. As discussed in Chapter 3, Proposed Action and Alternatives, the existing Crittenden Lane Pedestrian Bridge would remain in place. The visually dominating features to the east are the rectilinear buildings and structures of NASA ARC. There are no visually dominating features to the northeast. See Figure 4.1-3 for photos of the existing views from VP-1 in VAU-2.

As discussed in the construction effects section above, high-sensitivity and low-sensitivity viewers in VAU-2 are accustomed to the existing, urban setting containing visually dominating PG&E towers and electricity lines and the large A to Z Tree Nursery equipment immediately west of VAU-2 in VAU-1, as well as PG&E towers and NASA ARC structures in the middleground to the northeast. Since the proposed Crittenden Lane Bridge would be a clear-span structure, it would not remove any of the riparian vegetation of Stevens Creek considered to be the key view in this area. Additionally, the proposed bridges would be similar to the existing bridges along the trail and creek and are therefore not new elements to the trail system. The bridges would be aesthetically designed and would be consistent with the existing urban visual quality of the area. Also, the bridge is likely to detract from the existing, unsightly PG&E towers in the area, which would be a positive effect.

Therefore, VAU-2 would not be reduced from moderate visual quality, and this impact is considered minor adverse under NEPA and less than significant under CEQA.

VAU-3

See Figure 4.1-9 for existing and simulated views looking south towards Charleston Road from VP-1. The required raising in place of the existing PG&E towers on the west side of Stevens Creek is represented in the visual simulation. See Figure 4.1-1 for viewpoint locations. As discussed in Study Area Visual Assessment Units, above, VAU-3 is the view to the southwest and west of VP-1. Low-sensitivity viewers in VAU-3 are employees of the business/industrial park and A to Z Tree Nursery to the west and southwest; and high-sensitivity viewers in VAU-3 are the Stevens Creek trail users approaching from north of VP-1. In addition to viewers within VAU-3, NASA ARC employees in VAU-

2 may also be able to view changes in VAU-3. As discussed previously, NASA ARC employees are considered low-sensitivity users. Currently, VAU-3 displays low visual quality.

Stevens Creek Trail users in VAU-3 heading south would be exposed to views of the western end of the new Charleston Road Bridges and the raised PG&E towers in VAU-3, and would also pass under the clear-span bridge as they head south past Charleston Road. Employees of the A to Z Tree Nursery, as well as some employees of the business/industrial park to the west and southwest and some employees of NASA ARC to the east, are also likely to be able to view this portion of the bridge and the raised PG&E towers. The existing clusters of PG&E electrical towers are currently the visually dominant feature in VAU-3, and views of the A to Z Tree Nursery trailers and other large nursery equipment are also present in VAU-3. See Figure 4.1-4 for photos of the existing views from VP-1 in VAU-3.

High-sensitivity and low-sensitivity viewers in and of VAU-3 are accustomed to the existing, urban setting containing visually dominating PG&E towers and electricity lines and the A to Z Tree Nursery trailers and large nursery equipment. Also, the Santa Cruz Mountains to the south and southwest would still remain visible with the addition of the bridges. As discussed in Study Area Visual Assessment Units, above, the existing view of the Santa Cruz Mountains to the south and southwest is already skewed by the existing PG&E towers. Also, as shown in Figure 4.1-9, the required raising of existing PG&E towers would not substantially alter existing views in VAU-3. Additionally, the proposed bridges would be similar to the existing bridges along the trail and creek and are therefore not new elements to the trail system. The bridges would be aesthetically designed and would be consistent with the existing urban visual quality of the area, and the proposed Charleston Road Bridges are likely to detract from the existing, unsightly PG&E towers, which would be a positive effect.

Therefore, this impact is considered minor adverse under NEPA and less than significant under CEQA.

VAU-4

See Figure 4.1-9 for existing and simulated views looking south towards Charleston Road from VP-1. See Figure 4.1-1 for viewpoint locations. As discussed in Study Area Visual Assessment Units, above, VAU-4 is the view to the southeast and east of VP-1. Low-sensitivity viewers in VAU-4 are employees of NASA ARC to the east and southeast, and high-sensitivity viewers in VAU-4 are the Stevens Creek Trail users approaching from north of VP-1. In addition to viewers within VAU-4, employees of the A to Z Tree Nursery to the west and southwest and at least some employees of the business/industrial park to the west and southwest are also likely to be exposed to the changes in VAU-4. Currently, VAU-4 displays moderate visual quality.

Stevens Creek Trail users in VAU-4 heading south would be exposed to views of the main span over Stevens Creek and the western approach from the Bay View Area of NASA ARC of the new Charleston Road Bridges. The Stevens Creek Trail users and would also pass under the clear-span bridge as they head south past Charleston Road. Employees of the A to Z Tree Nursery, as well as some employees of the business/industrial park and Google campus to the west and NASA ARC to the east, are also likely to be able to view the portion of the bridge in VAU-4. The visually dominating features to the east and southeast are the large rectilinear, triangular, and dome-shaped buildings of NASA ARC. See Figure 4.1-5 for photos of the existing views from VP-1 in VAU-4.

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Figure 4.1-9
Stevens Creek Crossings Project Looking South at Charleston Road Crossing from Viewpoint 1

High-sensitivity and low-sensitivity viewers in VAU-4 are accustomed to the existing, urban setting containing visually dominating PG&E towers and electricity lines and the large A to Z Tree Nursery equipment immediately west of VAU-4 in VAU-3, as well as the large NASA ARC structures to the east and southeast. Since the proposed Crittenden Lane Bridge would be a clear-span structure, it would not remove any of the riparian vegetation of Stevens Creek considered to be a key view in this area, which would also help to screen the eastern half of the proposed bridges. In addition, as shown in Figure 4.1-9, construction of the Charleston Road Bridges would not detract from the existing, urban setting of NASA ARC to the east and south east and would not skew the view of NASA ARC structures. Additionally, the proposed bridges would be similar to the existing bridges along the trail and creek and are therefore not new elements to the trail system. The bridges would be aesthetically designed and would be consistent with the existing urban visual quality of the area. Also, the bridge is likely to detract from the existing, unsightly PG&E towers in the area, which would be a positive effect.

Therefore, construction of the Charleston Road Bridges would not reduce the currently moderate visual quality of VAU-4, and this impact is considered minor adverse under NEPA and less than significant under CEQA.

VAU-5

See Figure 4.1-10 for existing and simulated views looking north towards both the proposed Charleston Road Bridge and Charleston Road Pedestrian Bridge in the foreground and the proposed Crittenden Lane Bridge from VP-2. The required raising in place of the existing PG&E towers on the west side of Stevens Creek is represented in the visual simulation. See Figure 4.1-1 for viewpoint locations. As discussed in Study Area Visual Assessment Units, above, VAU-5 is the view to the northwest and west of VP-2. Low-sensitivity viewers in VAU-5 are employees of the business/industrial park and A to Z Tree Nursery to the west and northwest; and high-sensitivity viewers in VAU-5 are the Stevens Creek trail users approaching from south of VP-2. In addition, although not in the range of VAU-5, residents of the Santiago Villa Mobile Home Park south of the A to Z Tree Nursery may be able to view changes in VAU-5, and NASA ARC employees in VAU-4 and VAU-6 may also be able to view changes in VAU-5. Santiago Villa Mobile Home Park residents are considered high-sensitivity viewers, and NASA ARC employees are considered low-sensitivity users. Currently, VAU-5 displays low visual quality.

Stevens Creek Trail users in VAU-5 heading north would be exposed to views of the western end of the new Charleston Road Bridges and the raised PG&E towers in VAU-5 and would also pass under the clear-span Charleston Road Bridge as they head north past Charleston Road. As discussed in Chapter 3, Proposed Action and Alternatives, the proposed Charleston Road Pedestrian Bridge would be constructed from levee top to levee top, so Stevens Creek Trail users would not pass under this bridge. In addition, residents of the Santiago Mobile Home Park would likely be able to view this portion of the bridge and the raised PG&E towers. Because residents are considered highly sensitive viewers due to the frequency and duration they are exposed to views, additional photos were taken from areas of the Santiago Villa Mobile Home Park where the Proposed Project may be visible to determine the existing views towards the Proposed Project site from this residential area (Figure 4.1-11). As shown in Figure 4.1-11, the existing PG&E electricity towers are visually dominant from the mobile home park. Employees of the A to Z Tree Nursery, as well as some employees of the business/industrial park to the west and northwest and some employees of NASA ARC to the east, are also likely to be able to view this portion of the bridge and the raised PG&E towers. The existing

clusters of PG&E electricity towers and A to Z Tree Nursery trailers are currently the visually dominant features in VAU-5. See Figure 4.1-6 for photos of the existing views from VP-2 in VAU-5.

As described and shown in Figures 4.1-6, 4.1-10, and 4.1-11, high-sensitivity and low-sensitivity viewers in and around VAU-5 are accustomed to the existing, urban setting containing visually dominating PG&E towers and A to Z Tree Nursery trailers and equipment. Also, as shown in Figure 4.1-10, the required raising of existing PG&E towers would not substantially alter existing views in VAU-5. Additionally, the proposed bridges would be similar to the existing bridges along the trail and creek and are therefore not new elements to the trail system. The bridges would be aesthetically designed and would be consistent with the existing urban visual quality of the area, and the proposed Charleston Road Bridges are likely to detract from the existing, unsightly PG&E towers, which would be a positive effect.

Therefore, this impact is considered minor adverse under NEPA and less than significant under CEQA.

VAU-6

See Figure 4.1-10 for existing and simulated views looking north towards Charleston Road from VP-2. See Figure 4.1-1 for viewpoint locations. As discussed in Study Area Visual Assessment Units, above, VAU-6 is the view to the northeast and east of VP-2. Low-sensitivity viewers in VAU-6 are employees of NASA ARC to the east and northeast, and high-sensitivity viewers in VAU-4 are the Stevens Creek trail users approaching from south of VP-2. In addition to viewers within VAU-6, residents of the Santiago Villa Mobile Home Park south of the A to Z Tree Nursery and employees of the A to Z Tree Nursery and at least some employees of the business/industrial park to the west and northwest are also likely to be exposed to the changes in VAU-6. Currently, VAU-6 displays low visual quality.

Stevens Creek Trail users in VAU-6 heading north would be exposed to views of the main span over Stevens Creek and possibly the western approach from the Bay View area of NASA ARC of the new Charleston Road Bridges and would also pass under the clear-span bridge as they head north past Charleston Road. As discussed in Chapter 3, Proposed Action and Alternatives, the proposed Charleston Road Pedestrian Bridge would be constructed from levee top to levee top, so Stevens Creek Trail users would not pass under this bridge. In addition, the main span of the bridge a portion of the bridge deck would be visible to residents of the Santiago Mobile Home Park. Since residents are considered highly sensitive viewers due to the frequency and duration they are exposed to views, additional photos were taken from areas of the Santiago Villa Mobile Home Park where the Proposed Project may be visible to determine the existing views towards the Proposed Project site from this residential area (Figure 4.1-11). As shown in Figure 4.1-11, the existing PG&E electricity towers and the air intake for one of the NASA Ames Wind Tunnels is visually dominant from the Santiago Villa Mobile Home Park. Employees of the A to Z Tree Nursery and some employees of the business/industrial park to the west and northwest and NASA ARC to the east, are also likely to be able to view the portion of the bridge in VAU-6. The visually dominating feature to the east from VP-2 in VAU-6 is the riparian vegetation in the Stevens Creek corridor. There are not visually dominating features to the northeast. See Figure 4.1-7 for photos of the existing views from VP-2 in VAU-6.

High-sensitivity and low-sensitivity viewers in VAU-6 are accustomed to the existing, urban setting containing visually dominating PG&E towers and electricity lines and the large A to Z Tree Nursery

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Figure 4.1-10
Stevens Creek Crossings Project Looking North at Charleston Road Crossing from Viewpoint 2

1. Looking east from northeastern end of parking lot.

2. Looking northeast toward Project area from garden area behind office.

3. Looking northeast toward Project area from parking area in front of office.

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Figure 4.1-11
Stevens Creek Crossings Project Views from Santiago Villa Mobile Home Park

equipment immediately west of VAU-6 in VAU-5, as well as power lines running over the riparian vegetation to the east and the large PG&E towers visible in the middleground to the northeast. Since the proposed Charleston Road Bridge would be a clear-span structure, it would not remove any of the riparian vegetation of Stevens Creek considered to be a key view in this area, which would also help to screen the eastern half of the proposed bridges. Additionally, the proposed bridges would be similar to the existing bridges along the trail and creek and are therefore not new elements to the trail system. The bridges would be aesthetically designed and would be consistent with the existing urban visual quality of the area. Also, the bridge is likely to detract from the existing, unsightly PG&E towers in the area, which would be a positive effect.

Therefore, this impact is considered minor adverse under NEPA and less than significant under CEQA.

4.1.3.5 One Bridge/Two Lane Alternative—Crittenden Option

As under the Proposed Project, high-sensitivity and low-sensitivity viewers in all of the VAUs are accustomed to the existing urban setting in the Proposed Project area. Visually dominating PG&E towers and electricity lines and the large A to Z Tree Nursery equipment are present immediately west of VP-1. In addition, there are power lines running over the riparian vegetation to the east, and there are large PG&E towers visible in the middleground to the northeast of the Proposed Project site. In comparison to the Proposed Project, there would be no new bridge introduced within VAU-3 and VAU-4, resulting in no effect for these two VAU's. The effect on the views in VAU-5 and VAU-6 would be lessened in comparison to the Proposed Project without the proposed Charleston Road crossing but would still be considered minor adverse. Effects in VAU-1 and VAU-2 would be identical to the minor adverse effects that occur under the Proposed Project.

4.1.3.6 No-Action Alternative

Under the No-Action Alternative, the Bay View Area would be developed as authorized under NADP PEIS and there would be no new adverse effects on visual resources.

4.2 Agricultural and Forestry Resources

This section describes existing conditions of agricultural resources at the Proposed Project site, summarizes applicable regulations and policies, and analyzes potential impacts on agricultural and forestry resources that could result from implementation of the Proposed Project.

4.2.1 Affected Environment

4.2.1.1 Study Area

The study area for agricultural and forestry resources is the Proposed Project site and surrounding land uses.

4.2.1.2 Project Setting

According to the California Department of Conservation Santa Clara Important Farmland 2010 Map (California Department of Conservation 2011), the Proposed Project site and adjacent lands are designated as Urban and Built-Up Land and Other Land. The Proposed Project site does not contain Prime Farmlands, Unique Farmland, or Farmlands of Statewide Importance.

The Proposed Project area to the west of Stevens Creek, including the proposed termini of the Charleston Road Bridge, is zoned A, Agriculture by the Mountain View zoning map. The total area zoned as Agriculture is an approximately 10 acre narrow strip along the west side of Stevens Creek and is not currently used for agricultural production. The General Plan land use designation of this area is Regional Park. This sliver of land is bounded to the west by land zoned for Planned Community/Precise Plan (P[3]—North Shoreline Boulevard) and Floodplain (F). The strip is bound to the east by Stevens Creek and Public Facility (PF) zoned land, to the north by Crittenden Lane and land zoned as Public Facility (PF) and Planned Community/Precise Plan (P(34)—North Bayshore), and to the south by land zoned as Mobile Home (MBH) and Public Facility (PF). Figure 4.2-1 shows the zoning of the Proposed Project site and surrounding lands.

Currently no agricultural uses are present on this land even though the land is zoned such. This land is covered by overhead PG&E transmission lines and subleased to a nursery (A to Z Tree Nursery). The nursery sells potted plants and trees but does not grow the plants on land and no structures are present.

This area is also used for overflow parking for the Shoreline Amphitheater and contains the Stevens Creek Trail.

The Proposed Project site is not under a Williamson Act contract.

According to the Department of Forestry and Fire Protection (2003), the land cover on the Proposed Project site is Urban. There is no land zoned as forest or timberland in the City of Mountain View.

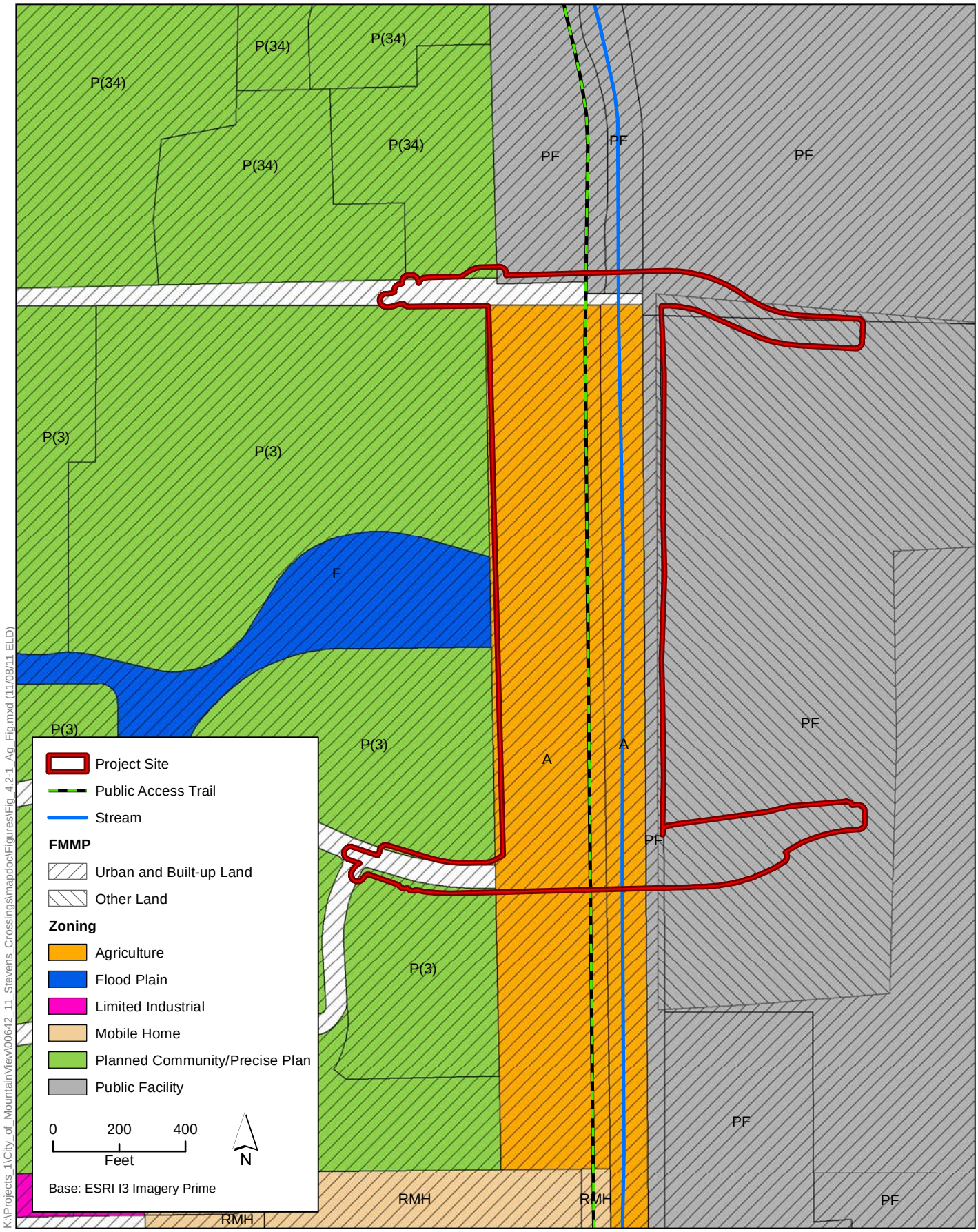


Figure 4.2-1
Agricultural Land Uses

4.2.2 Regulatory Setting

4.2.2.1 Federal

Federal Farmland Protection Policy Act

The Farmland Protection Policy Act (FPPA) of 1984 requires federal agencies to consider how their activities or responsibilities may affect farmland, in particular financing or assisting construction of improvement projects and acquiring, managing, or disposing of federal land and facilities. To comply with the provisions of the FPPA, the federal agency responsible for NEPA compliance must consult with the Department of Agriculture's Natural Resources Conservation Service (NRCS) and complete a Land Evaluation and Site Assessment (LESA) for each affected site or area. The Federal Lead Agency is also responsible for coordinating completion of the Farmland Conversion Impact Rating Form (Form AD-1006) with the NRCS as part of the LESA process.

LESA is a point-based approach that rates the relative importance of agricultural land resources based on specific measurable factors (California Department of Conservation 2004). Under the LESA system, proposed project sites receive scores based on several criteria, including soil quality and existing land use. The resulting score is an indicator of the quantitative impact that the proposed action or program may have on important farmland. The lead federal agency may consider this information when deciding on implementation or modification of certain actions or programs.

4.2.2.2 State

Farmland Mapping and Monitoring Program

The California Department of Conservation's (CDOC's) Farmland Mapping and Monitoring Program (FMMP), administered by the Division of Land Resource Conservation, is responsible for mapping and monitoring Important Farmlands for most of the state's agricultural areas. The FMMP updates its farmland maps every 2 years based on information from local agencies. FMMP maps show five categories of agricultural lands and three categories of nonagricultural lands, described in the following sections.

Agricultural Lands

Following are descriptions of the farmland mapping categories used by the state's FMMP. The minimum mapping unit for all agricultural land categories except Grazing Land is 10 acres. The minimum mapping unit for Grazing Land is 40 acres.

Note that Prime Farmland, Farmland of Statewide Importance, and Unique Farmland are the most suitable for agriculture and are considered especially important agricultural resources. They are often referred to collectively as important farmland. Grazing Land may also qualify as important farmland where grazing is a key component of the local economy.

- Farmland of Statewide Importance is defined by the state as "irrigated land similar to Prime Farmland that has a good combination of physical and chemical characteristics for the production of agricultural crops." However, this land has minor shortcomings, such as steeper slopes or less ability to store soil moisture than Prime Farmland. In order for land to be

designated as Farmland of Statewide Importance, it must have been used for production of irrigated crops at some time during the 4 years prior to the mapping date.

- Unique Farmland is considered to consist of lower-quality soils but nonetheless is used for production of the state's leading agricultural crops. Unique Farmland is usually irrigated, but may include non-irrigated orchards or vineyards in some climatic zones in California. To qualify for this designation, land must have been used for crops at some time during the four years prior to the mapping date.
- Farmland of Local Importance is land identified as important to the local agricultural economy by each county's board of supervisors and a local advisory committee.
- Grazing Land is land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, the University of California Cooperative Extension, and other groups interested in the extent of grazing activities.

Nonagricultural Lands

Following are descriptions of the nonagricultural land mapping categories used by the FMMP. Mapping units for nonagricultural lands vary, as described below.

- Urban and Built-Up Lands consist of land occupied by structures with a building density of at least 1 structure to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This type of land is used for residential, industrial, commercial, construction, institutional, and public administration purposes; railroad and other transportation yards; cemeteries; airports; golf courses; sanitary landfills; sewage treatment facilities; water control structures; and other developed purposes.
- Other Land is land not included in any other mapping category. Examples include low-density rural developments and brush, timber, wetland, and riparian areas not suitable for livestock grazing. This category also includes vacant and nonagricultural land surrounded on all sides by urban development; confined livestock, poultry, or aquaculture facilities; strip mines; borrow pits; and water bodies smaller than 40 acres.
- Water includes perennial water bodies with an extent of at least 40 acres.

California Land Conservation Act (Williamson Act)

The California Land Conservation Act (Williamson Act) is one of the state's primary mechanisms for conserving farmland. The Williamson Act enables counties and cities to designate agricultural preserves (Williamson Act lands) and to offer preferential taxation to private agricultural landowners based on the income-producing value of their property in agricultural use, rather than on the property's assessed market value. In return for the preferential tax rate, the landowner is required to sign a contract with the county or city agreeing not to develop the land for a minimum 10-year period. Contracts are automatically renewed annually unless a party to the contract files for nonrenewal or petitions for cancellation. If the landowner chooses not to renew the contract, it expires at the end of its duration. Under certain circumstances, a county or city may approve a request for cancellation of a Williamson Act contract. Cancellation requires private landowners to pay back taxes and cancellation fees.

Each city and county has the discretion to determine which land uses are compatible with Williamson Act contracts within their jurisdiction, provided these uses are not prohibited under the Act.

4.2.2.3 Local

The City of Mountain View Zoning Ordinance Chapter 36, Article III describes the regulations for each of the City's zoning districts. The appropriate regulations pertaining to the Agriculture district are listed below.

Section 36.8—Agricultural district or "A" district.

Purpose. To preserve lands best suited for agricultural use from the encroachment of incompatible uses, and to preserve in agricultural use land suited to eventual development in other uses, pending proper timing for the economical provision of utilities, major streets and other facilities, so that compact, orderly development will occur.

Section 36.8.1—Principal permitted uses.

(a) Agriculture, except those specified in http://library.municode.com/HTML/16508/level3/PTIITHCO_CH36ZO_ARTIIIDIRE.html

(b) Ranch and farm dwellings appurtenant to a principal agricultural use.

(c) Public parks and recreation areas.

(d) Single-family residence.

Section 36.8.2—Accessory uses.

(a) Living quarters of persons regularly employed on the premises but not including labor camps and labor dwellings, accommodations or areas for transient labor.

(b) Guest houses, not rented or otherwise conducted as a business.

(c) Customary incidental home occupations, when conducted in a dwelling, subject to the provisions of Section A36.42.100.

(d) Offices incidental and necessary to the conduct of a permitted use.

(e) Other accessory uses and buildings customarily appurtenant to a permitted use.

(f) Roadside stand not exceeding four hundred (400) square feet in floor area, and not over twenty (20) lineal feet on any side, exclusively for the sale of agricultural products grown on the premises.

(g) Child-care centers as an accessory use in a church.

4.2.3 Effects

4.2.3.1 Criteria for Determination of Adverse Effect

Criteria for determining the effect of the Proposed Project on visual resources were based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 et seq.).

An effect on agricultural resources was considered adverse if construction or operation of the Proposed Project would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use.

- Conflict with existing zoning for agricultural use, or a Williamson Act contact.
- Conflict with existing zoning of forest land or timberland or result in the conversion of forest land to non-forest use.

4.2.3.2 Sources and Methods

Identifying a project area's agricultural resources involves a review of the Mountain View Zoning Map and zoning ordinance, the Santa Clara County Important Farmland 2010 map, and the Department of Forestry and Fire Protection 2003 Land Cover map.

4.2.3.3 Project Effects

Effect AG-1	The Proposed Project would not convert farmland to a non-agricultural use.
Level of Effect	This is considered to have no effect under NEPA and no impact under CEQA.

Discussion

As described in the project setting, the Proposed Project site and adjacent lands are designated as Urban and Built-Up Land and Other Land (these designations are defined in Section 4.2.2.2). The Proposed Project would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. No impact would occur.

Effect AG-2	The Proposed Project would not conflict with existing zoning for agricultural use or conflict with a Williamson Act contract.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

As discussed in the project setting, the Proposed Project area on the west side of Stevens Creek, including the proposed termini of the Charleston Road bridges, is zoned A, Agriculture. According to the Mountain View City Code, in addition to preserving land for agricultural use, the purpose of the Agricultural district is "to preserve in agricultural use land suited to eventual development in other uses…" (Section 36.8). The Proposed Project would include improvements to the existing Charleston Road bridge and include the construction of an additional bridge at Charleston Road for pedestrians and bicyclists to connect to the existing Stevens Creek Trail, a permitted use located within this zoning district (Section 36.8.1(c)). Section 36.8.2(e) of the City Code allows accessory uses customarily appurtenant to a permitted use. As the Proposed Project would provide a lateral recreationist connection to the Stevens Creek Trail, where one never existed, the Proposed Project would be a permitted accessory use within the Agricultural zoning district.

Therefore, the Proposed Project would not conflict with the existing agricultural zoning of the Proposed Project area, and impacts would be less than significant.

As discussed in the project setting, the Proposed Project site is not under a Williamson Act contract. Therefore, no impact regarding a conflict with a Williamson Act contract would occur.

Effect AG-3	The Proposed Project would not conflict with existing zoning of forest land or timberland or result in the conversion of forest land to non-forest use.
Level of Effect	This is considered to have no effect under NEPA and no impact under CEQA.

Discussion

The Proposed Project site is not zoned for forest or timberland use and does not contain any forest land. Therefore, the Proposed Project would not conflict with existing zoning for forest land or timberland and would not result in the conversion of forest land to non-forest use.

No impact would occur.

4.2.3.4 One Bridge/Two Lane Alternative—Crittenden Option

As the Crittenden Lane One Bridge alternative would avoid the area to the west of Stevens Creek that is zoned Agriculture by the City of Mountain View zoning map, potential effects under this Alternative would be less than those of the Proposed Project, albeit not in any appreciable manner since the Proposed Project's effects are insignificant themselves.

4.2.3.5 No-Action Alternative

Under the No-Action Alternative the Proposed Project would not be constructed and there would be no new effects on agricultural resources.

4.3 Air Quality

This section describes existing conditions of air quality at the Proposed Project site, summarizes applicable regulations and policies, and analyzes potential short-term construction and long-term operational impacts on air quality that could result from implementation of the Proposed Project.

4.3.1 Affected Environment

4.3.1.1 Climate

The Proposed Project is located in the Santa Clara County within the San Francisco Bay Area Air Basin (SFBAAB). Climate within the SFBAAB is characterized by moderately wet winters and dry summers. Climate in the southwest portion of Santa Clara County, which encompasses the Proposed Project area, is affected by marine air flow and the County's close proximity to the San Francisco Bay. Bay breezes push air onshore during the daytime and draw air from the land offshore at night. During the summer months, the Bay helps to cool the warm onshore flows, while during the winter months, it warms the air. This mediating effect keeps temperatures relatively consistent throughout the year. However, the Bay wind patterns can concentrate and carry pollutants from other cities to the area, adding to the locally emitted pollutant mix (Bay Area Air Quality Management District 2011a).

4.3.1.2 Overview of Pollutants

The air quality management agencies of direct importance in the Proposed Project area are the U.S. Environmental Protection Agency (EPA), the California Air Resources Board (ARB), and BAAQMD. The EPA and ARB have established national ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS), respectively, for the following six criteria pollutants: carbon monoxide (CO); nitrogen dioxide (NO_2); sulfur dioxide (SO_2); ozone (O_3); lead; and particulate matter (PM), including PM less than 10 microns in diameter (PM10) and PM less than 2.5 microns in diameter (PM2.5). Ozone and NO2 are considered to be regional pollutants, as these pollutants affect air quality on a regional scale. Pollutants such as CO, SO_2, and lead are considered to be local pollutants. PM is considered both a regional and a local pollutant.

The pollutants of concern in the Santa Clara County are ozone and PM. The following discussion describes these criteria pollutants. Toxic air contaminants (TACs) are also discussed, although there are no established federal or state standards for these pollutants.

Ozone is a nearly colorless, odorless gas that irritates the lungs and damages materials and vegetation. Ozone is not emitted directly into the air, but is formed by a photochemical reaction in the atmosphere. Ozone precursors, which include reactive organic gases (ROG) and nitrogen oxides (NOx), react in the atmosphere in the presence of sunlight to form ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. ROG and NOx are emitted by mobile sources and by stationary combustion equipment.

CO is a highly toxic, odorless, colorless gas that binds to hemoglobin in the bloodstream in the place of oxygen molecules. By reducing the oxygen-carrying potential of blood, CO causes heart difficulties

in people with chronic diseases, reduces lung capacity, impairs mental functioning by interfering with the transfer of oxygen to the brain, and may aggravate arteriosclerosis. Motor vehicles are the dominant source of CO emissions in most areas. High CO levels 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.

Particulate matter refers to finely divided solids or liquids such as soot, dust, aerosols, and mists. Suspended particulates aggravate chronic heart and lung disease problems, produce respiratory problems, and often transport toxic elements. Suspended particulates also absorb sunlight, producing haze and reducing visibility. PM is caused primarily by dust from grading and excavation activities, from agricultural uses, and from motor vehicles, particularly diesel-powered vehicles. PM10 causes a greater health risk than larger particles, since these fine particles can more easily penetrate the defenses of the human respiratory system.

PM2.5, like PM10, is primarily generated by combustion in motor vehicles, particularly diesel engines, as well as by industrial sources and residential/agricultural activities such as burning. It is also formed through the reaction of other pollutants. Like PM10, these particulates can increase the chance of respiratory disease and can cause lung damage and cancer.

Toxic air contaminants are pollutants that may result in an increase in mortality or serious illness, or that may pose a present or potential hazard to human health. Health effects of TACs include cancer, birth defects, neurological damage, damage to the body's natural defense system, and diseases that lead to death. In 1998, following a 10-year scientific assessment process, ARB identified PM from diesel-fueled engines as a TAC. Compared to other air toxics ARB has identified, diesel particulate matter (DPM) emissions are estimated to be responsible for about 70% of the total ambient air toxics risk (California Air Resources Board 2000).

4.3.1.3 Local Air Quality

The existing air quality conditions in the Proposed Project area are characterized by monitoring data collected by BAAQMD in Santa Clara County, which are used to designate areas as non-attainment, maintenance, attainment, or unclassified for the NAAQS and CAAQS. The four designations are further defined as follows.

- Non-attainment: Assigned to areas where monitored pollutant concentrations consistently violate the standard in question.
- Maintenance: Assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past, but are no longer in violation of that standard.
- Attainment: Assigned to areas where pollutant concentrations meet the standard in question over a designated period of time.
- Unclassified: Assigned to areas where data are insufficient to determine whether a pollutant is violating the standard in question.

Table 4.3-1 summarizes the attainment status of Santa Clara County with regard to the NAAQS and CAAQS.

Table 4.3-1. Santa Clara County Attainment Status

Pollutants	Federal Classification	State Classification
1-hour Ozone	--	Non-attainment, Serious
8-hour Ozone	Non-attainment, Marginal	Non-attainment
PM10	Attainment	Non-attainment
PM2.5	Non-attainment	Non-attainment
CO	Maintenance	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
Lead	Attainment	Attainment
Source: Environmental Protection Agency 2011 and California Air Resources Board 2011a.		

4.3.1.4 Sensitive Receptors

The BAAQMD defines sensitive receptors as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples include schools, hospitals, and residential areas. (Bay Area Air Quality Management District 2011a)

The land surrounding the Proposed Project site is primarily used for offices with the Santiago Villa Mobile Home Park located approximately 800 feet south of the proposed Charleston Road bridges. The Stevens Creek Trail is directly underneath the proposed bridges. However, based on the BAAQMD's definition of sensitive receptors, pedestrians and cyclists using the trail are not considered a sensitive receptor. Furthermore, the potential pedestrians and cyclists would be near the Proposed Project sites for short durations and infrequently, minimizing exposure to potential pollutant concentrations.

4.3.2 Regulatory Setting

4.3.2.1 Federal

Clean Air Act

The Federal Clean Air Act (CAA) establishes EPA's responsibilities to protect and improve the nation's air quality. EPA oversees the implementation of federal programs for setting air quality standards, permitting new and modified stationary sources, controlling toxic air contaminants, and reducing emissions from motor vehicles and other mobile sources. EPA also requires that each state prepare and submit a state implementation plan (SIP) that consists of background information, rules, technical documentation, and agreements that an individual state will use to attain compliance with the NAAQS within federally-imposed deadlines. State and local agencies implement the plans and rules associated with the SIP, but the rules are also federally enforceable.

General Conformity

EPA enacted the Federal General Conformity regulation (40 CFR Parts 5, 51, and 93) in 1993. The General Conformity rule applies to Federal actions located in non-attainment or maintenance areas

that do not include stationary industrial sources requiring preconstruction air quality permits from local air pollution control agencies. It only applies to direct and indirect emissions associated with the portions of any Federal action for which a Federal permitting agency has the authority to impose emission reductions. The purpose is to ensure that Federal actions do not generate emissions that interfere with state and local agencies' SIPs and emission-reduction strategies.

Santa Clara County is designated as a marginal non-attainment area for ozone NAAQS, a non-attainment area for PM2.5 NAAQS, and a maintenance area for CO NAAQS (Table 4.3-1). Based on those designations, the General Conformity *de minimis* thresholds are:

- 100 tons/year of ROG.
- 100 tons/year of NO_x.
- 100 tons/year of PM2.5.
- 100 tons/year of CO.

If the annual emissions exceed the applicability thresholds, then the applicant must consult with the BAAQMD to confirm that the county-wide emission budget prepared for the SIP included the general types of activity proposed by the applicant.

4.3.2.2 State

The California Clean Air Act (CCAA) establishes a statewide air pollution control program for California. ARB is the primary administrator of the CCAA. ARB's main responsibilities are to develop, adopt, implement, and enforce the state's motor vehicle pollution control program; administer and coordinate the state's air pollution research program; adopt and update the CAAQS; review the operations of the local air pollution control districts; and review and coordinate the state's SIP for achieving NAAQS.

4.3.2.3 Local

ARB divides into 15 air basins based on geographic and meteorological features. One or more local air districts administer air quality management within each basin. These air districts develop local air quality/pollutant regulations and prepare air quality plans that set goals and measures for achieving attainment with ambient air quality standards. The districts also develop emission inventories, collect air monitoring data, and perform dispersion modeling simulations to establish strategies to reduce emissions and improve air quality. Local air regulations and air quality plans include measures to reduce air pollutant emissions from industrial facilities, commercial processes, motor vehicles, and other sources.

BAAQMD has adopted SIPs to prevent air quality impacts from ozone, as well as several rules and regulations to reduce emissions throughout the air district. The Proposed Project might be subject to the following district rules.

- BAAQMD Regulation 6, Rule 1—General Requirements. This rule limits no more than three minutes in any hour a visible emission which is dark or darker than No. 1 on the Ringlemann chart.

- BAAQMD Regulation 9, Rule 8—Stationary Internal Combustion Engines. This rule limits emissions of NO_x and CO from stationary internal combustion engines of more than 50 horsepower.

Failure to comply with any applicable district rule would be a violation subject to district enforcement action.

As part of an effort to attain and maintain ambient air quality standards for ozone, PM2.5, and PM10, the BAAQMD has also established thresholds of significance for these air pollutants and their precursors (ROG and NO_x). These thresholds for ROG, NO_x, PM10, and PM2.5 apply to both construction-period and operational-period impacts (Table 4.3-2).

Table 4.3-2. BAAQMD Project-Level Thresholds of Significance

Pollutant	Construction	Operations
ROG	54 lbs/day	54 lbs/day or 10 tons/year
NO_x	54 lbs/day	54 lbs/day or 10 tons/year
CO	–	Violation of CAAQS
PM10 (total)	–	-
PM10 (exhaust)	82 lbs/day	82 lbs/day or 15 tons/year
PM2.5 (exhaust)	54 lbs/day	54 lbs/day or 10 tons/year
PM10 /PM2.5 (fugitive dust)	Best Management Practices (BMPs)	-
TACs (project-level)	Increased cancer risk of 10 in 1 million; increased non-cancer risk of greater than 1.0 (hazard index [HI]); PM2.5 increase of greater than 0.3 micrograms per cubic meter	Same as construction
TACs (cumulative)	Increased cancer risk of 100 in 1 million; increased non-cancer risk of greater than 10.0; PM2.5 increase of greater than 0.8 microgram per cubic meter at receptors within 1,000 feet	Same as construction
Odors	–	Five complaints per year averaged over three years

Source: Bay Area Air Quality Management District 2011a.

4.3.3 Effects

4.3.3.1 Criteria for Determination of Adverse Effect

Criteria for determining the effect of the Proposed Project on air quality were based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 et seq.).

An effect on air quality was considered adverse if construction or operation of the Proposed Project would:

- conflict with or obstruct implementation of the applicable air quality plan;
- .violate any air quality standards or contribute substantially to an existing or projected air quality violation;

- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard;
- expose sensitive receptors to substantial pollutant concentrations, or
- create objectionable odors affecting a substantial number of people.

The State CEQA Guidelines further state that the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make the determinations above. The BAAQMD's thresholds identified in Table 4.3-2 were used to identify impacts associated with the Proposed Project.

4.3.3.2 Sources and Methods

As discussed in Chapter 2, Project Purpose and Scope, and Section 4.11, Transportation, the Proposed Project would not result in any net increase in traffic volumes on roadway system in the Proposed Project vicinity. Furthermore, with the Proposed Project, the Google shuttles would use the crossings on Charleston Road and Crittenden Lane to access the Bay View Area from the North Bayshore campus, instead of routing through already congested Highway 101 and local streets south of Highway 101. Therefore, the Proposed Project would be expected to reduce the travel distance and travel time of the shuttles, which would also reduce the tailpipe emissions generated from the shuttle operation. Consequently, the operation of the Proposed Project would not result in any adverse effect under NEPA and would not result in a significant impact under CEQA on air quality. The assessment focuses on evaluating the air quality impacts from the construction activities.

Project construction would begin in January 2013 and complete in October 2014. This timeframe accounts for weather constructions, seasonal restrictions, and anticipated permitting requirements. It is assumed that bridges on Charleston Road and Charleston Lane would be constructed one after another. Construction of the vehicle and pedestrian bridges on Charleston Road would take approximately 10 months and construction of the vehicle bridge on Charleston Lane would take approximately 8 months. The construction emissions generated from hauling trips (on-road heavy-duty vehicle trips), worker commute trips, construction site fugitive PM10 and PM2.5 dust, and off-road construction equipment were estimated using the Road Construction Emission Model (RCEM) developed by the Sacramento Metropolitan Air Quality Management District (Sacramento Metropolitan Air Quality Management District 2009), as shown in Appendix D. The RCEM estimates construction equipment and duration for each phase based on project size, overall construction time, and level of daily construction activities. Although exhaust emissions are estimated for each activity, fugitive dust estimates are currently limited to major dust-generating activities, which include grubbing/land clearing and grading/excavation. The load factors for construction equipment included in the RECM is updated to reflect the values presented the 2011 Carl Moyer Guidelines, which are based on ARB's most recently released load factor data (California Air Resources Board 2011b).

For the Proposed Project, it was assumed that construction activities would occur for 8 hours per day and 22 days per month. The length for each bridge crossing was assumed to be 0.3 mile, with a total acreage of 3.3 acres and a maximum of 0.5 acre disturbed per day.

4.3.3.3 Project Effects

Effect AIR-1	Conflict with or obstruct implementation of the applicable air quality plan.
Level of Effect	No adverse effect under NEPA and no impact under CEQA.

Discussion

A project is deemed inconsistent with air quality plans if it would result in population and/or employment growth that exceeds growth estimates included in the applicable air quality plan, which, in turn, would generate emissions not accounted for in the applicable air quality plan emissions budget.

The most recent clean air plan is the Bay Area 2010 Clean Air Plan that was adopted by the BAAQMD in September 2010. The Proposed Project would not conflict with the latest clean air planning efforts because it would have emissions well below the BAAQMD thresholds and General Conformity thresholds and would not induce population or employment growth. The Proposed Project is a roadway project that, once complete, would serve to provide the internal routes for existing shuttles and to avoid the congested routes on the existing street system.

Therefore, there would be no adverse effect under NEPA and no significant impact under CEQA.

Effect AIR-2	Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
Level of Effect	Minor adverse effect under NEPA and less than significant impact under CEQA.

Discussion

Construction activities associated with the Proposed Project would generate short-term emissions of ROG, NO_x, CO, PM10, and PM2.5 (see Section 4-13, Global Climate Change and Greenhouse Gas Reduction, for a discussion of impacts related to greenhouse gas emission). Emissions would originate from on-road hauling trips, worker commute trips, construction site fugitive dust, and off-road construction equipment. Construction-related emissions would vary substantially depending on the level of activity, specific construction operations, and wind and precipitation conditions. Table 4.3-3 summarizes the maximum daily emissions and the annual emissions for each bridge construction. The RCEM modeling results and anticipated construction phasing are shown in Appendix D.

As shown in Table 4.3.3, construction of the Proposed Project would generate the maximum daily emissions of 3.72 lbs/day ROG, 28.76 lbs/day NOx, 1.19 lbs/day NPM2.5, and 1.32 lbs/day PM10, which are below the BAAQMD daily emission thresholds of 54 lbs/day for ROG, NOx, and PM2.5 (exhaust) and 82 lbs/day for PM 10 (exhaust).

As shown in Table 4.3.3, construction of the Proposed Project would generate annual emissions of 0.37 tons/year ROG, 1.71 tons/year CO, 2.77 tons/year NOx, and 0.24 tons/year PM2.5, which are below the General Conformity *de minimis* thresholds of 100 tons/year for ROG, NO_x, CO, and PM2.5 (dust and exhaust)., as discussed in Section 4.3.1.5.

Because construction emissions are predicted to be below the BAAQMD daily emission thresholds and the General Conformity thresholds, the Proposed Project is not expected to impede attainment or maintenance of the NAAQS or CAAQS.

This is considered a minor adverse effect under NEPA and a less than significant under CEQA.

Table 4.3-3. Estimated Construction Emissions

Phase	ROG	CO	NO_x	PM10			PM2.5		
				Dust	Exhaust	Total	Dust	Exhaust	Total
Daily Emissions (lbs/day)									
Charleston Road Bridges	3.57	17.88	27.72	5	1.28	6.28	1.04	1.16	2.20
Crittenden Lane Bridge	3.72	19.53	28.76	5	1.32	6.32	1.04	1.19	2.23
Maximum Daily Emissions	**3.72**	**19.53**	**28.76**	**5**	**1.32**	**6.32**	**1.04**	**1.19**	**2.23**
BAAQMD Threshold	*54*	-	*54*	-	*82*	-	-	*54*	-
Exceed Threshold?	*No*	-	*No*	-	*No*	-	-	*No*	-
Annual Emissions (tons/year)									
Charleston Road Bridges	0.37	1.71	2.77	0.56	0.14	0.70	0.12	0.13	0.24
Crittenden Lane Bridge	0.25	1.20	1.88	0.37	0.09	0.47	0.08	0.08	0.16
Maximum Annual Emissions	**0.37**	**1.71**	**2.77**	**0.56**	**0.14**	**0.70**	**0.12**	**0.13**	**0.24**
General Conformity Threshold	*100*	*100*	*100*	-	-	-	-	-	*100*
Exceed Threshold?	*No*	*No*	*No*	-	-	-	-	-	*No*

Note: Emissions are estimated using the RCEM, described in described in Section 4.3.1.9.

The operation of the Proposed Project would not result in an increase of vehicle trips on roadway system in the Proposed Project vicinity. With the Proposed Project, the shuttles would be traveling on the proposed crossings to reduce the travel distance and travel time, which would reduce the traffic volumes on the existing shuttle routes on local streets. Therefore, the Proposed Project is not expected to cause an increase in air pollutant emissions or local CO concentrations.

This is considered a minor adverse effect under NEPA and a less than significant impact under CEQA.

Effect AIR-3	Result in a cumulatively considerable net increase of any criteria pollutant for which the Proposed Project region is non-attainment under an applicable federal or state ambient air quality standard.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

As discussed for Effect AIR-2, construction of the Proposed Project would generate emissions; however, these emissions would be short term and cease after the Proposed Project is completed. Operation of the Proposed Project is not expected to cause an increase in air pollutant emissions or local CO concentrations.

Therefore, the Proposed Project, in combination with other projects in the area, would not result in a significant cumulative impact on air quality. This impact is considered minor under NEPA and less than significant under CEQA.

Effect AIR-4	Expose sensitive receptors to substantial pollutant concentrations
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

Construction Fugitive Dust

During grading and excavations activities, dust would be generated. The amount of dust generated would be highly variable and is dependent on the size of the disturbed area at any given time, amount of activity, soil conditions, and meteorological conditions. Typical winds during late spring through summer are from the north or northwest. Nearby land uses, especially those residences located to the south could be adversely affected by dust generated during construction activities. The BAAQMD CEQA Air Quality Guidelines consider the dust impacts to be less than significant if BMPs are employed to reduce these emissions. As described in the Section 3.2.4.4 Environmental Commitments, the Proposed Project construction contractor will be required to implement the BAAQMD-recommended BMPs to control construction dust emissions. The BMPs will include measures such as watering exposed surfaces twice per day; covering soil, sand, or other loose material; and limiting vehicle travel speed on unpaved road to 15 miles per hour. Implementation of the BAAQMD measures would reduce construction-related fugitive dust emissions to less than significant under CEQA and minor adverse under NEPA.

Toxic Air Contaminants from Construction Activity

DPM, which is classified as a carcinogenic TAC by ARB, is the primary pollutant of concern with regard to health risks to sensitive receptors. Cancer health risks associated with exposure to diesel exhaust are typically associated with chronic exposure, in which a 70-year exposure period is assumed. In addition, DPM concentrations, and thus cancer health risks, dissipate as a function of distance from the emissions source. The BAAQMD has determined that construction activities occurring at distances of greater than 1,000 feet from a sensitive receptor likely do not pose a significant health risk.

The Charleston Road crossing is located 800 feet north of the Santiago Villa Mobile Home Park. Therefore, exposure to construction DPM emissions was assessed by predicting the health risks in terms of excess cancer risk, non-cancer hazard impacts, and elevated PM2.5 concentrations. The screening-level health risk assessment (HRA) is performed with the following steps:

1. Estimate the PM10 and PM2.5 exhaust emissions from on-site construction equipment operation, based on the RCEM results discussed in Effect AIR-2. For conservative analysis, the

PM10 exhaust emission was used to evaluate the increased DPM cancer risk and the DPM non-cancer hazard impact. The PM2.5 exhaust emission was used to evaluate the PM2.5 concentration.

2. Use the SCREEN3 dispersion model to predict the PM10 and PM2.5 hourly concentrations at the nearest mobile home based on the maximum daily PM10 and PM2.5 exhaust emissions for each construction phase. The SCREEN3 output sheets are provided in Appendix D.
3. Calculate the cancer risk, non-cancer hazard index (HI), and annual PM2.5 concentrations based on the SCREEN3 hourly concentrations and the construction durations. The calculation spreadsheet is provided in Appendix D.
4. Identify background stationary sources within 1,000 feet of the Santiago Villa Mobile Home Park. There are two stationary sources recorded in the BAAQMD's Google Earth map tool used to identify and determine cumulative health risks, which are Siemens Medical Solutions USA, Inc Ultra (Plant ID–15452) and B & M Collision Repair (Plant ID–4882). The Google Earth map file provides associated estimated risk and hazard impacts at these sources. (Bay Area Air Quality Management District 2011b) The cumulative HRA was analyzed by adding the background health risks from these two sources to the Proposed Project's health risk and hazard impacts.

The results of the HRA are summarized in Table 4.3-4 below, which demonstrate that the BAAQMD's project-level and cumulative thresholds, listed in Table 4.3-2, would not be exceeded at the nearest mobile home during construction of the Proposed Project. At the project level, the increased DPM cancer risk was estimated to be 2.3 in 1 million (2.3×10^{-6}) at the nearest mobile home, which is far below the BAAQMD threshold of 10 in 1 million (10.0×10^{-6}); the maximum non-cancer HI was estimated at 0.06 for chronic non-cancer risks, which is less than the BAAQMD's threshold of 1.0; and the maximum PM2.5 concentration was estimated at 0.26 microgram per cubic meters ($\mu g/m^3$), which is less than the BAAQMD's threshold of 0.3 $\mu g/m^3$.

At the cumulative level, because the background health risks estimated by BAAQMD for the two stationary sources within 1,000 feet of the Santiago Villa Mobile Home Park are negligible (Bay Area Air Quality Management District 2011b), the estimated cumulative health risks at the nearest mobile home would be at same levels as the project level health risks. The increased DPM cancer risk was estimated to be 2.3 in 1 million (2.3×10^{-6}), which is far below the BAAQMD threshold of 100 in 1 million (100.0×10^{-6}); the maximum non-cancer HI was estimated at 0.06 for chronic non-cancer risks, which is less than the BAAQMD's threshold of 10.0; and the maximum PM2.5 concentration was estimated at 0.26 microgram per cubic meters ($\mu g/m^3$), which is less than the BAAQMD's threshold of 0.8 $\mu g/m^3$.

Therefore, the health risk (for both project source and cumulative sources) posed to nearby sensitive receptors from construction of the Proposed Project would be less than significant under CEQA and minor adverse under NEPA.

Table 4.3-4. TAC Health Risks from Project Construction and Cumulative Sources

Source	Maximum Cancer Risk (per million)	Maximum Hazard Index	Maximum Annual PM2.5 Concentration (μg/m³)
Project Construction Source			
Charleston Road Bridges	**2.3**	**0.06**	**0.26**
BAAQMD Threshold, Project-level Source	*10*	*1.0*	*0.3*
Exceed Threshold?	*No*	*No*	*No*
Cumulative Sources			
Other stationary sources within 1,000 feet of the Proposed Project site [a]	0	0	0
Project + Cumulative Sources	**2.3**	**0.06**	**0.26**
BAAQMD Threshold, Cumulative Sources	*100*	*10.0*	*0.8*
Exceed Threshold?	*No*	*No*	*No*

[a] Based on the BAAQMD's Google Earth map tool (BAAQMD 2011b), there are two stationary sources recorded: Siemens Medical Solutions USA, Inc Ultra (Plant ID–15452) and B & M Collision Repair (Plant ID–4882).

Effect AIR-5	Create objectionable odors affecting a substantial number of people.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

The Proposed Project would generate localized emissions of diesel exhaust during construction equipment operation and truck activity. These emissions may be noticeable from time to time by adjacent receptors. However, they would be localized and are not likely to adversely affect people off site by resulting in confirmed odor complaints.

This would be a less-than-significant impact under CEQA and minor adverse under NEPA.

4.3.3.4 One Bridge/Two Lane Alternative—Crittenden Option

Under this Alternative, none of the construction emissions associated with the Charleston Road crossing would occur, which would lessen the extent and intensity of potential effects compared with the Proposed Project. However, the difference is nominal since the potential effects of the Proposed Project are insignificant themselves.

During operation of the Proposed Project, as determined in the Transportation section, the routing required for the Crittenden Lane One Bridge/Two Lane Alternative would adversely affect traffic operation on Crittenden Lane and at the intersection of Shoreline Boulevard and Crittenden Lane. This increase in travel delay could result in an incremental increase in air pollutant emissions in comparison to the Proposed Project. Therefore, the alternative would result in a minor effect and less than significant impact in comparison to the Proposed Project.

4.3.3.5 No-Action Alternative

As discussed in the Transportation section, the No-Action Alternative would adversely affect traffic operation on Highway 101 or local streets south of Highway 101 and increase shuttle travel distance between the Bay View Area and the North Bayshore Area. This increase in delay and travel distance would result in an incremental increase in air pollutant emissions in comparison to the Proposed Project.

4.4 Biological Resources

This section describes existing biological resources at the Proposed Project site, summarizes applicable regulations and policies, and analyzes potential short-term construction and long-term operational impacts on biological resources that could result from implementation of the Proposed Project.

4.4.1 Affected Environment

4.4.1.1 Study Area

The study area includes a portion of Stevens Creek, an existing pedestrian bridge near the northern extent of the study area, associated riparian vegetation and floodplains bounded by levees, pedestrian trails and access roads on top of the levees and along the toe of the slopes, disturbed and developed areas west of Stevens Creek, and nonnative grassland and coyote brush scrub east of Stevens Creek.

4.4.1.2 Regional Setting

The study area is located within the City of Mountain View, which is situated within Santa Clara County. Specifically, the study area is located within the U.S. Geological Survey Mountain View 7.5-minute quadrangle at township 6 south, range 2 west, section 10. The study area is surrounded by commercial development to the west; nonnative grassland and NASA ARC facility to the east; commercial development and the upstream portion of Stevens Creek to the south; and industrial and commercial development, a salt marsh and salt ponds, and the downstream portion of Stevens Creek to the north.

4.4.1.3 Regulatory Setting

Federal

National Environmental Policy Act (42 United States Code [USC] 4321 et seq.)

NEPA requires the consideration of potential environmental effects, including potential effects on biological resources and wetlands, in the evaluation of any proposed Federal agency action. NEPA also obligates Federal agencies to consider environmental consequences and costs in their projects and programs as part of the planning process. General NEPA procedures are set forth in the CEQ regulations (23 Code of Federal Regulations [CFR] 771).

Endangered Species Act (42 USC 4321 et seq.)

The Federal Endangered Species Act (ESA) and subsequent amendments provide guidance for conserving federally listed species and the ecosystems upon which they depend.

Section 7 (Interagency Consultation and Biological Assessments): Section 7 requires Federal agencies to consult with the FWS or the NMFS, as appropriate, to ensure that actions they authorize,

fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat.

Section 9 (Prohibited Acts): Section 9 prohibits the take of any plant, fish, or wildlife species listed under the Federal ESA as endangered, unless otherwise authorized by Federal regulations.

Clean Water Act (33 USC 1251 et seq.)

The CWA serves as the primary Federal law protecting the quality of the nation's surface waters, including wetlands. Under Section 404, the USACE and EPA regulate the discharge of dredged and fill materials into the waters of the U.S. Project sponsors must obtain a permit from USACE for discharges of dredged or fill materials into jurisdictional waters over which USACE determines that it will exert jurisdiction.

Fish and Wildlife Coordination Act (16 USC 661–667[e])

The Fish and Wildlife Coordination Act applies to any Federal project where any body of water is impounded, diverted, deepened, or otherwise modified. Project proponents are required to consult with the FWS and the appropriate State wildlife agency.

Migratory Bird Treaty Act (16 USC 703–712)

The Migratory Bird Treaty Act (MBTA) protects selected species of birds that cross international boundaries (i.e., species that occur in more than one country at some point during their annual life cycle). The law applies to the removal of nests, eggs, and feathers.

Protection of Wetlands (Executive Order 11990)

Executive Order 11990 aims to avoid direct or indirect new construction in wetlands when a practicable alternative is available. If wetland impacts cannot be avoided, all practicable measures to minimize harm must be included.

Protection of Migratory Bird Populations (Executive Order 13186)

Executive Order 13186 directs each Federal agency taking actions that have or may have adverse impacts on migratory bird populations to work with FWS to develop a memorandum of understanding that will promote the conservation of migratory bird populations.

Invasive Species (Executive Order 13112)

Executive Order 13112 requires Federal agencies to work cooperatively to prevent and control the introduction and spread of invasive plants and animals.

State

California Environmental Quality Act and Guidelines (Section 15126.2[a])

CEQA requires State and local agencies to identify the significant environmental impacts of their proposed actions, including potential significant impacts on biological resources and wetlands. It also requires the agencies to avoid or mitigate those impacts, when feasible.

California Endangered Species Act (Sections 2050 to 2085)

The California Endangered Species Act (CESA) mandates that State agencies do not approve a project that would jeopardize the continued existence of these species if reasonable and prudent alternatives are available that would avoid a jeopardy finding.

California Fish and Game Code (Sections 1600, 3503, 3503.3, 3511, 4700, 5050, and 5515)

Section 1600 et seq. (Lake and Streambed Alteration): Section 1600 et seq. requires notifying the CDFG prior to any project activity undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel.

Sections 3503 and 3503.5 (Bird Nesting Protections): Sections 3503 and 3503.3 state that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the code or any regulation made pursuant thereto.

Sections 3511, 4700, 5050, and 5515 (Fully Protected Species): These sections list 37 fully protected species and prohibit take or possession at any time of the species listed, with few exceptions.

California Native Plant Protection Act (Sections 1900 to 1913)

The California Native Plant Protection Act requires all State agencies to utilize their authority to carry out programs to conserve endangered and rare native plants. It gives the CDFG the power to designate native plants as endangered or rare and to protect endangered and rare plants from take.

Local

City of Mountain View Heritage Trees

The City of Mountain View regulates "heritage trees," which are defined as trees of any species with a trunk circumference of 48 inches or more measured at 54 inches above natural grade. Trees with multiple trunks are measured immediately below the first major trunk fork. Three species, oak (*Quercus* spp.), redwood (*Sequoia* spp.), and cedar (*Cedrus* spp.), are considered "heritage" if they have a circumference of 12 inches measured at 54 inches above natural grade.

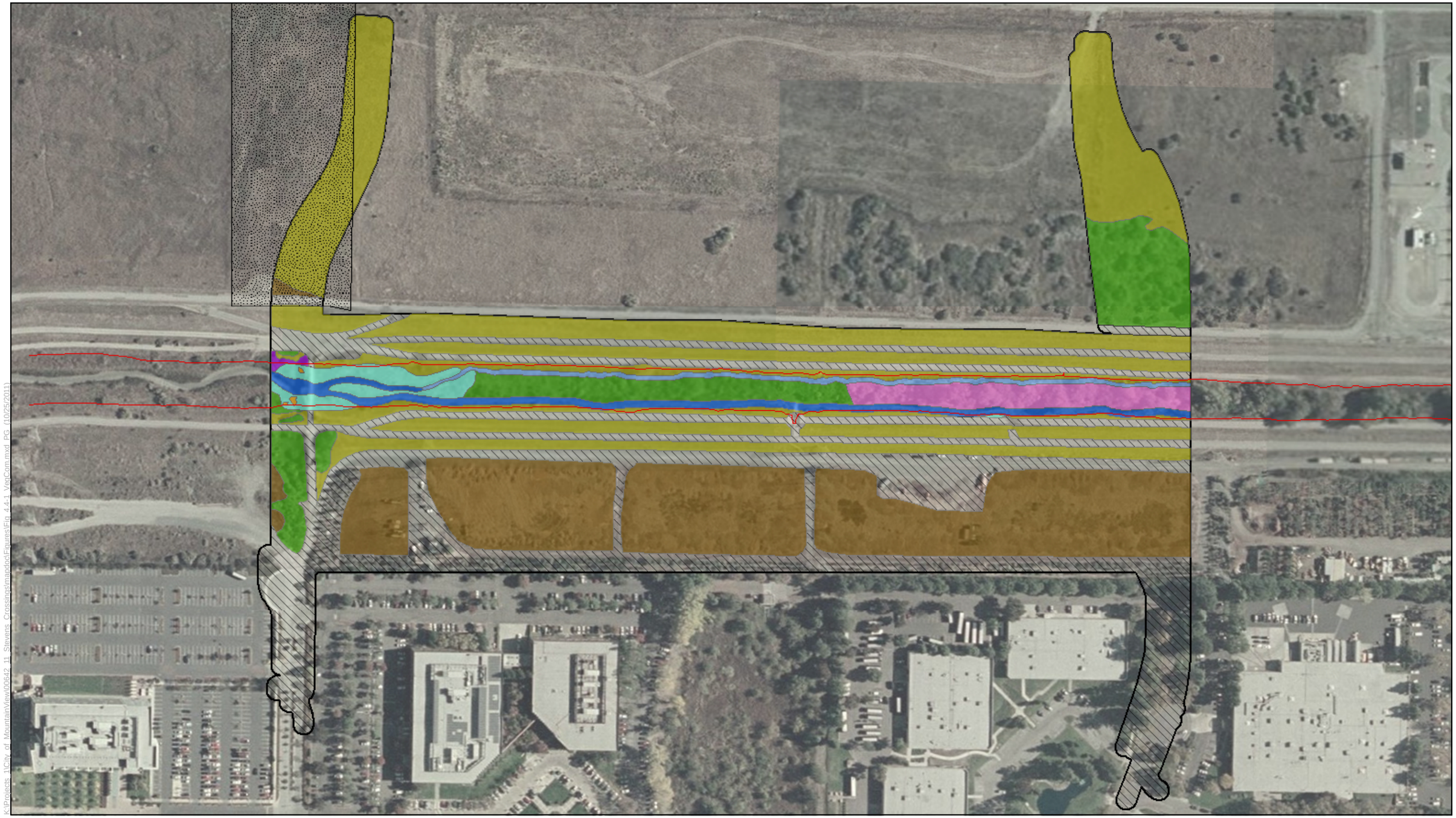
4.4.1.4 Project Setting

Natural Communities

Figure 4.4-1, Vegetation Communities and Sensitive Habitats, presents the natural communities that are found in the study area. Brief descriptions of these natural communities are provided below.

Nonnative Grassland

Nonnative grassland in the study area occurs between the bike trails and access roads on both sides of Stevens Creek and on the east side of Stevens Creek on NASA ARC property. Additionally, maintained (i.e., mowed) nonnative grassland occurs along the levees on both sides of Stevens Creek. Nonnative grassland in the study area is dominated by nonnative annual grass species and nonnative forbs. Dominant annual grass species observed in the study area were wild oats (*Avena* spp.), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), and barley (*Hordeum* spp.).



Stevens Crossing

Land Cover

0 50 100 200
Feet

Ordinary High Water
Project Study Area
Wetland Buffer Zone
Blackberry
Coyote Brush Scrub
Developed
Disturbed
Emergent Wetland
Intermittent Channel
Non-native Grassland
Perennial Channel
Pickleweed Emergent Wetland
Riparian Forest

Figure 4.4-1
Vegetation Communities and Sensitive Habitats

K:\Projects_1\City of Mountain View\00642_11_Stevens_Crossing\mapdoc\Figures\Fig_4.4-1_VegCom.mxd_PG (10/25/2011)

Other nonnative grass species commonly observed include Italian ryegrass (*Lolium multiflorum*), orchard grass (*Dactylis glomerata*), and rattail fescue (*Vulpia myuros*). Nonnative forbs commonly observed include black mustard (*Brassica nigra*), bristly oxtongue (*Picris echioides*), fennel (*Foeniculum vulgare*), Italian thistle (*Carduus pycnocephalus*), prickly lettuce (*Lactuca serriola*), stinkwort (*Dittrichia graveolens*), and yellow star-thistle (*Centaurea solstitialis*). In some areas of nonnative grassland on NASA ARC land, nonnative forbs are dominant or co-dominant with nonnative grasses.

Coyote Brush Scrub

Coyote brush scrub was observed in the southeast corner of the study area, near a pedestrian bridge over Stevens Creek in the north section of the study area, and on an upland island between the two channels of Stevens Creek. Coyote brush scrub in the study area consists of a dense overstory dominated by coyote brush (*Baccharis pilularis*), with an understory of predominantly nonnative grasses and forbs, including, depending on the area, wild oats, smilo grass (*Piptatherum miliaceum*), bristly oxtongue, cultivated radish (*Raphanus sativus*), and common mallow (*Malva neglecta*). Scattered small trees and shrubs, including toyon (*Heteromeles arbutifolia*), blue elderberry (*Sambucus nigra* ssp. *mexicana*), and California sagebrush (*Artemisia californica*), also occur in various patches of coyote brush scrub in the study area.

Riparian Scrub Forest

Riparian scrub forestwas observed in the central to southern portions of the study area on the island in the middle of Stevens Creek. This vegetation community is dominated by smaller trees and shrubs, including red willow (*Salix laevigata*) and other willow species (*Salix* sp.). A few scattered Fremont cottonwood (*Populus fremontii* ssp. *fremontii*) and California black walnut (*Juglans californica*) trees were also observed in riparian scrub forest in the study area. Himalayan blackberry (*Rubus armeniacus*), bigleaf periwinkle (*Vinca major*), stinging nettle (*Urtica dioica*), and common horsetail (*Equisetum arvense*) were observed in the understory of this vegetation type. A few scattered blue elderberry and coyote brush shrubs were also observed in riparian scrub forest in the study area. Forbs observed in wetter areas of the understory in this vegetation type include hairy willowherb (*Epilobium ciliatum*), spotted ladysthumb (*Persicaria maculosa*), watercress (*Nasturtium officinale*), and water speedwell (*Veronica anagallis-aquatica*). A large patch of Himalayan blackberry was observed on the island in the area between the transition from coyote brush scrub to riparian scrub forest.

Emergent Wetland

The banks along Stevens Creek in the study area are generally relatively steep, and emergent wetland vegetation is limited primarily to small portions of the bank immediately above the water line. One larger area of emergent wetland vegetation was observed in the northern section of the study area, within and just south of the area proposed for the northern bridge crossing (Figure 4.4-1). Species commonly observed in emergent wetlands in the study area include cattail (*Typha* sp.), hardstem bulrush (*Schoenoplectus acutus*), sturdy bulrush (*Schoenoplectus robustus*), rabbitsfoot grass (*Polypogon monspeliensis*), broad-leaved peppergrass (*Lepidium latifolium*), poison hemlock (*Conium maculatum*), and curly dock (*Rumex crispus*).

Three small patches of vegetation more typically found in salt marsh communities were observed just north of the existing pedestrian bridge in the area proposed for the northern bridge. Vegetation

in these patches consisted primarily of pickleweed (*Salicornia virginica*) and saltgrass (*Distichlis spicata*). These patches were on the banks above Stevens Creek and were surrounded by nonnative facultatively wet (FACW) vegetation, including broad-leaved peppergrass and poison hemlock.

Perennial and Intermittent Stream Channel

There is one stream, Stevens Creek, in the study area. Within the study area, Stevens Creek is constrained by levees maintained by the SCVWD. In the majority of the study area, Stevens Creek consists of two channels separated by an island dominated primarily by upland species. The eastern channel is an intermittent stream channel bordered by emergent vegetation and riparian scrub forest. During surveys in August 2011, no water was observed flowing in this channel. The majority of the bed of this channel was lacking vegetation, indicating that the water velocity during periods of flow is sufficient to scour a channel and remove unstable vegetation. Drift deposits, algal mats, and deposition of soil material were also observed within the eastern intermittent channel. The western channel of Stevens Creek in the study area consists of a perennial channel bordered by riparian forest and emergent wetland vegetation. Emergent vegetation and riparian forest vegetation along the channels is as described above.

Developed and Disturbed

Developed and disturbed land within the study area consist of paved and graveled roads, and bike paths, ornamental vegetation, and areas used for storage of maintenance vehicles and landscaping material such as potted plants and mulch. Small patches of rip-rap also occur near the pedestrian bridge over Stevens Creek in the north section of the study area. Vegetation in developed and disturbed areas is either non-existent, ornamental plantings, or ruderal vegetation, including non-native bristly oxtongue, bull thistle (*Cirsium vulgare*), Italian thistle, prickly lettuce, and stinkwort (*Dittrichia graveolens)*.

Wetlands

Wetlands are defined as areas regularly saturated by surface water or groundwater and therefore dominated by vegetation that is adapted for saturated soil conditions. Two wetland types, emergent wetland and streams, are found within the study area. These two wetland types may qualify as jurisdictional wetlands under the CWA or the Porter-Cologne Water Quality Act. Any wetland that meets the definition of jurisdictional by the State or Federal government (United States Army Corps of Engineers 1987) is considered a sensitive natural community.

Sensitive Natural Communities

Sensitive natural communities are communities that are of limited distribution statewide or within a county or region and often vulnerable to project impacts (California Department of Fish and Game 2009). Most types of wetlands and riparian communities are considered sensitive natural communities because of their limited distribution in California. In addition to the wetland communities described above, patches of mixed riparian scrub are found along Stevens Creek in the study area. Riparian scrub is not only considered sensitive because of their limited extent in California but also because they provide bank stabilization, shading over the creek channel, and habitat for wildlife, including nesting habitat for migratory bird and raptor species.

Identification of Special-Status Species

Special-status species are defined as plants and animals that are protected under the Federal ESA or the CESA or other regulations and species that are considered sufficiently rare by the scientific community to qualify for such listing. Special-status plants, animals, and fish are species in the following categories:

- Species listed or proposed for listing as threatened or endangered under the Federal ESA (50 CFR 17.12 [listed plants], 50 CFR 17.11 [listed animals]) and various notices in the Federal Register (FR) (proposed species).
- Species that are candidates for possible future listing as threatened or endangered under the ESA, including Federal species of concern (61 FR 40 7596–7613, February 28, 1996).
- Species listed or proposed for listing by the State of California as threatened or endangered under the CESA (14 California Code of Regulations [CCR] 670.5).
- Species that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines, Section 15380).
- Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.).
- Plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" (Lists 1B and 2 in California Native Plant Society 2001a).
- Animal species of special concern to the CDFG as identified in CDFG's Special Animals List (California Department of Fish and Game 2005).
- Bird species that are CDFG first- and second-category species of special concern. Third-priority species are not included because, as stated in the CDFG list, they "are not in any present danger of extirpation and their populations within most of their range do not appear to be declining seriously; however, simply by virtue of their small populations in California, they are vulnerable to extirpation should a threat materialize."
- Animals fully protected in California (California Fish and Game Code, Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]).
- Bat species designated as high or medium priority by the Western Bat Working Group (WBWG). The WBWG is a partner in the Coalition of North American Bat Working Groups. The WBWG is composed of bat experts from agencies, organizations, and research groups interested in bat research, management, and conservation from 13 western states and the provinces of British Columbia and Alberta. High-priority bat species are those species that, based on available information on distribution, status, ecology, and known threats, should be considered the highest priority for funding, planning, and conservation actions. These species are imperiled or are at high risk of imperilment. Medium-priority species are those species that are considered to warrant closer evaluation, both of the species and of possible threats; more research; and conservation actions.

Special-Status Plant Species

A list of special-status plant species with the potential to occur within the study area was compiled based on review of FWS and CNPS lists (Appendix E). Because of lack of suitable habitat and the highly disturbed nature of the annual grassland and riparian habitat, no federally or State-listed

plant species have the potential to occur in the study area. A search of the California Natural Diversity Database (CNDDB) identified one plant species, Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*), that has a low potential to occur in the Proposed Project area as described in Appendix E. Table 4.4-1 presents the evaluation of the potential for special-status plant species to occur in the Proposed Project area.

Centromadia parryi ssp. congdonii (Congdon's tarplant)

An individual of Congdon's tarplant was observed in 2002 on the eastern edge of a levee along Stevens Creek just north of the Proposed Project area. Only small areas of marginally suitable habitat for Congdon's tarplant exist in the Proposed Project area in nonnative grassland along Stevens Creek. Therefore, this species has a low potential to occur within the Proposed Project area.

Special-Status Wildlife Species

Based on review of FWS list (Appendix E) three federally listed wildlife species, Central California coast steelhead (*Oncorhynchus mykiss*), fall-run Chinook salmon (*Oncorhynchus tshawytscha*), and California clapper rail (*Rallus longirostris obsoletus*), have the potential to occur in the study area. A search of the CNDDB identified seven wildlife species, white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*), western burrowing owl (*Athene cunicularia hypugaea*), snowy egret (*Egretta thula*), great blue heron (*Ardea herodias*), Pacific pond turtle (*Actinemys marmorata*), and hoary bat (*Lasiurus cinereus*), that have the potential to occur in the study area. Table 4.4-2, at the end of this section presents the evaluation of the potential for special-status wildlife species to occur in the study area.

Fish

Oncorhynchus mykiss (Central California coast steelhead)

Central California coast steelhead is known to migrate up Stevens Creek from the ocean to spawning habitat farther upstream during winter when water flows are high. Therefore, this species has a high potential to occur within the study area.

Oncorhynchus tshawytscha (fall-run Chinook salmon)

Fall-run Chinook salmon is known to migrate up Stevens Creek from the ocean to spawning habitat farther upstream during fall when water flows are high. Therefore, this species has a high potential to occur within the study area.

Reptiles

Actinemys marmorata (Pacific pond turtle)

Although this species was not observed during the August 16 and 24, 2011, site assessments, suitable aquatic and upland habitat for Pacific pond turtle occurs in Stevens Creek and the adjacent uplands within the study area. There are no CNDDB records of observations within 5 miles of the study area. However, Pacific pond turtle has been documented within a stormwater retention pond immediately north of the Moffett Federal Airfield runways (Alderete 2002), located approximately 0.37 mile from the Proposed Project area. This information combined with the suitability of habitat

Table 4.4-1. Special-Status Plants Known to Occur or that May Occur in the Project Area

Species	Status[a] Federal/State/CNPS	California Distribution	Habitats	Blooming Period	Likelihood to Occur in Project Area[b]
Arctostaphylos andersonii Anderson's manzanita	–/–/1B.2	Santa Cruz Mountains in Santa Clara, Santa Cruz, and San Mateo Counties	Openings and edges of chaparral, broadleaved upland forest and north coast coniferous forest; 60-700 meters.	Nov–May	None; there is no suitable habitat within the study area.
Astragalus tener var. *tener* Alkali milk-vetch	–/–/1B.2	Southern Sacramento Valley, northern San Joaquin Valley, east San Francisco Bay Area	Playas, on adobe clay in valley and foothill grassland, vernal pools on alkaline soils, annual grassland on alkaline soil, seasonal wetlands; below 60 meters	Mar–Jun	None; there is no suitable habitat within the study area.
Centromadia parryi ssp. *congdonii* Congdon's tarplant	–/–/1B.2	Eastern San Francisco Bay Area, Salinas Valley, and Los Osos Valley.	Alkaline soils in annual grassland, on lower slopes, flats, and swales, sometimes on saline soils; below 230 meters	May–Oct (Nov)	Low; there is only marginally suitable habitat within the study area; however, one occurrence of Congdon's tarplant was observed along Stevens Creek just north of the study area.
Chloropyron maritimum ssp. *palustre* (*Cordylanthus maritimus* ssp. *palustris*) Point Reyes bird's-beak	–/–/1B.2	Coastal northern California, from Humboldt to Santa Clara County; Oregon	Coastal salt marsh; below 10 meters	Jun–Oct	None; there is no suitable habitat within the study area.
Eryngium aristulatum var. *hooveri* Hoover's button-celery	–/–/1B.1	South San Francisco Bay area, South Coast Ranges in Alameda, San Benito, Santa Clara, and San Luis Obispo Counties	Vernal pool; 3-45 meters.	July	None; there is no suitable habitat within the study area.
Stuckenia filiformis (*Potamogeton filiformis*) Slender-leaved pondweed	–/–/2.2	Scattered locations in California: Contra Costa, El Dorado, Lassen, Merced, Mono, Modoc, Mariposa, Placer, and Sierra Counties; Arizona, Nevada, Oregon, Washington. Presumed extirpated in Santa Clara County.	Freshwater marsh, shallow emergent wetlands and freshwater lakes, drainage channels; 300-2150 meters.	May–July	None; although small amounts of marginal habitat exist within the study area this species is believed to be extirpated in Santa Clara County.

Species	Status[a] Federal/State/CNPS	California Distribution	Habitats	Blooming Period	Likelihood to Occur in Project Area[b]
Sueda californica California seablite	E/–/1B.1	Morro Bay, San Luis Obispo County, historically found in the south San Francisco Bay	Margins of tidal salt marsh; below 15 meters.	Jul–Oct	None; there is no suitable habitat within the study area.

[a] Status explanations:

Federal

E = listed as endangered under the ESA

– = no listing

State

E = listed as endangered under the CESA

– = no listing

California Native Plant Society (CNPS)

1A = List 1A species: presumed extinct in California

1B = List 1B species: rare, threatened, or endangered in California and elsewhere

2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere

CNPS Code Extensions:

0.1 = seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat

0.2 = fairly endangered in California (20- 80% of occurrences threatened)

[b] Definitions of levels of Occurrence likelihood:

Moderate: Plant known to occur in the region from the CNDDB, or other documents in the vicinity of the project, or habitat conditions are of suitable quality.

Low: Plant not known to occur in the region from the CNDDB, or other documents in the vicinity of the project; or habitat conditions are of poor quality.

None: Plant not known to occur in the region from the CNDDB, or other documents in the vicinity of the project; or suitable habitat is not present in any condition.

Table 4.4-2 Special-Status Wildlife Species with Potential to Occur in the Project Region

Scientific and Common Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
Invertebrates				
Euphydryas editha bayensis Bay checkerspot butterfly	T/--	Disjunct occurrences in San Mateo and Santa Clara Counties.	Associated with specific host plants that typically grow on serpentine soils.	None—no suitable habitat, as there are no serpentine soils in the project area.
Lepidurus packardi Vernal pool tadpole shrimp	E/--	Shasta County south to Merced County.	Vernal pools and ephemeral stock ponds.	None—no suitable habitat and there are no CNDDB records within 2 miles of the site.
Tryonia imitator California brackishwater snail (=mimic tryonia)	--/--	Throughout coast from Salmon Creek, Sonoma County south to Tijuana River, San Diego County.	Coastal tidal lagoons, estuaries, and marshes.	None—no suitable habitat and there are no CNDDB records within 2 miles of the site.
Fish				
Acipenser medirostris Green sturgeon	T/SSC	From Mexico to Alaska in marine waters. Bays and estuaries along the west coast of North America, from British Columbia south to San Luis Obispo.	Ocean water, bays, and estuaries while not spawning. Spawn in the mainstem of freshwater rivers with connection to marine habitat and suitable deep pools.	None—no suitable habitat, as Stevens Creek is relatively shallow and lacks deep freshwater pools.
Hypomesus transpacificus Delta smelt	T/T	Primarily in the Sacramento–San Joaquin Estuary, but has been found as far upstream as the mouth of the American River on the Sacramento River and Mossdale on the San Joaquin River; range extends downstream to San Pablo Bay.	Occurs in estuary habitat in the Delta where fresh and brackish water mix in the salinity range of 2–7 parts per thousand (Moyle 2002).	None – outside of known range and there is no suitable habitat in the study area.
Oncorhynchus mykiss Central California coast steelhead	T/--	Coastal drainages along the central California coast.	Cold, clear water with clean gravel of appropriate size for spawning. Most spawning occurs in headwater streams. Steelhead migrate to the ocean to feed and grow until sexually mature.	High –Steelhead are known to use Stevens Creek as a migratory connection to spawning habitat.

Scientific and Common Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
Oncorhynchus mykiss Central Valley steelhead	T/--	Sacramento and San Joaquin River and their tributaries.	Occurs in well-oxygenated, cool, riverine habitat with water temperatures from 7.8 to 18°C (Moyle 2002). Habitat types are riffles, runs, and pools.	None - The Central Valley steelhead range does not include the southern San Francisco Bay Area.
Oncorhynchus kisutch Central California coast coho salmon	E (central coast)/--	Pacific Ocean and rivers and creeks from Punta Gorda to the San Lorenzo River.	Occur in coastal streams with water temperatures < 15°C. Need cool, clear water with instream cover. Spawn in tributaries to large rivers or streams directly connected to the ocean (Moyle 2002).	None –coho salmon have been extirpated from tributaries to San Francisco Bay (NMFS 2005).
Oncorhynchus tshawytscha Central Valley and Sacramento River Chinook salmon	T (spring run)/- E (winter run)/- C (fall)/-	Sacramento and San Joaquin River and their tributaries.	Occurs in well-oxygenated, cool, riverine habitat with water temperatures from 8.0 to 12.5°C. Habitat types are riffles, runs, and pools. (Moyle 2002)	None – The Central Valley spring-run and winter-run Chinook salmon range does not include the southern San Francisco Bay Area. High – Fall-run Chinook salmon are present in Stevens Creek. These fall-run fish are thought to be hatchery strays.
Amphibians				
Ambystoma californiense California tiger salamander	T/T	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet, and coastal region from Sonoma County south to Santa Barbara County	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy.	None - There is currently no potential for California tiger salamander to occur in the project area, as the study area does not contain suitable habitat for this species.
Rana draytonii California red-legged frog	T/SSC	Found along the coast and coastal mountain ranges of California from Mendocino County to San Diego County and in the Sierra Nevada from Butte County to Stanislaus County.	Permanent and semipermanent aquatic habitats, such as creeks and cold-water ponds, with emergent and submergent vegetation; may aestivate in rodent burrows or cracks during dry periods	None - There is currently no potential for California red-legged frog to occur in the project area, as the study area does not contain suitable habitat for this species.

Table 4.4-2. Continued

Scientific and Common Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
Reptiles				
Emys marmorata Western pond turtle	–/SSC	The western pond turtle is uncommon to common in suitable aquatic habitat throughout California, west of the Sierra-Cascade crest and absent from desert regions, except in the Mojave Desert along the Mojave River and its tributaries.	Occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests. Nests are typically constructed in upland habitat within 0.25 mile of aquatic habitat.	Moderate - western pond turtle has the potential to occur in Stevens Creek and the adjacent uplands within the project area. There are no CNDDB records within 2 miles of the site, but this species has been observed in a stormwater retention basin northeast of the project area (Alderete 2002).
Mammals				
Antrozonous pallidus Pallid bat	--/SSC	Widespread throughout California	Roosts in fissures in caves, tunnels, mines, hollow trees, and locations with stable temperatures.	None - There is currently no potential for pallid bat to occur in the project area. The nearest CNDDB record is located approximately 3.2 miles from the study area and dates back to an observation from 1945.
Lasiurus cinereus Hoary bat	--/--	Widespread throughout California	Roosts in trees, typically within forests.	Low - hoary bat has the potential to roost within trees within the project area. The nearest CNDDB record is located approximately 3.2 miles from the study area and dates back to an observation from 1905.
Reithrodontomys raviventris Salt marsh harvest mouse	E/E	The San Francisco Bay Estuary and Suisun Marsh.	Saline to brackish salt marsh habitat.	None - There is currently no potential for salt marsh harvest mouse to occur in the project area, as the study area does not contain suitable habitat for this species.

Scientific and Common Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
Sorex vagrans halicoetes Salt-marsh wandering shrew	-/SSC	Southern arm of the San Francisco Bay in San Mateo, Santa Clara, Alameda, and Contra Costa Counties.	Salt marshes from 6 to 9 feet above mean sea level (MSL).	None - There is currently no potential for salt marsh wandering shrew to occur in the project area, as the study area does not contain suitable habitat for this species.
Birds				
Ardea herodias Great blue heron (rookery)	--/--	Nests in suitable habitat throughout California except at higher elevations in Sierra Nevada and Cascade mountain ranges.	Widely distributed in freshwater and calm-water intertidal habitats.	High - great blue heron has the potential to nest in vegetation adjacent to Stevens Creek within the project area.
Athene cunicularia hypugaea Western burrowing owl	--/SSC	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas; rare along south coast	Level, open, dry, heavily grazed or low stature grassland or desert vegetation with available burrows	Low (outside of Moffett Field)/High (inside of Moffett Field) – western burrowing owl has the potential to occur within the grassland habitat within the study area, but the degree of disturbance and thatch accumulation in habitat alond Stevens Creek and west reduce the likelihood for this species to occur within the study area. The ample quantity and lack of thatch accumulation of habitat within Moffett Field are more suitable for this species. There are 9 CNDDB records of this species within 2 miles of the project area, with the nearest record being 0.2-mile from the project area. No burrowing owls were observed during the September 16 and 24, 2011 site assessments.

Table 4.4-2. Continued

Scientific and Common Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
Charadrius alexandrines nivosus Western snowy plover	T/SSC	Population defined as those birds that nest adjacent to or near tidal waters, including all nests along the mainland coast, peninsulas, offshore islands, and adjacent bays and estuaries. Twenty breeding sites are known in California from Del Norte to Diego County	Coastal beaches above the normal high tide limit in flat, open areas with sandy or saline substrates; vegetation and driftwood are usually sparse or absent	None - There is currently no potential for western snowy plover to occur in the project area, as the study area does not contain suitable habitat for this species.
Circus cyaneus Northern harrier	--/SSC	Occurs throughout lowland California. Has been recorded in fall at high elevations	Grasslands, meadows, marshes, and seasonal and agricultural wetlands	Moderate - northern harrier has the potential to forage and nest in the grasslands within the project area.
Elanus leucurus White-tailed kite	--/FP	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border.	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging	Moderate - white-tailed kite has the potential to forage in the grasslands and nest in trees within the project area.
Egretta thula Snowy egret (rookery site)	--/--	Occurs in coastal lowlands and other lowland areas throughout California.	Shores of coastal estuaries, fresh and saline emergent wetlands, ponds, slow-moving rivers, irrigation ditches, and wet fields. Nests in dense marshes or at low heights in trees.	Moderate – snowy egret has the potential to forage in Stevens Creek and nest in the adjacent vegetation within the project area.
Geothlypis trichas sinuosa Saltmarsh common yellowthroat	--/SSC	Found only in the San Francisco Bay Area in Marin, Napa, Sonoma, Solano, San Francisco, San Mateo, Santa Clara, and Alameda Counties	Freshwater marshes in summer and salt or brackish marshes in fall and winter; requires tall grasses, tules, and willow thickets for nesting and cover	None - There is currently no potential for saltmarsh common yellowthroat to occur in the project area, as the study area does not contain suitable habitat for this species.
Laterallus jamaicensis conturniculus California black rail	--/T, FP	Permanent resident in the San Francisco Bay and east-ward through the Delta into Sacramento and San Joaquin Counties; small populations in Marin, Santa Cruz, San Luis Obispo, Orange, Riverside, and Imperial Counties	Tidal salt marshes associated with heavy growth of pickleweed; also occurs in brackish marshes or freshwater marshes at low elevations	None - There is currently no potential for California black rail to occur in the project area, as the study area does not contain suitable habitat for this species.

Table 4.4-2. Continued

Scientific and Common Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
Melospiza melodia pusillula Alameda song sparrow	--/SSC	Found only in marshes along the southern portion of the San Francisco Bay	Brackish marshes associated with pickleweed; may nest in tall vegetation or among the pickleweed	None – There is currently no potential for Alameda song sparrow to occur in the project area, as there is no suitable habitat for this species within the project area. There are no CNDDB records within 2 miles of the project area.
Pelecanus occidentalis californicus California brown pelican	D/E	The Pacific coast from Canada through Mexico.	Coastal areas. Nests on islands. Occasionally along Arizona's lakes and rivers.	None - There is currently no potential for California brown pelican to occur in the project area, as the study area does not contain suitable habitat for this species.
Phalacrocorax auritus Double-crested cormorant (rookery site)	--/--	Winters along the entire California coast and inland over the Coast Ranges into the Central Valley from Tehama County to Fresno County; a permanent resident along the coast from Monterey County to San Diego County, along the Colorado River, Imperial, Riverside, Kern and King Counties, and the islands off San Francisco; breeds in Siskiyou, Modoc, Lassen Counties.	Rocky coastlines, beaches, inland ponds, and lakes; needs open water for foraging, and nests in riparian forests or on protected islands, usually in snags	None - There is currently no potential for double-crested cormorant to occur in the project area, as the study area does not contain suitable habitat for this species.
Rallus longirostris obsoletus California clapper rail.	E/FP	Found along the Pacific Coast in Monterey and San Luis Obispo Counties.	From tidal mudflats to tidal sloughs	Low – California clapper rail has the potential to forage within Stevens Creek and nest within adjacent vegetation. There are 3 CNDDB records within 2 miles of the project area, with the nearest being 0.9-mile away from the project area.

Table 4.4-2. Continued

Scientific and Common Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
Sternula antillarum browni California least tern	E/E	Found along the Pacific Coast of California from San Francisco to Baja California	Nest on open beaches kept free of vegetation by natural scouring from tidal action	None - There is currently no potential for California least tern to occur in the project area, as the study area does not contain suitable habitat for this species.

Notes:

Status explanations:

Federal

E = listed as endangered under the ESA
T = listed as threatened under the ESA
PT = proposed for federal listing as threatened under the ESA
C = species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded
D = delisted
– = no listing

State

E = listed as endangered under CESA
T = listed as threatened under CESA
FP = fully protected under the California Fish and Game Code
SSC = species of special concern in California
D = delisted
– = no listing

Potential Occurrence in the Study Area

High: Known occurrences of the species within the study area, or CNDDB, or other documents, records the occurrence of the species within a 5-mile radius of the study area; suitable habitat is present within the study area
Moderate: CNDDB, or other documents, records the known occurrence of the species within a 5-mile radius of the study area; poor quality suitable habitat is present within the study area
Low: CNDDB, or other documents, does not record the occurrence of the species within a 5-mile radius of the study area; suitable habitat is present within the study area

within the Proposed Project area indicates that there is a moderate potential for this species to occur within the study area.

Mammals

Lasiurus cinereus (hoary bat)

Although this species was not observed during the August 16 and 24, 2011, site assessments, trees within the study area provide suitable roosting habitat for hoary bat. This species could also forage over the grassland habitat adjacent to Stevens Creek. Hoary bat requires lower temperatures for hibernation and will typically hibernate at higher elevations in the winter. Suitable hibernacula are not available within the vicinity because bats would be unable to keep their body temperatures consistently low enough to hibernate undisturbed throughout the winter. There is one CNDDB record for a location approximately 3.2 miles from the study area; the observation was made in 1945. Therefore, this species has a moderate potential to occur within the study area during the maternity roosting season.

Birds

Ardea herodias (great blue heron)

Vegetation within and adjacent to Stevens Creek provides suitable nesting substrate for great blue heron. Stevens Creek also provides suitable foraging habitat for this species. Numerous night herons (*Nycticorax nycticorax*), a similar species that shares many of the same habitat characteristics as great blue heron, were observed during the August 16, 2011, site assessment. Therefore, this species has a high potential to occur within the study area.

Athene cunicularia hypugaea (western burrowing owl)

The nonnative grassland and other upland portions of the study area provide suitable foraging habitat for western burrowing owl. Although only a small number burrows were observed within the study area during the August 16 and 24, 2011, site assessments, the high number of CNDDB records of observations in areas surrounding the study area increases the potential for this species to occur within the study area. There is a very limited amount of foraging habitat within the upland portions of the study area along Stevens Creek and west, but a greater amount of higher quality foraging habitat is located within the portions of the Proposed Project area within NASA ARC. Four focused surveys for burrowing owls were performed in this portion of NASA ARC in spring of 2011. No active burrowing owl nests, satellite burrows, or foraging burrowing owls were observed during these surveys. This information, combined with the relatively high degree of disturbance in a significant portion of these areas, indicates a low likelihood that western burrowing owl would use the study area. Additionally, other areas of NASA ARC are managed to support the species and would be preferential for foraging and burrowing. Therefore, the potential for this species to occur within the study area along Stevens Creek is low and within NASA ARC is moderate.

Aquila chrysaetos (Golden Eagle)

Golden eagles have been observed in the Bay View area, and foraging habitat is available in the area's non-native grasslands and weed dominated habitats (Alderete 2012). Therefore, this species has a high potential to occur within the study area.

Circus cyaneus (northern harrier)

Suitable foraging and marginal nesting habitat for northern harrier occurs in the nonnative grassland habitat and disturbed areas within the study area. Therefore, this species has a moderate potential to occur within the study area.

Elanus leucurus (white-tailed kite)

The nonnative grassland and disturbed areas within the study area provide suitable foraging habitat for white-tailed kite. Also, trees within and adjacent to the study area provide suitable nesting substrate for this species. Therefore, this species has a moderate potential to occur within the study area.

Egretta thula (snowy egret)

The portion of Stevens Creek and adjacent vegetation within the study area provide suitable foraging and nesting habitat for snowy egret. There are several documented snowy egret nests among a great egret nesting colony on Shorebird Way (San Francisco Bay Bird Observatory 2011). Therefore, this species is present and has a high potential to nest within the study area.

Rallus longirostris obsoletus (California clapper rail)

Within the study area, the northern portion of Stevens Creek and adjacent vegetation provide marginal foraging habitat for California clapper rail. This species is typically known to occur on tidal mudflats to tidal sloughs, which are located farther downstream in the Stevens Creek drainage than those within the study area. These downstream tidal sloughs are discontinuous with Stevens Creek though, because the creek is channelized out to the bay. Nesting habitat does not exist within the study area; however, the potential for this species to occur within the study area exists. Therefore, this species has a low potential to occur within the study area.

Wildlife Movement

Habitat linkages or *wildlife movement routes* are general terms for areas that provide habitat connections for wildlife between two distinct points. Often, linkages or movement routes describe areas between habitat that has been separated or fragmented by topography, changes in vegetation, or other natural or human disturbances or land use changes. The fragmentation of natural habitat creates isolated “islands” of vegetation that may not provide sufficient area or resources to accommodate sustainable populations for a number of species, thus adversely affecting both genetic and species diversity.

Corridors somewhat mitigate the adverse effects of habitat fragmentation by (1) allowing animals to move between remaining habitats to replenish depleted populations and increase the available gene pool; (2) providing escape routes from fire, predators, and human disturbances, thus reducing the risk that catastrophic events (such as fire or disease) will result in population or species extinction; and (3) serving as travel paths for individual animals moving throughout their home range in search of food, water, mates, and other needs or for dispersing juveniles in search of new home ranges.

The study area currently provides important habitat linkages and wildlife corridors along Stevens Creek. However, the high degree of development, namely, to the south and west of the study area, and the fragmentation of surrounding land significantly reduces the habitat linkage value of the remaining natural land outside of the Stevens Creek levees. Consequently, wildlife with relatively

small home ranges, fish restricted to the Creek, raccoon (*Procyon lotor*), skunk (*Mephitis mephitis*), and black-tailed jackrabbit (*Lepus californicus*) are expected to be able to reside and pass through habitats in the study area and surrounding landscape. Further, numerous cliff swallow (*Petrochelidon pyrrhonota*) nests and individuals were observed underneath the bridge spanning Stevens Creek in the northern portion of the study area. Many birds and mammals that forage in the grasslands adjacent to Stevens Creek seek both water and forest shelter (nest sites, roosts, and cover) within Stevens Creek and shelter within the trees and vegetation between the parking lot and the grassland west of the study area as well as the vegetation immediately east of the study area.

Migration is the seasonal or periodic movement of individuals from one area to another, typically over long distances. Migration typically occurs in response to seasonal changes in abundance or distribution of food sources or available breeding habitat. Examples of migratory species include many songbirds, mammals such as mule deer and many whales, and Monarch butterflies. There is no evidence that any terrestrial species use Stevens Creek and the surrounding study area for regular migration, with the exception of two anadromous fish species. Central California coast steelhead and fall-run Chinook salmon have been documented migrating up Stevens Creek from the ocean, where they spend most of their life feeding, to spawning habitat, where each species mates with other members of its species, females spawn, and males fertilize the eggs. Additionally, migratory songbirds and raptors were observed within the study area.

Although the Proposed Project area includes Stevens Creek, the Creek would be entirely spanned, and no in-water work would occur as part of the Proposed Project. Therefore, no deleterious effects on migrating anadromous fish species are expected to result from implementation of the Proposed Project. There are no known native wildlife nursery sites on within the Proposed Project area, except the cliff swallow nests under the existing bridge and the potential bat roosting areas described above.

4.4.1.5 Impact Avoidance Measures Incorporated into Project Design

No structures, permanent or temporary, would be built within Stevens Creek, and no changes would be made to the existing levees, except for minor modifications at the new pedestrian/bicycle bridge as may be required by the SCVWD. The new bridges would free-span Stevens Creek and its levees completely. The new pedestrian/bicycle bridges would also free-span Stevens Creek. Additionally, to avoid or minimize impacts to the transitional habitat adjacent to the Western Diked Marsh, the eastern roadway approach to the Crittenden Lane bridge will be elevated on short piers constructed along the shortest possible feasible alignment through the wetland buffer area that is consistent with safe and sound traffic engineering standards.

4.4.2 Effects

4.4.2.1 Criteria for Determination of Adverse Effect

An effect on biological resources was considered adverse if construction or operation of the Proposed Project would have a substantial adverse effect on

- Species identified as a candidate, sensitive, or special-status species.
- Riparian habitat or other sensitive natural community.
- Federally protected wetlands, as defined by Section 404 of the CWA.

- The movement of any native resident or migratory fish or wildlife species, wildlife corridors, or native wildlife nursery sites.
- Species or individuals, such as trees, that are protected by local policy or ordinance.

Furthermore, an effect on biological resources was considered adverse if construction or operation of the Proposed Project would

- Conflict with an adopted habitat conservation plan or other habitat conservation plan.

4.4.2.2 Sources and Methods

Potential adverse effects on special-status species in the study area were evaluated based on a review of the available literature regarding the status and known distribution of the special-status species within the study area and data collected from surveys of the Proposed Project area on August 16 and 24, 2011. Principal sources of information consulted during analysis include the following;

- FWS list of endangered and threatened species that may occur in or be affected by projects in the U.S. Geological Survey's 7.5-minute quadrangle of Mountain View, current as of September 23, 2011 (U.S. Fish and Wildlife Service 2011) (included in Appendix E).
- The CDFG's CNDDB query results for the U.S. Geological Survey's 7.5-minute quadrangle of Mountain View (California Natural Diversity Database 2011) (included in Appendix E).
- The California Native Plant Society's electronic inventory (California Native Plant Society 2011) (included in Appendix E).

After review of all data sources, a final list of candidate, sensitive, and special-status species with moderate or greater potential to occur in the vicinity of the study area was compiled, and each of the species was evaluated for presence on or absence from the site. In addition, the presence of suitable habitat was evaluated. Candidate, sensitive, and special-status plant species that might occur on the Proposed Project site are shown in Table 4.4-1. Wildlife species are shown in Table 4.4-2. These tables also include, for information purposes, species with no or low potential to occur within the study area. CNDDB records within 2 miles of the study area are shown in Figure 4.4-2.

To refine the list of species potentially affected by construction and operation of the Proposed Project, species in Tables 4.4-1 and 4.4-2 were rated for their potential to occur in the study area.

- Species rated as having "no potential to occur" have no suitable habitat in the study area or are thought to have been extirpated from the region.
- Species rated as having "low potential to occur" include species whose known distribution does not include the Proposed Project area, species for which little appropriate habitat or only marginal habitat is present in the study area, and species that have not been observed during recent surveys.
- Species rated as having "moderate or high potential to occur" include those species for which suitable habitat characteristics are present in the study area, even though the species was not detected during focused surveys. Species rated as "known to occur" have been observed in the study area.

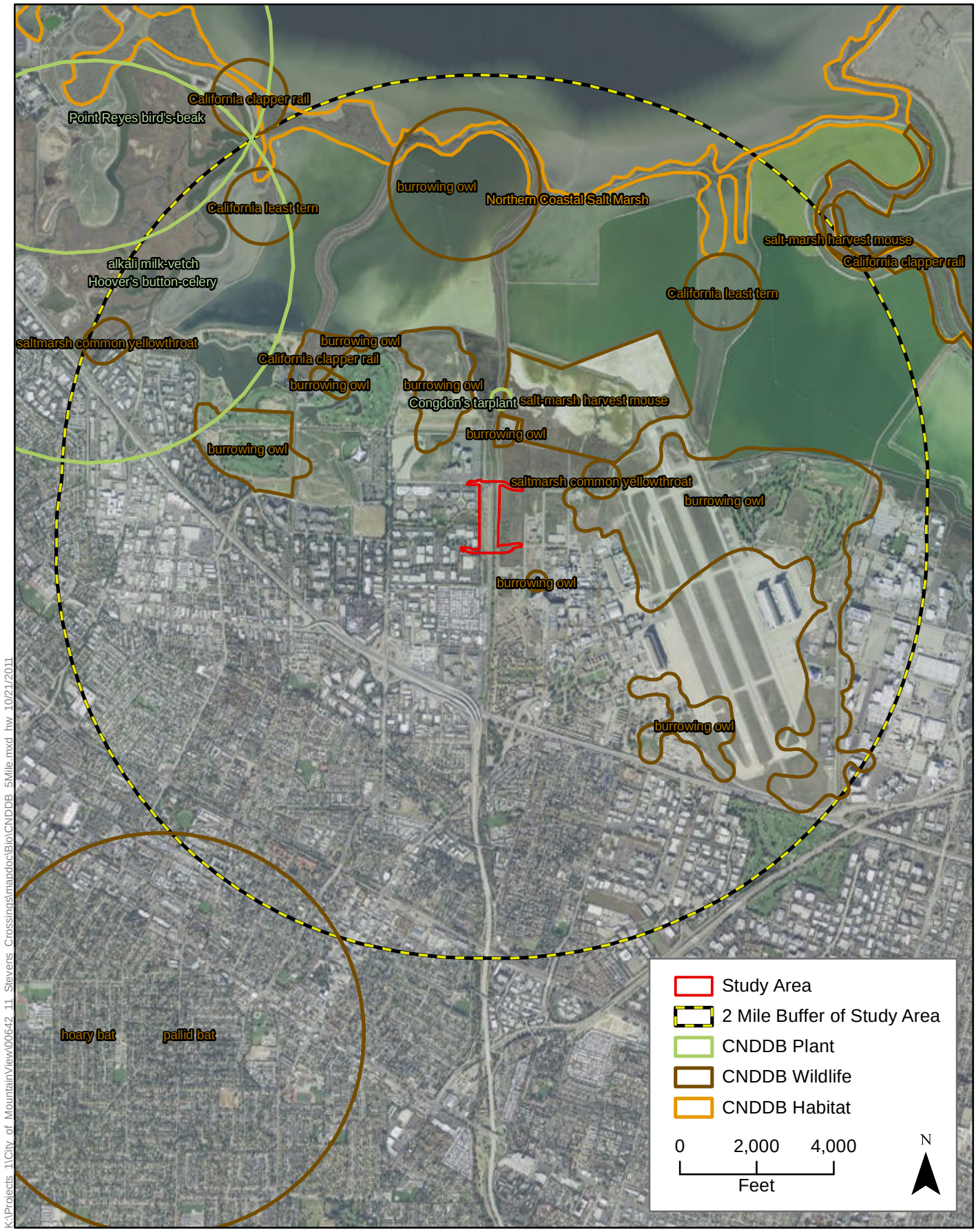


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Figure 4.4-2
CNDDB Occurrences within 2 Miles of Study Area

- Species rated as having "moderate or high potential to occur" or "known to occur" in the study area were considered in the impact analysis. Where impacts are significant, mitigation measures were identified to reduce these impacts to a less-than-significant level.

To estimate potential impacts on sensitive natural communities, the study area was overlaid on the distribution of vegetation communities and sensitive natural communities (Figure 4.4-1), and the acreage of each sensitive natural community was estimated through calculation using a geographic information system.

4.4.2.3 Project Effects

Effect BIO-1	Construction and operation of the Proposed Project could result in a substantial adverse effect on nests or upland movement habitat for Pacific pond turtle or direct impacts on Pacific pond turtle individuals.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

Suitable nesting and upland movement habitat for western pond turtle is present within the grasslands within the study area. Pacific pond turtle may also occur in upland habitats adjacent to Stevens Creek during juvenile dispersal or adult brumation (hybernation). The potential impact would be avoided with the implementation of environmental commitments identified in Section 3.2.4.4 for survey and avoidance of the species, if found. Environmental commitments regarding Pacific pond turtle include a survey 48 hours prior to initiation of construction activities, a requirement that all Proposed Project activities cease if Pacific pond turtle is found before or during Proposed Project activities until the turtle leaves the area or is relocated to suitable habitat elsewhere, and installation of a silt fence barrier around the work area to exclude turtles if they are regularly observed. The bridge would clear span the creek habitat once operational and post construction, the site would be returned to pre-project conditions within the levied channel.

Therefore, the Proposed Project would have a minor adverse effect, if found, on western pond turtle individuals under NEPA and a less than significant effect under CEQA.

Effect BIO-2	Construction and operation of the Proposed Project could result in a substantial adverse effect on roosts for hoary bat or direct impacts on individual bats.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

Suitable roosting habitat for hoary bat is present within the trees within the study area. Hoary bat may also occur over or in grassland habitats adjacent to Stevens Creek during foraging activities. The potential impact would be avoided with the implementation of environmental commitments identified in Section 3.2.4.4 for survey and avoidance of the species, if found. Environmental commitments regarding hoary bat include a survey of suitable habitat within 30 days construction initiation activities during the bat's roosting period (April 1 to August 31), and establishment of a

50-foot buffer from the work area if hoary bat is detected roosting during the survey. Hoary bats are not known to hibernate in this area, therefore no surveys are required November through March.

Therefore, the Proposed Project would have a minor adverse effect, if found, on hoary bat individuals under NEPA and a less than significant effect under CEQA.

Effect BIO-3	Construction and operation of the Proposed Project could result in the loss or abandonment of active nests for northern harrier, white-tailed kite, or other special-status raptors.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

Several special-status bird species, including golden eagle, northern harrier, and white-tailed kite, may use the grasslands as foraging habitat. The Proposed Project involves the potential development and/or disturbance of highly degraded ruderal grasslands that special-status birds may use during foraging.

Given the limited extent of the impact and the highly degraded nature of the habitat affected, the loss of foraging habitat potentially used by special-status birds would be considered minor under NEPA a less-than-significant impact under CEQA.

The two species of special-status raptors listed above could nest in trees and grasslands within the study area where new development is envisioned. Trees remaining within the study area adjacent to the proposed bridges may be unsuitable for nesting by some species because of ongoing disturbance and noise from traffic over the bridges. The loss of suitable nesting habitat within the study area is considered a less-than-significant impact because of the abundance of similar habitat north and south of the study area, within the water quality detention basin immediately west of the study area, and on portions of the open space and preserved areas at Moffett Federal Airfield.

Construction activities (including tree removal) and construction-related noise during the nesting season could result in the loss or abandonment of active nests of special-status bird species.

Environmental commitments regarding burrowing owl include:

- Surveys per California Burrowing Owl Consortium Burrowing Owl Survey Protocol and Mitigation Guidelines for burrowing owl within 250 of the Proposed Project grading boundaries no more than 14 days prior to initiation of construction activities;
- filling of burrows that are not used by burrowing owl to discourage their use as determined by a qualified biologist;
- establishment of a construction exclusion zone of 250 feet around any burrows occupied by burrowing owl, installation of one-way exclusion doors in the entrance of active burrows to allow burrowing owls to exit during the non-nesting season; and
- the postponement of clearing and construction activities within 250 feet of any nesting burrowing owl burrow until a plan is developed and implemented involving coordination with CDFG.

Implementation of environmental commitments identified in Section 3.2.4.4 incorporated into the Proposed Project would reduce development-related impacts on nesting northern harrier, white-tailed kite, and other protected raptors and migratory birds to minor under NEPA and less than significant under CEQA.

Effect BIO-4	Construction and operation of the Proposed Project could result in the loss of foraging habitat for western burrowing owl.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

Western burrowing owl could use the grasslands for foraging. The Proposed Project involves the potential development and/or disturbance of grassland that western burrowing owl may use during foraging. Therefore, the mortality or disturbance of foraging habitat potentially used by this species would be considered a significant impact. Environmental commitments regarding burrowing owl include a survey (per California Burrowing Owl Consortium Burrowing Owl Survey Protocol and Mitigation Guidelines) for burrowing owl within 250 of the Proposed Project grading boundaries no more than 14 days prior to initiation of construction activities, filling of burrows that are not used by burrowing owl to discourage their use as determined by a qualified biologist, establishment of a construction exclusion zone of 250 feet around any burrows occupied by burrowing owl, installation of one-way exclusion doors in the entrance of active burrows to allow burrowing owls to exit during the non-nesting season, and the postponement of clearing and construction activities within 250 feet of any nesting burrowing owl burrow until a plan is developed involving coordination with CDFG and implemented.

With the implementation of the biological environmental commitments identified in Section 3.2.4.4, impacts on burrowing owl would be avoided or minimized, thereby reducing effects on this species to minor under NEPA and less-than-significant under CEQA

The loss of suitable foraging habitat within the study area is considered minor under NEPA and less-than-significant under CEQA because of the abundance of similar habitat east and northwest of the study area and on portions of the open space and preserved areas within NASA ARC.

Effect BIO-5	Construction and operation of the Proposed Project could result in the loss or abandonment of active nests or burrows for California clapper rail.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

California clapper rail could forage within Stevens Creek and nest within the adjacent vegetation in the study area. This species has been observed north of the Proposed Project, specifically along Stevens Creek tidal slough north of the northwest (Bay View) portion of NASA ARC. While suitable habitat within the Proposed Project area is marginal at best, primarily due to the lack salt marsh habitat, the potential for California clapper rail to occur within the Proposed Project area remains. The Proposed Project involves the potential development and/or disturbance of areas near Stevens Creek that California clapper rail may use during foraging. Additionally, California clapper rail may nest in vegetation adjacent to Stevens Creek. Therefore, the mortality or disturbance of California

clapper rail or loss of an active nest of this species would be considered a significant impact. Environmental commitments regarding California clapper rail include a survey (per U.S. Fish and Wildlife survey protocol) for California clapper rail within 200 feet of the Proposed Project area no more than 48 hours prior to the commencement of construction activities during the breeding season (January 15–August 31), establishment of a 200-foot buffer around an active nest (if found during the survey) where construction activities will be postponed until the breeding season ends, and establishment of a 200-foot buffer around any individuals (if observed during the survey) where construction activities will be postponed until an avoidance plan is developed involving cooperation with the appropriate agencies and implemented. With the biological environmental commitments identified in Section 3.2.4.4 implemented, impacts on California clapper rail would be avoided or minimized, thereby reducing effects on this species to minor under NEPA and less-than-significant under CEQA.

The loss of potential nesting habitat adjacent to Stevens Creek within the study area is considered minor under NEPA and less-than-significant under CEQA because of the abundance of similar habitat north and south of the study area and more attractive nesting habitat adjacent to salt marsh and mud-flat habitats in portions of the open space and preserved areas within NASA ARC and north of the study area.

Effect BIO-6	Construction and operation of the Proposed Project could result in the disturbance of habitat for special-status fish species.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

Central California coast steelhead and fall-run Chinook salmon use Stevens Creek as a migratory corridor to upstream spawning areas. Construction of the Proposed Project could release excess sedimentation and contaminants into Stevens Creek. Bridge construction materials and loosened soils could enter Stevens Creek during construction. Implementation of the SWPPP and SPCC, as described under the hydrologic environmental commitments identified in Section 3.2.4.4, would prevent sedimentation and contaminants from entering the channel. Both bridges and the new pedestrian/bicycle bridge would free-span Stevens Creek. Temporary falsework would be installed above the high-water mark during the dry season and would be removed after construction is completed as per biological environmental commitments identified in Section 3.2.4.4. No permanent impacts on fish habitat would occur.

This impact is considered minor under NEPA and less than significant under CEQA.

Effect BIO-7	Construction and operation of the Proposed Project could introduce or cause the spread of noxious weeds, which could reduce the abundance of native plants and sensitive communities.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

Noxious weeds are defined as plants on the California Department of Food and Agriculture's List A or B or weeds rated as high or moderate by the California Invasive Plant Council (California

Department of Food and Agriculture 2005; California Invasive Plant Council 2006; California Invasive Plant Council 2007). Construction activities associated with the Proposed Project could inadvertently introduce noxious weeds or result in their spread into relatively uninfested areas adjacent to planned development, notably the riparian forest and emergent wetlands along Stevens Creek. This could degrade habitat for common native and special-status plant and wildlife species. Plant parts or seeds of noxious weeds may be dispersed via construction equipment or personnel if appropriate measures are not implemented.

The introduction or spread of noxious weeds could reduce the abundance or vigor of common and sensitive biological resources and cause the long-term degradation of sensitive natural communities (e.g., riparian forest and emergent wetland). Environmental commitments regarding noxious weeds include the use of only certified weed-free material for erosion control, implementation of BMPs to avoid the dispersal of noxious weeds during construction, and removal of topsoil of uninfested areas and its usage as suitable fill in backfilling activities.

The implementation of biological environmental commitments identified in Section 3.2.4.4 would reduce potential effects to minor under NEPA and less than significant under CEQA.

Effect BIO-8	Construction and operation of the Proposed Project could adversely affect the function of the transitional habitat adjacent to the Western Diked Marsh.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

The NADP PEIS recognized that there could be edge effects on the wetlands in the Western Diked Marsh along the northern side of the Bay View Area of NASA ARC if the development of the Bay View Area were allowed to occur directly adjacent to the wetlands. To minimize the potential for these edge effects, the NADP PEIS included Mitigation Measure BIO-19, which created a 200-foot (61-meter) wide buffer adjacent to the Western Diked Marsh in which construction would be avoided. The buffer was created because it contained upland transitional habitat, but no wetlands. As provided for in NADP PEIS Mitigation Measure BIO-18, this buffer area would instead be used to construct swales and other water filtration mechanisms to intercept and filter any runoff from the portion of the Bay View Area to be developed before it reaches the Western Diked Marsh. Construction of the swales would be permitted within the buffer zone, but not within the adjacent wetlands themselves(NASA Ames Research Center 2002).

Although Measure BIO-19, as described above, states that construction in the buffer would be avoided, it does not explicitly prohibit construction in this zone, for example, when a developer has made every effort to minimize impacts to the functional integrity of the buffer through conscientious project design. The Crittenden Lane roadway and bike path approach has been designed so as to not compromise the commitments that were made in the NADP PEIS to utilize the 200-foot buffer area for the construction of swales and other water filtration mechanisms. As shown in Figure 4.4-2, the eastern approach roadway will be routed through the wetland buffer area along the shortest possible feasible alignment consistent with safe and sound traffic engineering standards, in large part to meet the purpose and need for effective emergency response access while minimizing the footprint. Additionally, a portion of the roadway, which extends into the buffer for approximately

220 linear feet (67 linear meters), will be elevated on short piers so as to minimize impacts to the underlying habitat and to allow the buffer area to continue to serve its Bay View Area runoff filter function. This will also allow the biofiltration swales planned for this area to be constructed under the elevated roadway and throughout the buffer area in the manner contemplated by the NADP PEIS. On the eastern end of the alignment, the elevated roadway transitions to an at-grade segment outside of the wetland buffer zone at the edge of the Bay View development. Other design considerations that will be included in the bridge design so as to avoid impacts to the buffer include the following:

- Drainage along the roadway and shoulder will be routed into existing stormwater vaults and to future stormwater infrastructure associated with the Bay View development, thereby avoiding stormwater-induced degradation of the buffer.
- The landscaping on the northern perimeter of the roadway within the buffer will be carefully designed to discourage unauthorized use of the buffer area. Examples of design elements include use of informational signage describing the value of preserving wetlands and natural or engineered barriers to discourage intrusion into the buffer area.
- A regular maintenance program will be enacted to remove debris that would otherwise runoff in the stormwater.

Additionally, applicable pre-construction species survey, avoidance and relocation requirements specified in the Biological Resource Commitments listed in Section 3.2.4.4, including the survey for the Pacific pond turtle, will be followed in the construction of the eastern roadway approach.

The implementation of biological environmental commitments identified in Section 3.2.4.4 would reduce potential effects to minor under NEPA and less than significant under CEQA.

Effect BIO-9	Construction and operation of the Proposed Project could result in the removal of trees regulated by the City of Mountain View.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

Numerous trees occur within the study area that contribute to habitat complexity and structure and ultimately the biological diversity of habitats within the study area. The majority of trees within the study area are not expected to be removed for implementation of the Proposed Project. However, the removal of trees within the riparian habitat and other communities within the study area would result in an overall loss of trees and degradation of natural community structure. This would represent a substantially adverse impact on these sensitive natural communities and be counter to local ordinances. Environmental commitments regarding heritage trees include a survey of trees to be removed and data collection from each, preparation of a tree survey report suitable to the City of Mountain View, avoidance of regulated trees where possible, and development of a tree mitigation plan per the City's ordinances subject to the City of Mountain View's approval.

Implementation of biological environmental commitments identified in Section 3.2.4.4 would lessen the effect to minor under NEPA and less-than-significant under CEQA.

4.4.2.4 One Bridge/Two Lane Alternative—Crittenden Option

The Crittenden Lane One Bridge/Two Lane Alternative would result in the same potential effects to species and habitats as the Proposed Project, but would lessen the potential for effects to occur in the vicinity of Charleston Road that could occur with the Proposed Project because less area would be disturbed under this alternative than the Proposed Project.

4.4.2.5 No-Action Alternative

Under the No-Action alternative, there would be no new effects on sensitive and common biological resources.

4.5 Cultural Resources

This section describes existing conditions related to cultural resources at the Proposed Project site, summarizes applicable regulations and policies, and analyzes potential short-term construction and long-term operational impacts on cultural resources that could result from implementation of the Proposed Project.

4.5.1 Affected Environment

4.5.1.1 Study Area

The proposed Stevens Creek Crossings Project is located in the City of Mountain View in northern Santa Clara County. The Proposed Project site crosses a portion of a PG&E transmission line corridor, a plant nursery that is permitted within the PG&E corridor, the Stevens Creek Trail, and the SCVWD maintained Stevens Creek stream channel. The Proposed Project area for the eastern bridge approaches includes portions of two existing public roads, the eastern termini of both Charleston Road and Crittenden Lane in the City of Mountain View. The Proposed Project area for the western bridge approaches is in the Bay View Area of NASA ARC facility but within the legal boundaries of the City of Mountain View.

Land uses surrounding the Proposed Project site include commercial office space, with some light industrial development in the North Bayshore Area of the City, and undeveloped land on NASA ARC property.

4.5.1.2 Regional Setting

Prehistory

Milliken et al. (2007) present a series of culture changes in the San Francisco Bay Area. Between 11,500 and 8,000 cal B.C., Clovis big-game hunters, then initial Holocene gatherers, presumably lived in the area. This time period lacks evidence, presumably because most of it has been washed away by stream action, buried under more recent alluvium, or submerged on the continental shelf (Rosenthal and Meyer 2004a:1).

The Early Holocene (Lower Archaic), 8000–3500 cal B.C.

Between 8000 and 3500 cal B.C., the Bay Area was occupied by a widespread but sparse hunter-gatherer population. The millingslab, handstone, and a variety of large projectile points all emerged during this period (Milliken et al. 2007:114). The Metcalf Creek Site (SCL-178), a deeply stratified deposit in the southern Santa Clara Valley, yielded cultural materials as deep as 9 meters below the surface (Hildebrandt 1983), and radiocarbon determinations from a feature and an *Olivella biplicata* spire-lopped bead indicate the presence of cultural materials dating as early as 7500 cal B.C. (Fitzgerald and Porcasi 2003; Fitzgerald et al. 2005).

The Early Period (Middle Archaic), 3500–500 cal B.C.

Several technological and social developments characterize this period in the Bay Area. The mortar and pestle were first documented in the Bay Area shortly after 4000 B.C., and by 1500 cal B.C., cobble mortars and pestles were widespread. The earliest cut bead horizon, the *Olivella* grooved rectangle (Vellanoweth 2001), bracketed 3400 to 2500 cal B.C., is represented by a single bead from the San Bruno Mound (Clark 1998:127, 156). Double-perforated *Haliotis* rectangle beads were first documented at the 5,590-year-old Sunnyvale Red Burial (SCL-832), which exhibited preinterment burning (Cartier 2002).

Lower Middle Period (Initial Upper Archaic), 500 cal B.C. to cal A.D. 430

During this period, rectangular shell beads disappeared from the Bay Area, and a whole new suite of decorative and presumed religious objects appeared during the Early Period-Middle Period Transition (EMT) (Elsasser 1978), which corresponds to the beginning of this period. Bead horizon M1 of the Middle Period (Upper Archaic, 200 cal B.C. to cal A.D. 430), which developed out of the EMT, marked the first of a series of bead horizons that marked central California bead trade until cal A.D. 1000 (Groza 2002). In the South Bay, the millingslab-/handstone-oriented forager economy continued along the Pacific Coast of San Mateo County (Hylkema 2002:261).

Upper Middle Period (Late Upper Archaic), cal A.D. 430 to 1050

Around 430 A.D., the *Olivella* saucer bead trade network collapsed, and over half of the known bead horizon M1 sites were abandoned, while the remaining sites saw a large increase in sea otter bones. Additionally, the Meganos extended burial mortuary pattern began to spread in the interior East Bay (Bennyhoff 1994a, 1994b). In the South Bay, the Meganos mortuary complex spread from the interior into the Santa Clara Valley at Wade Ranch (SCL-302) (Milliken et al. 2007:116).

Initial Late Period (Lower Emergent), cal A.D. 1050 to 1550

Fredrickson (1973) coined the term "emergent" to describe this period, characterized by a new level of sedentism, status ascription, and ceremonial integration in lowland central California. During the Middle/Late Transition (MLT) bead horizon, which likely occurred around cal A.D. 1000 (Milliken et al. 2007:116), elaborate burial objects and initial markers of the Augustine Pattern, such as new *Olivella* bead types and *Haliotis* ornaments, appeared for the first time. In the San Jose and Point Año Nuevo Localities, local Franciscan chert remained the primary production material for debitage and casual tools, and Napa Valley obsidian remained the primary production material for projectile points (Bellifemine 1997:124–136; Clark and Reynolds 2003:8; Hylkema 2002:250).

Terminal Late Period: Protohistoric Ambiguities

Changes in artifact types and mortuary objects characterized cal A.D. 1500–1650. The signature *Olivella* sequin and cup beads of the central California L1 bead horizon abruptly disappeared. Until around cal A.D. 1650, the only beads found in South Bay and Central Bay mortuaries were *Olivella* lipped and spire-lopped beads, which occurred less frequently (Milliken and Bennyhoff 1993:392). Desert side-notched points spread into the South Bay from the Central Coast (see Hylkema 2002; Jackson 1986, 1989; Jurmain 1983).

Another upward cycle of regional integration was likely commencing when it was interrupted by Spanish settlement in the Bay Area beginning in 1776. Such regional integration was a continuing

characteristic of the Augustine Pattern, most likely brought to the Bay Area by Patwin speakers from Oregon, who introduced new tools (such as the bow) and traits (such as preinterment grave pit burning) into central California. Perhaps the Augustine Pattern, with its inferred shared regional religious and ceremonial organization, was developed as a means of overcoming insularity, not in the core area of one language group but in an area where many neighboring language groups were in contact (Milliken et al. 2007:118).

Ethnography

Mountain View is situated within territory once occupied by Costanoan (also commonly referred to as Ohlone) language groups. Eight Ohlone languages were spoken in the area from the southern edge of the Carquinez Strait to portions of the Big Sur and Salinas rivers south of Monterey Bay and approximately 50 miles inland from the coast. Mountain View lies on the approximate ethnolinguistic boundary between the Tamyen and Ramaytush languages. Tamyen, or Santa Clara Costanoan, was spoken around the south end of San Francisco Bay and in the lower Santa Clara Valley and seems to have had about 1,200 speakers. Ramaytush, or San Francisco Costanoan, was spoken by about 1,400 people in San Mateo and San Francisco counties (Levy 1978:485).

Ohlone territories were composed of one or more land-holding groups that anthropologists refer to as "tribelets." The tribelet consisted of a principal village occupied year-round, with a series of smaller hamlets and resource gathering and processing locations occupied intermittently or seasonally (Kroeber 1955: 303–314). The closest known tribelet settlements to Mountain View are believed to be the *puyson* (Arroyo de San Francisco), San Jose Cupertino, and Santa Clara (King 1978:437–438; Levy 1978:485, Figure 1). Milliken has also noted that the *Puichon* tribelet lived on the west shore of San Francisco Bay between lower San Francisquito Creek and lower Stevens Creek, now the areas of Menlo Park, Palo Alto, and Mountain View (Milliken 1995:252).

Seven Spanish missions were founded in Ohlone territory between 1776 and 1797. While living within the mission system, the Ohlone commingled with other groups, including the Yokuts, Miwok, and Patwin. Mission life was devastating to the Ohlone population (Milliken 1995). When the first mission was established in Ohlone territory in 1776, the Ohlone population was estimated be 10,000. By 1832, the Ohlones numbered less than 2,000 as a result of introduced disease, harsh living conditions, and reduced birth rates (Cook 1943a, 1943b in Levy 1978:486).

Ohlone recognition and assertion began to move to the forefront during the early 20th century, enforced by legal suits brought against the United States government by Indians of California (1928–1964) for reparation due them for the loss of traditional lands. The Ohlone participated in the formation of political advocacy groups, which brought focus upon the community and reevaluation of rights due its members (Bean 1994:xxiv). In recent years, the Ohlone have become increasingly organized as a political unit and have developed an active interest in preserving their ancestral heritage. Many Ohlones are active in maintaining their traditions and advocating for Native American issues.

History

Spanish explorers in the late 1760s and 1770s were the first Europeans to traverse the Santa Clara Valley. In 1777, Mission Santa Clara and Pueblo San Jose de Guadalupe were established and became the first Spanish settlements in the valley. During the Mexican Period (1822–1846), vast tracts of

land were granted to individuals, including former mission lands that had reverted to public domain (City of Mountain View with LSA Associates 2009).

Mountain View is situated within what was the Rancho Pastoria de las Borregas and "open," ungranted lands. Old Mountain View, which was situated along El Camino Real, began as a stage stop. However, it deteriorated as a commercial center upon the arrival of the San Francisco-San Jose Railroad.

The population of the Santa Clara Valley expanded as a result of the Gold Rush (1848), the construction of the railroad to San Francisco (1854), and the completion of the transcontinental railroad (1869). The agricultural land use of Mountain View and the surrounding area established during the Spanish-Mexican period was reinforced in the American period and persisted until the post–World War II urban development. Throughout the 19th and mid-20th centuries, the valley thrived as a center for horticulture and fruit production. After World War II, much of the agricultural land was replaced by dense urban housing, commercial centers, and the electronics industry, all of which gave rise to the area now known as "Silicon Valley" (City of Mountain View with LSA Associates 2009).

In 1933, the area also became home to the military when the United States government commissioned the Sunnyvale Naval Air Station (NAS) (later renamed NAS Moffett Field) to serve as a home base for the Navy dirigible *U.S.S. Macon*. In 1939, the National Advisory Committee for Aeronautics (NACA) established a laboratory adjacent to the naval air station and named it after the then-chairperson of the NACA, Joseph S. Ames. The laboratory was renamed the NASA Ames Research Center with the formation of NASA in 1958. Today, NASA Ames continues to thrive as a world-class research and development campus in the fields of nanotechnology, information technology, fundamental space biology, biotechnology, thermal protection systems, and human factors research (National Aeronautics and Space Administration 2011).

4.5.1.3 Project Setting

Areas that are near natural water sources (e.g., riparian corridors and tidal marshland) should be considered areas of high sensitivity for prehistoric archaeological deposits and associated human remains. Such ecologically rich areas would have provided abundant and readily accessible resources for the aboriginal population that favored these areas as places for locating habitation and resource processing sites.

The Proposed Project area was historically in proximity to the San Francisquito Salt Marsh (City of Mountain View with LSA Associates 2009). In the Santa Clara Valley, prehistoric archaeological deposits can be associated with buried Holocene landforms, and the absence of surface materials does not preclude the possibility of significant abundant subsurface archaeological deposits (City of Mountain View with LSA Associates 2009).

Riparian forest was observed in the central to southern portions of the study area, on the island in the middle of Stevens Creek. Developed and disturbed land within the study area consist of paved and graveled roads and bike paths, ornamental vegetation, and storage areas for maintenance vehicles and landscaping material.

4.5.2 Regulatory Setting

4.5.2.1 Federal

National Environmental Policy Act (42 USC 4321 et seq.)

NEPA requires that Federal agencies assess whether Federal actions would result in significant effects on the human environment. The CEQ's NEPA regulations further stipulate that identification of significant effects should incorporate "the degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places (NRHP) or may cause loss or destruction of significant scientific, cultural, or historic resources" (40 CFR 1508.27[b][8]).

Antiquities Act

The Federal Antiquities Act of 1906 was enacted with the primary goal of protecting cultural resources in the United States. It explicitly prohibits appropriation, excavation, injury, and destruction of "any historic or prehistoric ruin or monument, or any object of antiquity" located on lands owned or controlled by the Federal government without permission of the secretary of the Federal department with jurisdiction. It also establishes criminal penalties, including fines and/or imprisonment, for these acts. As such, the Antiquities Act represents the foundation of modern regulatory protection for cultural resources.

National Historic Preservation Act

The National Historic Preservation Act of 1966 (NHPA), as amended, sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the NRHP. Section 106 of NHPA requires Federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on those undertakings, following regulations issued by the ACHP (36 CFR 800).

4.5.2.2 State

California Environmental Quality Act and Guidelines (Section 15126.2[a])

CEQA requires that public or private projects financed or approved by State or local public agencies be assessed to determine their potential to affect historical resources. CEQA uses the term *historical resources* to include buildings, sites, structures, objects, or districts, each of which may have historical, pre-historical, architectural, archaeological, cultural, or scientific importance.

CEQA states that if implementation of a project would result in significant effects on historical resources, then alternative plans or mitigation measures must be considered; however, only significant historical resources need to be addressed (14 CCR 15064.5, 15126.4). Therefore, before impacts and mitigation measures can be identified, the significance of historical resources must be determined.

The State CEQA Guidelines define three ways that a property may qualify as a historical resource for the purposes of CEQA review.

1. The resource is listed in or determined eligible for listing in the California Register of Historical Resources (CRHR).
2. The resource is included in a local register of historical resources, as defined in Section 5020.1[k] of the Public Resources Code (PRC) or identified as significant in a historical resource survey meeting the requirements of Section 5024.1[g] of the Public Resources Code, unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
3. The Lead Agency determines the resource to be significant, as supported by substantial evidence in light of the whole record (CCR, Title 14, Division 6, Chapter 3, section 15064.5[a]).

Each of these ways of qualifying as a historical resource for the purpose of CEQA is related to the eligibility criteria for inclusion in the CRHR (PRC Sections 5020.1[k], 5024.1, 5024.1[g]). A historical resource may be eligible for inclusion in the CRHR if it meets any of the following conditions:

1. The resource is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
2. The resource is associated with the lives of persons important in our past.
3. The resource 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.
4. The resource has yielded, or may be likely to yield, information important in prehistory or history.

Properties that are listed in or eligible for listing in the NRHP are considered eligible for listing in the CRHR and thus are significant historical resources for the purpose of CEQA (PRC Section 5024.1[d][1]).

According to CEQA, a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant impact on the environment (14 CCR 15064.5[b]). Under CEQA, a substantial adverse change in the significance of a resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired. Actions that would materially impair the significance of a historic resource are any actions that would demolish or adversely alter the physical characteristics that convey the property's historical significance and qualify it for inclusion in the CRHR or in a local register or survey that meet the requirements of PRC Sections 5020.1[k] and 5024.1[g].

California Public Resources Code

Historical resources are considered under CEQA as well as California PRC Section 5024.1, which established the CRHR. PRC Section 5024 requires State agencies to identify and protect State-owned resources that meet NRHP listing criteria.

California Health and Safety Code—Treatment of Human Remains

Under Section 8100 of the California Health and Safety Code, six or more human burials at one location constitute a cemetery. Disturbance of Native American cemeteries is a felony (Health and Safety Code Section 7052).

Section 7050.5 of the Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the county coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must then contact the Native American Heritage Commission (NAHC), which has jurisdiction pursuant to Section 5097 of the California PRC.

When human remains are discovered or recognized in any location other than a dedicated cemetery, no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains may take place until the county coroner has been informed and has determined that no investigation of the cause of death is required, and, if the remains are of Native American origin, either:

- The descendants of the deceased Native American(s) have made a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98.

  or

- The NAHC was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the commission.

4.5.2.3 Local

Goal J: Identify and Preserve the City's Archaeological Resources

Archaeological Sites. Six formally recorded sites and three unconfirmed shell mounds have been documented in Mountain View. The most important of the archaeological sites was located near what is now Central Expressway and San Antonio Road; it was known as the Mountain View Mound. The site was first excavated by Stanford archaeologists in 1893. The remains of more than 150 Native Americans were recovered from the mound. The mound was estimated to be 500 feet long, 300 feet wide, and 10 feet deep. Archaeologists found a circular house floor almost 20 feet in diameter, needles, barbed fish spears, arrowheads, pestles, pendants, and pipes, many of which dated from 1100 B.C. to 800 B.C. Most of the Mountain View Mound was carved up in the 1940s and marketed as "Indian Mound Top Soil." The commercial use of the mound for topsoil and fill destroyed its archaeological value and, more importantly, its spiritual value as a Native American burial ground (City of Mountain View 1992a).

Policy 27. Improve Awareness of the City's Archaeological Resources

Action 27.a Maintain lists, descriptions, and photographic records of archaeological sites.

Action 27.b Develop standard practices or contingency plans for preserving archaeological materials that are unearthed during construction.

4.5.3 Effects

4.5.3.1 Criteria for Determination of Adverse Effect

Criteria for determining the effect of the Proposed Project on cultural resources are based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 et seq.).

An effect on cultural resources was considered adverse if construction or operation of the Proposed Project would have a substantial adverse effect on:

- A prehistoric or historic archaeological resource.

Furthermore, an effect on cultural resources was considered adverse if construction or operation of the Proposed Project would:

- Disturb human remains.

4.5.3.2 Sources and Methods

Bibliographic references, previous survey reports, historic maps, and archaeological site records pertaining to the study area were compiled through a records search of the California Historical Resources Information System (CHRIS) to identify prior studies and known cultural resources within a 0.5-mile radius of the Proposed Project's area of potential effects (APE). The records search and literature review identified one previously recorded archaeological resource and nine historic-era (buildings) within 0.5 mile of the APE. P-43-000043 (CA-SCL-23), the former Crittenden Mound, was recorded in 1912. At that time, Loud noted that the mound had been plowed so much that no significant historic resources were left (Loud 1912). Additionally, numerous archaeological surveys conducted since the 1970s have failed to find any evidence of this site, and NASA recommended that the site be deleted as significant in the State's records (Olliges 1995).

One historic-era resource, the Henry A. Rengstorff House, located at 1737 Stierlin Road, about 0.5 mile west of the Proposed Project area, is listed in the NRHP. The house was moved in 1986 to 3070 N. Shoreline Boulevard. It is a late-Victorian Italianate house that was built in 1867.

The remaining seven historic-era resources comprise buildings located at NASA ARC. These buildings were constructed in the 1940s. All of them have been remodeled, renovated, and/or expanded since then. Because of these modifications, none of the NASA ARC resources were considered eligible for listing in the NRHP.

A total of 47 reports have been conducted within 0.5 mile of the Proposed Project area. Of those 47 reports, seven reports covered areas within or adjacent to the Proposed Project area. One report, S-4492, *An Archaeological Field Reconnaissance of Stevens Creek between the Bay and Homestead Boulevard in Mountain View, California* (Holman 1978), covers Stevens Creek throughout the Proposed Project area. Another report, S-22725, *Archaeological Survey and Record Search Results for the Fourteen Broadwing Bay Area Fiber Optic Segments, California: Final Report* (Pacific Legacy, Inc. 2000), surveyed a portion of Stevens Creek between the proposed locations of Bridges 1 and 2. No cultural resources were identified as a result of either of these surveys. Report S-8447, *Cultural Resources Review for the Ames Research Center Environmental Resources Document, Santa Clara County, California* (Chavez 1981), provides a general overview of cultural

resources at NASA ARC. The recorded location of the former Crittenden Mound was investigated as part of this study.

Two reports for areas adjacent to the Proposed Project area, S-16393, *Final Report, Archaeological Testing Program, CA-SCL-23 and Vicinity, for the National Wind Tunnel Complex (NWTC), NASA Ames Research Center, Moffett Field, Santa Clara County* (D. Garaventa et al. 1993), and S- 19881, *NASA Ames Research Center, Moffett Field; Section 110 Survey* (NASA Ames Research Center 1997), focused on the wind tunnel complex at NASA ARC, which also covers the location of the former Crittenden Mound.

Report S-36816, *Cultural Resources Investigation for T-Mobile Site SF54277A, "PG&E Charleston" (Tower #6/4340642140), End of Charleston Road, Mountain View, Santa Clara County, California 94043* (Losee 2010), investigated a small area at Charleston Road/Stevens Creek for a cell tower location. No cultural resources were identified as a result of this survey.

The remaining 40 reports included a variety of regional overviews, site-specific studies, and archaeological surveys for a variety of projects throughout Mountain View and Santa Clara County.

4.5.3.3 Project Effects

Effect CULT-1	Construction and operation of the Proposed Project could result in a substantial adverse effect on cultural resources as defined in Section 15064.5.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

The background research did not reveal the presence of any known cultural resources in the vicinity of the Proposed Project site. However, there is always the possibility that such resources could be encountered during ground-disturbing activities. As discussed in the Project Setting, areas that are near natural water sources (e.g., riparian corridors and tidal marshlands) should be considered areas of high sensitivity for prehistoric archaeological deposits. The Proposed Project area is in proximity to such environments. Historic archaeological resources could be related to NASA ARC buildings, many of which have undergone extensive renovations, or to the residential and commercial neighborhoods in the City of Mountain View in proximity to the Proposed Project area.

Project design includes commitments to stop work and consult with the appropriate authority if buried cultural resources are discovered during ground-disturbing activities. Potential impacts on cultural resources would be minor under NEPA and less than significant under CEQA with the implementation of environmental commitments incorporated into the Proposed Project.

Effect CULT-2	Construction and operation of the Proposed Project could result in a substantial adverse effect on previously undiscovered human remains.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

There are no known human remains in the vicinity of the Proposed Project site. However, there is always the possibility that human remains could be encountered during ground-disturbing activities. As discussed in the Project Setting, areas that are near natural water sources (e.g., riparian corridors and tidal marshlands) should be considered highly sensitive for human remains associated with prehistoric archaeological deposits. The Proposed Project area is in proximity to such environments.

Project design includes commitments to stop work and consult with appropriate authority if buried human remains are discovered during ground-disturbing activities. Potential impacts on human remains would be minor under NEPA and less than significant under CEQA with the implementation of environmental commitments incorporated into the Proposed Project.

4.5.3.4 One Bridge/Two Lane Alternative—Crittenden Option

The Crittenden Lane One Bridge/Two Lane Alternative would result in the same potential effects as the Proposed Project, but would lessen the potential for effects to occur in the vicinity of Charleston Road that could occur with the Proposed Project because less area would be disturbed under the Crittenden Lane One Bridge/Two Lane Alternative than the Proposed Project.

4.5.3.5 No-Action Alternative

Under the No-Action Alternative, there would be no new effects on cultural resources.

4.6 Geology and Soils

This section describes existing geological conditions and soils at the Proposed Project site, summarizes applicable regulations and policies, and analyzes potential short-term construction and long-term operational impacts on geology and soils that could result from implementation of the Proposed Project.

4.6.1 Affected Environment

4.6.1.1 Study Area

The study area for seismic effects is the greater Bay Area, which includes the San Andreas, Hayward, and Calaveras faults. The study area for effects resulting from soil characteristics is the Proposed Project site. The study area for effects on soil or paleontological resources is also the Proposed Project site.

4.6.1.2 Regional Setting

The City of Mountain View and NASA ARC are located in the Santa Clara Valley, part of a regionally extensive topographic depression that includes San Francisco Bay, in the Coast Ranges geomorphic province (California Department of Conservation 2002; Norris and Webb 1990).

The Santa Clara Valley is bounded by the Santa Cruz Mountains on the west and the Diablo Range on the east; topography in and around the Santa Clara Valley is largely controlled by strands of the San Andreas fault system. Bedrock exposed in the Santa Cruz Mountains to the south and west of the Proposed Project site includes Mesozoic Franciscan Complex sandstone and Miocene marine sedimentary rocks. To the east, the core of the Diablo Range uplift consists of Franciscan Complex (sandstone, chert, and ultramafic rocks), overlain by and faulted against Miocene marine and terrestrial sedimentary rocks. Both the Santa Cruz Mountains and the Diablo Range are bordered by an apron of Quaternary alluvium that reaches to the bay (Wagner et al. 1991).

Santa Clara Valley slopes gradually from the Diablo Range to the east and the Santa Cruz Mountains to the west toward San Francisco Bay. The valley's alluvial soils, built up through the deposition of gravel, sand, and clay, are more than 1,000 feet thick (NASA Ames Research Center 2002). The San Francisco Bay is largely ringed by Holocene (less than 10,000 years old) bay mud, consisting of gray, green, and blue clay as well as silty clay with lenses of well-sorted fine sand, peat, and oyster (*Ostrea* spp.) shell hash, which varies in thickness from negligible at the bay margin to as much as 120 feet at the northern county line (Brabb et al. 2000).

Much of Santa Clara Valley, including the Proposed Project site, experienced subsidence between 1932 and 1969 as a result of the overextraction of groundwater. Subsidence at NASA ARC was between 5 and 6 feet. Further subsidence has been halted through SCVWD's efforts; less groundwater is extracted, and surface reservoirs created to promote groundwater recharge have raised the water table. The current limited fluctuations in groundwater levels have a low probability to cause structural damage. Stormwater channels have been designed to minimize any problems that could result from local fluctuations (NASA Ames Research Center 2002).

The City of Mountain View and NASA ARC are underlain primarily by alluvium from the Quaternary period (1,800,000 B.P. to present), which resulted from Adobe, Permanente, and Stevens creeks deposits as well as estuarine deposits. Ages and sediment sizes for this alluvium range from oldest and largest in the south to youngest and smallest in the north, particularly at the bay's edge.

Late Pleistocene alluvium (126,000 B.P. to 10,000 B.P.) contains fossils of extinct invertebrates and vertebrates. Two recorded fossil localities from Late Pleistocene deposits lie within 2 miles of the border of the City of Mountain View (MIG, Inc. et al. 2009.)

4.6.1.3 Project Setting

Geology

The Proposed Project site is on Holocene bay mud. The Proposed Project site slopes from north to south at 1% or less. Low, man-made berms that keep bay waters from nearby roads and structures occur on the Proposed Project site (NASA Ames Research Center 2002). These berms are made from *engineered* fill.

Seismicity

The Proposed Project site is located in the San Francisco Bay Area, near several active faults. It lies approximately 10 miles east of the San Andreas fault, Santa Cruz Mountains section; 10 miles west of the Hayward fault, Southeast Extension section; and approximately 15 miles west of the Calaveras fault, Central Calaveras section. All of these faults have the potential for a large earthquake. The maximum credible earthquake expected on the San Andreas fault is 8.3 on the Richter scale. On the Hayward fault and Calaveras fault, the maximum credible earthquake is 7.5 (NASA Ames Research Center 2002).

Although no known active faults cross the Proposed Project site, and thus the risk of surface fault rupture is low, the Proposed Project site would be subject to other risks from seismic activity along one of the known active faults (Bryant and Cluett 1999, 2000; Bryant and Lundberg 2002; California Department of Conservation 2007, 2009; NASA Ames Research Center 2002; U.S. Geological Survey and California Geological Survey 2011). These risks include ground shaking, liquefaction, differential settlement, and lurch cracking.

Soils

The Proposed Project site is underlain by Alviso clay, a very poorly drained soil that developed on and occurs in level tidal flats. It is a neutral to slightly alkaline soil that extends approximately 6 to 10 inches below the surface. Because the water table is only 1 to 3 feet below the surface, Alviso clay is usually damp (Natural Resources Conservation Service 2010; Soil Conservation Service 1968; NASA Ames Research Center 2002).

The presence of Alviso clay soil raises several issues pertaining to the installation of structures. It is very poorly drained, which can cause flooding. Corrosivity on untreated steel pipe is high; this, together with the tendency to flood, can corrode unprotected steel. Alviso clay is easily compressible, which can lead to differential settlement around buildings. This soil also has high shrink-swell potential, which can cause cracking and heaving in concrete slabs and pavement

(Natural Resources Conservation Service 2010; Soil Conservation Service 1968; NASA Ames Research Center 2002).

Alviso clay presents no erosion hazard (Soil Conservation Service 1968).

Paleontological Resources

There are no known fossil localities at the Proposed Project site. Nearby fossil localities are from the Late Pleistocene. The young bay mud that underlies the Proposed Project site is not known to be fossil yielding (MIG, Inc. et al. 2009).

4.6.2 Regulatory Setting

4.6.2.1 Federal

Federal Regulations—Clean Water Act Section 402[p]

Amendments to the Federal CWA in 1987 added Section 402[p], which created a framework for regulating municipal and industrial stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) program. In California, the State Water Resources Control Board is responsible for implementing the NPDES program; pursuant to the State's Porter-Cologne Water Quality Control Act (see discussion in Chapter 8), it delegates implementation responsibility to the State's nine RWQCBs.

Under the NPDES Phase II rule, any construction project disturbing 1 acre or more must obtain coverage under the State's General Permit for Stormwater Discharges Associated with Construction Activity. The purpose of the Phase II rule is to avoid or mitigate the effects of construction activities, including earthwork, on surface waters. To this end, General Construction Permit applicants are required to file a Notice of Intent to Discharge Stormwater with the Regional Water Quality Board that has jurisdiction over the construction area and to prepare a Stormwater Pollution Prevention Plan (SWPPP) stipulating BMPs that will be in place to avoid adverse effects on water quality.

National Environmental Policy Act

NEPA does not provide specific guidance regarding paleontological resources, but the NEPA requirement that Federal agencies take all practicable measures to "preserve important historic, cultural, and natural aspects of our national heritage" (NEPA Section 101[b][4]) is interpreted as applying to paleontological materials.

Historic Sites Act

The Historic Sites Act of 1935 establishes a national registry of natural landmarks and protects "outstanding examples of major geological features." These include paleontological resources.

4.6.2.2 State

California Environmental Quality Act and Guidelines (Section 15126.2[a])

Topographic and geologic features and paleontological resources are protected under CEQA.

Alquist-Priolo Earthquake Fault Zoning Act

California's Alquist-Priolo Earthquake Fault Zoning Act (PRC Section 2621 et seq.), originally enacted in 1972 as the Alquist-Priolo Special Studies Zones Act and renamed in 1994, is intended to reduce the risk to life and property from surface fault rupture during earthquakes. The Alquist-Priolo Act prohibits the location of most types of structures intended for human occupancy[1] across the traces of active faults and strictly regulates construction in the corridors along active faults (earthquake fault zones). It also defines criteria for identifying active faults, giving legal weight to terms such as *active*, and establishes a process for reviewing building proposals in and adjacent to earthquake fault zones.

Under the Alquist-Priolo Act, faults are zoned, and construction along or across them is strictly regulated if they are "sufficiently active" and "well defined." A fault is considered *sufficiently active* if one or more of its segments or strands shows evidence of surface displacement during Holocene time (defined for purposes of the act as referring to approximately the last 11,000 years). A fault is considered *well defined* if its trace can be clearly identified by a trained geologist at the ground surface or in the shallow subsurface, using standard professional techniques, criteria, and judgment (Hart and Bryant 1997).

Seismic Hazards Mapping Act

Similar to the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (PRC Sections 2690–2699.6) is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act: the State is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped seismic hazard zones.

Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites within seismic hazard zones until appropriate site-specific geologic and/or geotechnical investigations have been carried out and measures to reduce potential damage have been incorporated into the development plans.

California Code of Regulations, Title 14, Division 3, Chapter 1, Sections 4307 and 4309

The CCR prohibits the destruction, disturbance, or removal of earth, rocks, and paleontological features.

[1] With reference to the Alquist-Priolo Act, a *structure for human occupancy* is defined as one "used or intended for supporting or sheltering any use or occupancy, which is expected to have a human occupancy rate of more than 2,000 person-hours per year" (California Code of Regulations, Title 14, Division 2, Section 3601[e]).

Public Resources Code Section 5097.5

The PRC prohibits removing, destroying, injuring, or defacing any vertebrate paleontological site, including fossilized footprints, or any other paleontological feature as well as items of archeological and historic interest that are situated on public lands, except with permission of the public agency with jurisdiction.

4.6.2.3 Local

City of Mountain View

General Plan

The Safety Element of the City of Mountain View General Plan establishes policies to protect the community from risks associated with earthquakes and other geological and soil-related hazards. The plan notes that ground shaking, liquefaction, and seismic settlement are the most destructive effects of seismic activity in the plan area. Policy 31 and related actions guide the City's approach to structural safety and stability, education, and emergency response. Policy 31 states the City's commitment to "[p]repare for the destructive force of earthquakes and attempt to lessen their effects" (source p. 130). Related actions continue resident educational programs, ensure upgrades for unreinforced masonry buildings, conform to and enforce adherence to the California Building Code, and continue updates to the City's Emergency Preparedness Plan.

Ordinances

The Chapter 8 of the City of Mountain View Code of Ordinances requires adherence to the California Building Code, 2010 edition. This edition of the California Building Code incorporates, by adoption, the 2009 edition of the International Building Code of the International Code Council, with California amendments (City of Mountain View 2011a). This code specifies designs for structural integrity, including in a seismically active area.

Association of Bay Area Governments

The City of Mountain View is an "actively participating jurisdiction" in the Association of Bay Area Governments (ABAG) Multi-Jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area (Association of Bay Area Governments 2010). The plan, which was released in 2005 and updated in 2010, is pending approval by the Federal Emergency Management Agency (FEMA). The plan is a joint effort among many jurisdictions in the Bay Area to "build a more disaster-resistant region." Local governments adhere to the plan when they adopt a formal resolution to support the plan's eight commitment areas: infrastructure, health, housing, economy, government services, education, environment, and land use. The plan lays out strategies that will help local jurisdictions set priorities as they allocate resources for hazard mitigation so that their approaches are mutually supporting. Local governments that adopt a hazard mitigation plan may be eligible for certain benefits, including hazard mitigation programs, points under the National Flood Insurance Program community rating system, and waiver of the local match requirement for public assistance moneys after a disaster (Association of Bay Area Governments 2010).

The City of Mountain View's mitigation strategy priorities related to geologic hazards include the following (Association of Bay Area Governments 2010):

- Requiring site geological technical investigations for structures to be built in areas known to be in or near seismic hazard zones.
- Accelerating retrofit of unreinforced masonry structures.
- Requiring new commercial and industrial structures to comply with the most recently adopted California Building Code.
- Providing technical assistance for reinforcing certain building types.
- Assessing the vulnerability of the City's infrastructure to geologic hazards.

4.6.2.4 Other

The Society of Vertebrate Paleontology, in response to a recognized need for standard guidance, published a set of standard guidelines for protecting paleontological resources from project impacts (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines 1995) that are now widely followed. The guidelines provide some standardization in evaluating a project area's paleontological sensitivity. The guidelines also provide a working definition for *significance* as applied to paleontological resources. According to the Society of Vertebrate Paleontology, significant paleontological resources are those that fulfill one or more of the following criteria (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995):

- Provides important information, shedding light on evolutionary trends and/or helping to relate living organisms to extinct organisms.
- Provides important information regarding the development of biological communities.
- Demonstrates unusual circumstances in the history of life.
- Represents a rare taxon or a rare or unique occurrence (i.e., is in short supply and in danger of being destroyed or depleted).
- Has a special and particular quality, such as being the oldest of its type or the best available of its type.
- Provides important information used to correlate strata for which it may be difficult to obtain other types of age dates.

Significant paleontological resources may include vertebrate fossils and their associated taphonomic and environmental indicators, invertebrate fossils, and/or plant fossils.

4.6.2.5 Impact Avoidance Measures Incorporated into Project Design

Projects which disturb less than one acre of soil and are not part of a larger common plan of development which in total disturbs a total of one acres or more, shall manage stormwater drainage during construction. In order to manage stormwater drainage during construction, one or more of the following measures shall be implemented to prevent flooding of adjacent property, prevent erosion and retain soil runoff on the site.

- Detention basins of sufficient size shall be utilized to detain stormwater on the site.

- Where stormwater is conveyed to a public drainage system, collection point, gutter or similar disposal method, water shall be filtered by use of a barrier system, wattle, or other method approved by the enforcing agency.

Stormwater pollutant control measures must be installed at construction sites year round, in compliance with Section 35.32.10.1(T) of the Mountain View City Code. The stormwater pollutant control measures listed in the ordinance include erosion control, run-on and runoff control, sediment control, active treatment (as appropriate), good site management, and non-stormwater management through all phases of construction until the site is fully stabilized by landscaping or the installation of permanent erosion control measures.

Section 5.106 Site Development

Section 5.106 of the 2010 California Green Building Standards Code requires that stormwater sediment and erosion control plan. For newly constructed projects of less than one acre to, contractors or other responsible parties are required to develop and implement a stormwater sediment and erosion control plan that has been designed specific to its site. The stormwater sediment and erosion control plan shall be developed to provide equivalent protection to projects regulated by the State Storm Water NPDES Construction Permit (greater than 1 acre of disturbed land), and Section 35.32.10.1(T) of the Mountain View City Code. The stormwater pollutant control measures that shall be included in the Plan include erosion control, run-on and runoff control, sediment control, astice treatment (as appropriate), good site management, and non-stormwater management through all phases of construction until it is fully stabilized by landscaping or the installation of permanent erosion control measures.

Note: No state permit is required, but construction BMPs as approved by the City of Mountain View shall be followed. BMPs include but are not limited to the following:

1. Erosion and sediment control BMPs:
    a. Scheduling construction activity
    b. Preservation of natural features, vegetation and soil
    c. Drainage swales or lined ditches to control stormwater flow
    d. Mulching or hydroseeding to stabilize soils
    e. Erosion control covers to protect slopes
    f. Protection of storm drain inlets (gravel bags or catch basin inserts)

4.6.3 Effects

4.6.3.1 Criteria for Determination of Adverse Effect

Criteria for determining the effect of the Proposed Project on geology and soils were based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 et seq.).

An effect on geology and soils was considered adverse if construction or operation of the Proposed Project would have a substantial adverse effect related to:

- Exposure of people to risks related to

  - Seimicity,
  - Unstable geologic units or soils, or
  - Expansive soils.
- Risk of soil erosion or loss of topsoil.
- Performance of septic tanks or alternative wastewater disposal systems.
- Paleontological resources or unique geologic features.

4.6.3.2 Sources and Methods

Effects related to geology, soils, and paleontological resources were analyzed qualitatively. The analysis, which was based on a review of soils, geologic, and paleontological information for the Proposed Project area and professional judgment, focused on the Proposed Project's potential to increase the risk of personal injury, loss of life, or damage to property, including new or upgraded facilities, as a result of existing geologic conditions in the Proposed Project area. The analysis also considered the Proposed Project's potential to damage paleontological resources.

4.6.3.3 Project Effects

The Proposed Project would not result in any impacts related to septic tanks or alternative wastewater disposal systems. The Proposed Project would not introduce any such systems. Therefore, this impact is not discussed further.

Effect GEO-1	The Proposed Project would increase the exposure of workers and bridge users to safety risks due to surface fault rupture resulting from seismic activity.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

The safety risk to construction and maintenance personnel as well as bridge users due to surface fault rupture could increase under the Proposed Project. However, the Proposed Project site is not within any earthquake fault zone designated by the State under the Alquist-Priolo Act (California Department of Conservation 2007). Accordingly, the risk of surface fault rupture at the site is considered low. Moreover, all new facilities would be designed and constructed to meet or exceed relevant standards specified by City of Mountain View code, including current California Building Code regulations. Further, the NADP requires that all structures built on NASA ARC property also adhere to current California Building Code regulations. These regulations include a wide variety of stipulations relevant to reducing earthquake-related risk, including foundation and structural designs and structural tolerances. The City of Mountain View Building Inspection Division would review the Proposed Project plans for compliance with the City of Mountain View code and California Building Code.

Because the risk of surface fault rupture is low and Proposed Project components would be constructed in accordance with California Building Code, the potential for impacts related to surface

fault rupture would be minor under NEPA and less than significant under CEQA. No mitigation is required.

Effect GEO-2	The Proposed Project would increase the exposure of workers and bridge users to the effects of seismically induced ground shaking, liquefaction, differential settlement, and heaving and cracking.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

The Proposed Project would increase safety risks for construction and maintenance workers as well as bridge users because of effects related to seismic activity. The maximum credible earthquake for nearby faults is 8.3 for the San Andreas fault and 7.5 for the Hayward and Calaveras faults. The Proposed Project area is likely to experience strong ground shaking, liquefaction, differential settlement, and heaving and cracking as a result of seismic activity on the region's principal active faults, either during construction or during the lifespan of the Proposed Project. The Proposed Project site is on bay mud, which is known to be subject to liquefaction and differential settlement. The principal concern related to human exposure to ground shaking, liquefaction, differential settlement, and cracking and heaving is that these processes can result in structural damage, potentially jeopardizing the safety of persons using the structures. However, all new facilities would be designed and constructed to meet or exceed relevant standards specified by City of Mountain View code, including current California Building Code regulations. Further, the NADP also requires that all structures built on NASA ARC property adhere to the California Building Code. These regulations include a wide variety of stipulations relevant to reducing earthquake-related risk, including foundation and structural designs and structural tolerances.

Further, environmental commitments for the Proposed Project (Section 3.2.4.4) include a requirement to design all new construction based on geotechnical analyses of proposed sites to determine the structural measures necessary to counter the shrink-swell potential of the soil and the risk of structural damage from ground subsidence.

Adherence to Proposed Project environmental commitments and to California Building Code regulations would minimize the potential for the Proposed Project to directly increase public safety risks related to seismic hazards. The effect would be minor under NEPA and less than significant under CEQA. No mitigation is required.

Effect GEO-3	The Proposed Project could increase the risk of damage to Proposed Project structures through exposure of uncoated steel Proposed Project components to corrosion.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

Soil at the Proposed Project site is Alviso clay, which is known to be corrosive to uncoated steel. The exposure of uncoated load-bearing steel to these soils, particularly under flood conditions, could undermine the structural integrity of Proposed Project facilities. However, all new facilities would be designed and constructed to meet or exceed relevant standards specified by City of Mountain

View code, including current California Building Code regulations. Further, the NADP also requires that all structures built on NASA ARC property adhere to current California Building Code regulations. These regulations include stipulations relevant to reducing risk due to soils, including foundation design stipulations.

Adherence to California Building Code regulations would minimize the potential for the Proposed Project to increase public safety risks related to corrosive soils directly. The effect would be minor under NEPA and less than significant under CEQA. No mitigation is required.

Effect GEO-4	The Proposed Project could increase the risk of damage to Proposed Project structures through ground subsidence, differential settlement, and cracking and heaving.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

The bay mud soil at the Proposed Project site is known to be expansive, compressible, and subject to non-uniform compression. The structural integrity of facilities built on these soils could be undermined. However, all new facilities would be designed and constructed to meet or exceed relevant standards specified by City of Mountain View code, including current California Building Code regulations. Further, the NADP requires that all structures built on NASA ARC property also adhere to current California Building Code regulations. These regulations include stipulations relevant to reducing risk due to soils, including foundation design stipulations.

Further, environmental commitments for the Proposed Project (Section 3.2.4.4) include a requirement to design all new construction based on geotechnical analyses of proposed sites to determine the structural measures necessary to counter the shrink-swell potential of the soil and the risk of structural damage from ground subsidence.

Adherence to California Building Code regulations would minimize the potential for the Proposed Project to increase public safety risks related to ground subsidence, differential settlement, and cracking and heaving directly. The effect would be minor under NEPA and less than significant under CEQA. No mitigation is required.

Effect GEO-5	Construction and use of the Proposed Project could accelerate erosion.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

Activities required for minor construction, including vegetation removal, excavation, grading, and fill placement, have the potential to cause accelerated soil erosion. Stormwater runoff from finished structures can also accelerate erosion. However, soils on the Proposed Project site present no erosion hazard. Further, as part of obtaining coverage under the NPDES permit, the Proposed Project and/or its contractor(s) would develop and implement a spill prevention and control plan consistent with the provisions of the Proposed Project SWPPP to minimize the potential for, and effects from, erosion, sedimentation, and spills of hazardous, toxic, or petroleum substances during construction of the Proposed Project. NASA and City of Mountain View may stipulate additional

BMPs. These hydrology and water quality environmental commitments are described in Section 3.2.4.4. Adherence to BMPs from the SWPPP and from NASA and City of Mountain View would minimize the possibility of erosion during construction.

Operation of the Proposed Project could also result in erosion, if stormwater runoff is not properly managed. The Proposed Project includes hydrology and water quality environmental commitments to control post-construction stormwater, described in Section 3.2.4.4. Post-construction stormwater control will be in accordance with the Santa Clara Valley Urban Runoff Pollution Prevention Program, implemented pursuant to the Municipal Regional Stormwater NPDES Permit No. CAS612008 (the region's "MS4" stormwater permit program). As stated in the MS4 permit, the goal of these permit requirements is to reduce runoff and mimic a site's predevelopment hydrology by minimizing disturbed areas and impervious cover and then infiltrating, storing, detaining, evapotranspiring, and/or biotreating stormwater runoff close to its source. Conformity to the requirements of the Santa Clara Valley Urban Runoff Pollution Prevention Program will minimize erosion during operation of the Proposed Project.

The effect would be minor under NEPA and less than significant under CEQA.

Effect GEO-6	Construction and use of the Proposed Project could cause loss of topsoil.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

Activities required for minor construction, including vegetation removal, excavation, and grading can result in loss of topsoil through removal and erosion during construction and through erosion during operation of the Proposed Project.

Environmental commitments for the Proposed Project in Section 3.2.4.4 include stockpiling of topsoil and reuse of the topsoil during revegetation, thus minimizing the amount of topsoil that could be lost through removal. This effect is minor under NEPA and less than significant under CEQA.

Effect GEO-7	Construction and use of the Proposed Project could damage paleontological or unique geologic features.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

Activities required for minor construction, including excavation and grading, can unearth and damage previously unknown paleontological resources or unique geologic features. While fossil localities are known in the Santa Clara Valley, there are no known fossil localities at the Proposed Project site. Further, the young bay mud that underlies the Proposed Project site is not known to be fossil yielding.

The Proposed Project includes a geology and soils environmental commitment to stop work if substantial fossil remains are discovered until a registered professional geologist (PG) or qualified

professional paleontologist can assess the nature and importance of the find and recommend appropriate treatment. The City of Mountain View and NASA or the appropriate agency will be responsible for ensuring that recommendations regarding treatment and reporting are implemented. Adherence to this environmental commitment will minimize likelihood of damage to paleontological resources should they be discovered.

The effect would be minor under NEPA and less than significant under CEQA.

4.6.3.4 One Bridge/Two Lane Alternative—Crittenden Option

The Crittenden Lane One Bridge/Two Lane Alternative would result in the same potential effects as the Proposed Project, but would lessen the potential for effects to occur in the vicinity of Charleston Road that could occur with the Proposed Project because less area would be disturbed under the Crittenden Lane One Bridge/Two Lane Alternative than under the Proposed Project.

4.6.3.5 No-Action Alternative

Under the No-Action Alternative, there would be no new effects on geology, soils, and paleontological resources.

4.7 Hazards and Hazardous Materials

This section describes existing hazards and hazardous materials conditions at the Proposed Project site, summarizes applicable regulations and policies, and analyzes potential short-term construction and long-term operational impacts on hazards and hazardous materials conditions that could result from implementation of the Proposed Project.

4.7.1 Affected Environment

4.7.1.1 Study Area

The study area for the hazards and hazardous materials analysis is site specific as hazardous materials issues generally relate to the prior history of land uses on the site, or to adjacent sites.

4.7.1.2 Project Setting

The NASA ARC portion of the Proposed Project site was evaluated as part of the NADP PEIS. The PEIS identified 26 Navy contamination sites and two Navy treatment systems, and 13 NASA contaminated areas, one NASA treatment system, and one private treatment system within NASA ARC. None of these areas are located on the Proposed Project site. The only known source of contamination in the vicinity of the Proposed Project is a chlorinated solvent plume containing trichloroethylene (TCE) that originates south of US 101 and is migrating onto NASA ARC from the upgradient Orion Park Military Housing Area and extends to within 500 feet of the Proposed Project. In 2008, the Defense Department transferred responsibility for plume from the U.S. Navy to the U.S. Army.

According to the California Department of Toxic Substances Control's (DTSC) and the SWRCB online hazardous materials databases, the Proposed Project site is not identified as a listed hazardous materials site. EnviroStor, the DTSC hazardous material sites database, records properties where extensive investigation and hazardous materials clean-up actions have been planned or completed. GeoTracker is the SWRCB'S data managing system for monitoring hazardous materials sites that impact groundwater. The Proposed Project site is not identified as a hazardous materials site on these maps. (California Department of Toxic Substances Control n.d., California State Water Resources Control Board 2011)

The Proposed Project site is located immediately west of NASA ARC and approximately 3.5 miles southeast of the Palo Alto Airport.

The nearest designated evacuation routes are Shoreline Boulevard (0.5 mile west) and Central Expressway (0.7 mile south) (City of Mountain View 1992).

4.7.2 Regulatory Setting

DTSC defines a hazardous material as one that poses a significant present or potential hazard to human health and safety or the environment if released because of its quantity, concentration, or physical or chemical characteristics (26 CCR 25501). Common hazardous materials include petroleum hydrocarbons, pesticides, VOCs, and certain metals.

Various Federal and State agencies exercise regulatory authority over the use, generation, transport, and disposal of hazardous substances. The primary Federal regulatory agency is EPA. The primary California State agency is the California Environmental Protection Agency (Cal-EPA), which may delegate enforcement authority to local agencies with which it has agreements. Federal regulations applicable to hazardous substances are contained primarily in the CFR Titles 29 (Labor), 40 (Protection of Environment), and 49 (Transportation). State regulations are contained in CCR Title 13 (Motor Vehicles), Title 19 (Public Safety), Title 22 (Social Security), and Title 26 (Toxics).

The following sections contain additional information on specific laws and regulations pertaining to hazardous materials management.

4.7.2.1 Federal

Comprehensive Environmental Response, Compensation, and Liability Act

CERCLA, also called the Superfund Act (42 U.S. Government Code [USC] Sec. 9601 et seq.), is intended to protect the public and the environment from the effects of prior hazardous waste disposal and new hazardous material spills. Under CERCLA, EPA has the authority to seek the parties responsible for hazardous materials releases and to assure their cooperation in site remediation. CERCLA also provides Federal funding (the Superfund) for the remediation of hazardous materials contamination. The Superfund Amendments and Reauthorization Act (SARA) of 1986 (Public Law 99-499) amends some provisions of CERCLA and provides for a Community Right-to-Know program.

EPA has the authority to implement CERCLA in all 50 states and all United States territories, using a variety of enforcement tools, including orders, consent decrees, and other small party settlements. The identification, monitoring, and remediation of Superfund sites are usually coordinated by State environmental protection and/or waste management agencies. When potentially responsible parties cannot be identified or located, or when responsible parties fail to act, EPA has the authority to remediate abandoned and/or historical sites where hazardous materials contamination is known to exist and to pose a human health hazard.

Pursuant to CERCLA, EPA maintains a National Priority List (NPL) of uncontrolled or abandoned hazardous waste sites identified for priority remediation under the Superfund program. Sites are identified for listing on the basis of EPA's hazard ranking system. Sites may also be placed on the NPL if they meet the following requirements:

- The Agency for Toxic Substances and Disease Registry (ATSDR) of the U.S. Public Health Service has issued a health advisory that recommends removing people from the site.
- EPA has determined that the site poses a significant threat to public health.
- It will be more cost-effective for EPA to use its remedial authority than its emergency removal authority to respond to the hazard posed by the site.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) (42 USC Sec. 6901 et seq.) was enacted in 1976 as an amendment to the Solid Waste Disposal Act to address the nationwide generation of municipal and industrial solid waste. RCRA gives EPA authority to control the generation, transportation, treatment, storage and disposal of hazardous waste, including underground storage

tanks storing hazardous substances. RCRA also establishes a framework for the management of nonhazardous wastes. RCRA addresses only active and future facilities; it does not address abandoned or historical sites, which are covered by CERCLA.

RCRA was updated in 1984 by the passage of the Federal Hazardous and Solid Waste Amendments (HSWA), which require the gradual phasing out of land disposal of wastes. HSWA also increased EPA's enforcement authority and established more stringent hazardous waste management standards, including a comprehensive underground storage tank program.

Federal Insecticide, Fungicide, and Rodenticide Act

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (7 USC 136 et seq.) was originally passed in 1947. It has been amended several times, most extensively in 1972, and most recently by the Food Quality Protection Act of 1996. The purpose of FIFRA is to establish Federal jurisdiction over the distribution, sale, and use of pesticides. It also gives EPA the authority to study the effects of pesticide use. Other key provisions of FIFRA require pesticide applicators to pass a licensing examination for status as "qualified applicators"; create a review and registration process for new pesticide products; and ensure thorough and understandable labeling that includes instructions for use.

Occupational Safety and Health Act

The Federal Occupational Safety and Health Administration (OSHA) and the California Occupational Safety and Health Administration (Cal/OSHA) are the agencies responsible for ensuring worker safety in the handling and use of chemicals in the workplace. The Federal regulations pertaining to worker safety are contained in CFR Title 29 (Section 1910.146 for work in pipelines or other confined spaces), as authorized in the Occupational Safety and Health Act of 1970. The regulations provide standards for safe workplaces and work practices, including standards relating to hazardous materials handling. In California, Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations; Cal/OSHA standards are generally more stringent than Federal regulations.

Executive Order 12088, Federal Compliance with Pollution Control

Executive Order 12088 was issued in October 1978 and mandates that necessary actions be taken to prevent and control environmental pollution when Federal activities or Federal facilities are involved. This Executive Order requires all Federal agencies to be in compliance with environmental laws and fully cooperate with EPA and with State, interstate, and local agencies to prevent, control, and abate environmental pollution.

4.7.2.2 State

EPA has granted states primary oversight responsibility to administer and enforce hazardous waste management programs. In addition, California State regulations, which are equal to or more stringent than Federal regulations, require planning and management to ensure that hazardous wastes are handled, stored, and disposed of properly to reduce risks to human health and the environment. Several key State laws pertaining to hazardous wastes are discussed below.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a hazardous materials business plan that describes their facilities, inventories, emergency response plans, and training programs. Under the Business Plan Act, hazardous materials are defined as raw or unused materials that are part of a process or manufacturing step. They are not considered hazardous waste, although the health concerns pertaining to the release or inappropriate disposal of these materials are similar to those for hazardous waste. The Business Plan Act also defines acutely hazardous materials as referring to certain chemicals specifically listed in CFR Title 40; about 400 chemicals that are of special concern to emergency response planners are included in this inventory.

Hazardous Waste Control Act

The Hazardous Waste Control Act created the State hazardous waste management program, which is similar to, but more stringent than, the Federal program under RCRA. The Hazardous Waste Control Act is implemented by regulations contained in 26 CCR, which describes the key aspects of hazardous waste management, including: identification and classification; sources; transport; design and permitting of recycling, treatment, storage, and disposal facilities; treatment standards; operation of facilities, including staff training; closure of facilities; and liability issues.

Regulations in 26 CCR list more than 800 materials that may be hazardous and establish criteria for their identification, packaging, and disposal. Under the Hazardous Waste Control Act and 26 CCR, hazardous waste generators must complete a manifest that accompanies the waste from the generator to the transporter to the ultimate disposal location. Copies of the manifest must be filed with the State's DTSC.

Emergency Services Act

Under the Emergency Services Act, the State of California developed an emergency response plan to coordinate emergency services provided by Federal, State, and local agencies. Rapid response to incidents involving hazardous materials or hazardous waste is an important part of the plan, which is administered by the California Office of Emergency Services (OES). This office coordinates the responses of other agencies, including EPA, the California Highway Patrol, the nine RWQCBs, the various air quality management districts, and county disaster response offices.

Wildfire Hazards

State policies regarding wildland fire safety are administered by the Office of the State Fire Marshall and CAL FIRE. Construction contractors are required to comply with the following legal requirements during construction activities at sites classified by CAL FIRE as a "wildland area that may contain substantial forest fire risks and hazards" or a "very high fire hazard severity zone."

- Earthmoving and portable equipment with internal combustion engines would be equipped with a spark arrestor to reduce the potential for igniting a wildland fire (PRC Section 4442).
- Appropriate fire suppression equipment would be maintained during the highest fire danger period—from April 1 to December 1 (PRC Section 4428).
- On days when a burning permit is required, flammable materials would be removed to a distance of 10 feet from any equipment that could produce a spark, fire, or flame, and the

construction contractor would maintain the appropriate fire suppression equipment (PRC Section 4427).

- On days when a burning permit is required, portable tools powered by gasoline-fueled internal combustion engines would not be used within 25 feet of any flammable materials (PRC Section 4431).

New buildings located in any Fire Hazard Severity Zone within State Responsibility Areas, any Very High Fire Hazard Severity Zone within local responsibility areas, or any Wildland-Urban Interface Fire Area must comply with the California Building Code minimum requirements for building materials and construction methods to improve exterior wildfire exposure protection. Fire Hazard Severity Zones are classified by the CAL FIRE director in accordance with PRC Sections 4201–4204 for State Responsibility Areas and in accordance with California Government Code Sections 51176–51189 in local responsibility areas.

As of January 1, 2009, Section 4291 of the PRC also requires anyone who owns, leases, controls, operates, or maintains any building or structure in, upon, or adjoining a mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or land that is covered with flammable material within a State responsibility area, to comply with the following conditions:

- Maintain any combustible materials, such as vegetation and petroleum-based products, within 100 feet of a structure in a condition so that a wildfire burning under average weather conditions would not likely ignite the structure.
- Implement the most intense fuel management within the first 30 feet around the structure. Beyond that, the intensity of fuels management may vary within the 100-foot perimeter of the structure.
- Maintain any tree, shrub, or other plant adjacent to or overhanging a structure to keep it free of dead or dying wood.
- Remove leaves, needles, or other vegetative material from the roof of structures.

Mapping of these areas is based on hazard-related factors such as fuels, terrain, and weather. According to the Very High Fire Hazard Severity Zones (VHFHSZ) in Local Responsibility Area (LRA) for Santa Clara County, the Proposed Project site is located in non-VHFHSZ area. The Proposed Project site is also in an LRA Unzoned area, according to the 2007 Santa Clara County Fire Hazard Severity Zones in LRA map.

Other State Laws and Regulations

Additional State regulations that affect hazardous waste management include:

- The Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65), which requires labeling of substances known or suspected by the State to cause cancer.
- California Government Code Section 65962.5, which requires the Office of Permit Assistance to compile a list of potentially contaminated sites in the State. DTSC maintains this list, which is called the Cortese List. The public can access this list online at <http://www.dtsc.ca.gov/database/Calsites/Cortese_List.cfm>.

4.7.2.3 Local

Mountain View General Plan

Mountain View's 1992 General Plan contains an Environmental Management Chapter which includes the following policies and actions that are applicable to the Proposed Project:

Policy 23: Ensure the proper use, storage, and disposal of toxic chemicals to prevent soil contamination.

Article 23.a: Continue to enforce the City's Hazardous Materials Storage Ordinance. [This Ordinance, Chapter 24 of the City Code, requires users of hazardous chemicals to get a permit from the City. To get this permit, users must show that their storage, handing, and use of hazardous materials is up to the City Code.]

Policy 37: Prevent injuries and environmental contamination due to the uncontrolled release of hazardous materials.

Policy 38: Ensure that hazardous materials are cleaned up before a property is developed or redeveloped.

4.7.3 Effects

4.7.3.1 Criteria for Determination of Adverse Effect

Criteria for determining the effect of the Proposed Project on hazards and hazardous materials conditions were based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 et seq.).

An effect on hazards and hazardous materials conditions was considered adverse if construction or operation of the Proposed Project would:

- Create a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials.
- Create a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- Emit hazardous emissions or handle hazardous materials, substances, or waste within 0.25 mile of a school.
- Be located on a site which is included on a list of hazardous materials site compiled pursuant to Government Code 65962.5 and, as a result, would it create a significant hazard to the public or the environment.
- Have a substantial adverse effect on level of risk to the public or the environment related to:
    - Air traffic.
    - Emergency response or evacuation plans.
    - Wildland fire.

4.7.3.2 Sources and Methods

Identifying a Proposed Project area's hazards and hazardous materials conditions involves the following steps:

- Reviewing the NADP PEIS Hazardous Materials Section.
- Reviewing the Mountain View 1992 General Plan, the Department of Toxic Substances Control EnviroStor website, and the RWQCB's Geotracker website.

4.7.3.3 Project Effects

Effect HAZ-1	The Proposed Project would not routinely use, transport, or dispose of hazardous materials.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

The Proposed Project is an infrastructure improvement Proposed Project that would not result in the routine use, transport, or disposal of hazardous materials. Hazardous waste materials such as gasoline would be used and transported in the Proposed Project area during Proposed Project construction activities. The transport and use of such materials would be for a short-term duration and would be limited to the quantities required for construction. Such transport and use must be compliant with applicable regulations as described in Regulatory Setting, above. Because compliance with existing regulations is mandatory, the Proposed Project is not expected to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

This impact is considered minor under NEPA and less than significant under CEQA.

Effect HAZ-2	Construction of the Proposed Project could expose construction workers to contaminated soils, thereby creating a significant hazard to the public or environment.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

As discussed in the Proposed Project setting, the Proposed Project site was analyzed in the NADP PEIS (Section 3.7 and Section 4.7). The Proposed Project site was not identified as a contaminated site. However, soil samples taken in close proximity to the Proposed Project site have found the pesticide dieldren in concentrations above risk-based soil screening levels. Therefore, Proposed Project construction activities could expose construction workers and the public to hazards related to unrecorded soil contamination. However, construction of the Proposed Project would be coordinated through the Remediation Project Manager in the NASA Ames Environmental Management Division which would ensure that NASA's EIMP would be followed. The EIMP includes guidelines for treating and disposing of hazardous materials during site development. The approach includes health and safety requirements for workers, such as training and the development of a health and safety plan. The Proposed Project would be constructed and hazardous waste managed

in accordance with the Bay View Parcel EIMP, which Planetary Ventures was required to develop under the terms of Planetary Ventures' lease agreement with NASA**.**

The Proposed Project includes environmental commitments to work with the Remediation Project Manager in the NASA Ames Environmental Management Division, implement the guidelines and recommendations in Planetary Ventures' EIMP, and either avoid exposure to hazardous materials or, if avoidance cannot be assured, take protective measures to prevent such exposure. Hazards and hazardous material environmental commitments identified in Section 3.2.4.4 would ensure that the Proposed Project applicant implements the EIMP and that disturbed soils are properly handled in order to minimize potential risks to constructions workers.

This impact is considered minor under NEPA and less than significant under CEQA.

Effect HAZ-3	The Proposed Project would not emit hazards that would affect nearby schools.
Level of Effect	This is considered to have no effect under NEPA and no impact under CEQA.

Discussion

The Proposed Project site is not located within 0.25 mile of an existing or planned school. The nearest school is the Crittenden Middle School, located approximately one mile southwest of the Proposed Project site. The Proposed Project would not routinely produce hazardous emissions, nor would the Proposed Project introduce hazardous materials or hazardous emissions that would have a significant impact to school children.

This is considered to have no effect under NEPA and no impact under CEQA.

Effect HAZ-4	The Proposed Project would not be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 that would create a significant hazard to the public or environment.
Level of Effect	This is considered to have no effect under NEPA and no impact under CEQA.

Discussion

The Proposed Project site is not located on a site that is included on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5 and therefore that Proposed Project would not create a significant hazard to the environment. The closest hazardous materials sites to the Proposed Project area are two leaking USTs located at 1301 Crittenden Lane, approximately 0.1 mile west of the proposed Crittenden Lane bridges. Site cleanup at this property has been completed and the case is now closed (California State Water Resources Control Board 2011). Because the Proposed Project site is not located on a hazardous materials site, the Proposed Project would not create a significant hazard to the public or the environment.

This is considered to have no effect under NEPA and no impact under CEQA.

Effect HAZ-5	The Proposed Project would be located within the vicinity of a private airstrip and within an airport land use plan area and could result in a safety hazard for people in the Proposed Project area.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

The Proposed Project could expose bridge users to risks associated with air traffic at Moffett Federal Airfield. The Proposed Project site is located within the airport influence area of Moffett Federal Airfield (Santa Clara County Airport Land Use Commission in prep.) and approximately 0.5 miles outside and west of the outer limits of the safety restriction area (Google Earth 2011, Santa Clara County Airport Land Use Commission in prep.). Airport safety zones, established by the Santa Clara County Airport Land Use Commission in accord with FAA requirements, minimize the number of people exposed to potential aircraft accidents by imposing density and land use limitations (Santa Clara County Airport Land Use Commission in prep.). Because the Proposed Project is located outside of the airport safety zone and because traffic at Moffett Federal Airfield is limited (Santa Clara County Airport Land Use Commission in prep.), the Proposed Project site is not considered to be in an area of substantial risk.

The closest public airport is the Palo Alto Airport, located approximately 3 miles northwest of the Proposed Project site (GoogleEarth 2011). Because of its distance from the Proposed Project site, this airport is not considered to be in an area of substantial risk.

This impact is considered minor under NEPA and less than significant under CEQA.

Effect HAZ-6	The Proposed Project would not alter an emergency response plan or evacuation route.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

As discussed in the project setting, the Proposed Project site is not located on one of the City's designated evacuation routes and would therefore not impede implementation of the City's Emergency Preparedness Plan during construction or operation of the Proposed Project. Furthermore, the vehicular bridges would be built to accommodate emergency response vehicles and would allow them to travel safely and efficiently between North Bayshore and the Bay View Area without having to travel along Highway 101, thereby improving emergency response to the two facilities. Therefore, the Proposed Project would not alter an emergency response plan or evacuation routes.

This impact is considered minor under NEPA and less than significant under CEQA.

Effect HAZ-7	The Proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires.
Level of Effect	This is considered to have no effect under NEPA and no impact under CEQA.

Discussion

As discussed above, the Proposed Project site is located in a Non-VHFHSZ and in an LRA Unzoned area. These areas are not considered to be subject to fire risk; the Proposed Project would not introduce individuals or structures to an area at risk of wildland fires. Therefore, there would be no impacts from wildland fires.

This is considered to have no effect under NEPA and no impact under CEQA.

4.7.3.4 One Bridge/Two Lane Alternative—Crittenden Option

The Crittenden Lane One Bridge/Two Lane Alternative would result in the same potential effects as the Proposed Project, but would lessen the potential for effects to occur in the vicinity of Charleston Road that could occur with the Proposed Project because less area would be disturbed under this alternative than the proposed action.

4.7.3.5 No-Action Alternative

Under the No-Action Alternative there would be no new effects on hazards and hazardous materials conditions.

4.8 Hydrology and Water Quality

This section describes existing hydrology and water quality at the Proposed Project site, summarizes applicable regulations and policies, and analyzes potential short-term construction and long-term operational impacts on hydrology and water quality that could result from implementation of the Proposed Project.

4.8.1 Affected Environment

4.8.1.1 Study Area

The Proposed Project area consists of a portion of Stevens Creek, Charleston Road, Crittenden Lane, an existing pedestrian bridge near the northern extent of the study area, surrounding levees, and pedestrian trails and access roads on top of the levees. Levees adjacent to Stevens Creek and within the Proposed Project area are non-Federal levees and have a Provisionally Accredited Levee (PAL) agreement signed and accepted by FEMA.

4.8.1.2 Regional Setting

The study area is located in the City of Mountain View, California, within Santa Clara County. It is surrounded by commercial development to the west and NASA ARC campus and structures to the east. Stevens Creek flows through the Proposed Project site in a north/south direction.

4.8.1.3 Project Setting

Two two-lane vehicular bridges and a pedestrian/bicycle bridge would be constructed under the Proposed Project, and improvements to an existing pedestrian/bicycle bridge would be made. Construction would take place on Charleston Road and Crittenden Lane and extend past Stevens Creek into the Bay View Area of NASA ARC.

Within the Proposed Project area, Stevens Creek (303d listed[2]) runs perpendicular to areas where construction would occur on both Charleston Road and Crittenden Lane. No structures (permanent or temporary) would be built within Stevens Creek, from top of levee to top of levee. Also, no changes would be made to the existing levees, except for minor modifications at the new pedestrian/bicycle bridge, which may be required by the SCVWD. This would include two bridge abutments and modifications at the top of each levee.

[2] Section 303(d) of the 1972 Federal Clean Water Act requires states to identify waterbodies that do not meet water quality objectives and are not supporting their beneficial uses.

4.8.2 Regulatory Setting

4.8.2.1 Federal

Clean Water Act

Important applicable sections of the CWA (33 USC 1251–1376) include the following:

> Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the United States. This permit program is administered by the RWQCB.

NPDES Permit

The NPDES permitting requirement established in the CWA establishes requirements and limits to protect receiving waters. In California, the State Water Resources Control Board, and State Regional Water Quality Control Boards (State) have authority to issue and enforce NPDES Permits under an agreement with the United States Environmental Protection Agency. The State issues NPDES Permits to regulated dischargers, including Industrial Facilities, Construction Sites, and Municipal Separate Storm Sewer System agencies (MS4). In the case of the MS4 Permits, regulated MS4 agencies, in turn, enforce water quality ordinances, specific municipal practices to maintain City facilities, and other pollution control practices, including the use of BMPs for the Proposed Project and many other residential, commercial, and development-related activities to reduce further the amount of contaminants in urban runoff.

The City is responsible for regulating discharges into waterways during construction and operation of the Proposed Project.

4.8.2.2 State

San Francisco Regional Water Quality Control Board

The SFRWQCB is responsible for the protection of beneficial uses of water resources in the San Francisco Bay Area. The San Francisco Bay Area includes Alameda, Contra Costa, San Francisco, Santa Clara (north of Morgan Hill), San Mateo, Marin, Sonoma, Napa, and Solano counties. The SFRWQCB uses its planning, permitting, and enforcement authority to meet this responsibility for implementing plans, policies, and provisions for water quality management in the region. Beneficial uses of surface waters are identified for major surface waters and their tributaries and described in the SFRWQCB WQMP. In addition, the Water Quality Control Plans (Basin Plans)identifies water quality objectives and implementation plans for the protection of the beneficial uses of the basin.

Water Quality Management Plan

The WQMP describes legal, technical, and programmatic bases for water quality regulations in the San Francisco Bay Area. The plan includes:

- A statement of the beneficial water uses that the SFRWQCB will protect.
- The water quality objectives needed to protect the designated beneficial water uses.
- The strategies and time schedules for achieving the water quality objectives.

The WQMP drives the SFRWQCB effort to manage water quality. The WQMP provides a definitive program of actions to preserve and enhance water quality and protect beneficial uses in a manner that will result in the maximum benefit to the people of California.

Permitting for Construction Activities

The State Water Resources Control Board regulates construction activities through implementation of the Statewide Construction General Permit (CGP). Construction activity resulting in a land disturbance of 1 acre or more or, if less than 1 acre, occurring as part of a larger common plan of development or sale, must comply with the CGP (2009-0009-DWQ [permit effective July 2010]) (State Water Resources Control Board 2011a). The Construction General Permit requires the development and implementation of a SWPPP. The SWPPP must list BMPs that the discharger will use to protect stormwater runoff and document the placement of those BMPs. Additionally, the SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants, to be implemented in case of a BMP failure; and a monitoring plan for turbidity and pH for projects that meet defined risk criteria (State Water Resources Control Board 2011b). The requirements of the SWPPP are based on the construction design specifications detailed in the final design plans of the Proposed Project and the hydrology and geology of the site expected to be encountered during construction. The City requires proof of coverage under the CGP prior to building permit issuance. The SWPPP is submitted to the State Water Resources Board, and a copy is kept at the jobsite where it is updated during different phases of construction. The SWPPP must be available for inspection and review upon request.

4.8.2.3 Local

Santa Clara Valley Water District

The SCVWD is responsible for managing the County's water supply, including groundwater, as well as overseeing flood protection. Its jurisdiction encompasses streams and creeks, underground aquifers, and SCVWD-built reservoirs. The SCVWD's watershed stewardship responsibilities include creek restoration, wildlife habitat protection, stream water pollution prevention, and natural flood protection. Natural flood protection considers the best methods for improving a creek's capacity for floodwater while minimizing impacts on the ecosystem.

City of Mountain View/Santa Clara Valley Urban Runoff Pollution Prevention Program

The Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) is an association of 13 cities and towns in the Santa Clara Valley, Santa Clara County, and the SCVWD that share a common NPDES permit (Permit No. CAS612008) pertaining to the discharge stormwater to south San Francisco Bay. As a participant in the SCVURPPP, in accordance with NPDES permit requirements, the City implements control measures to reduce stormwater pollutants from construction sites, areas of new development, or areas of significant redevelopment to the maximum extent practicable. These requirements are enforced by the City during development review. Recent changes to the SCVURPPP are detailed in RWQCB Revised Order 01-024-R-2-2009-0074 (NPDES Permit No. CAS029718CAS612008). Revisions that potentially apply to the Proposed Project include and are listed in Provision C.3 of the permit, which specifies that significant development or redevelopment projects must include post-construction stormwater controls. Under these

regulations, municipal stormwater systems are allowed to discharge to local creeks, San Francisco Bay, and other water bodies within the basin. Low Impact Development (LID) stormwater treatment controls, such as infiltration or biotreatment, will be required for the Proposed Project by the City of Mountain View.

Santa Clara Valley Urban Runoff Pollution Prevention Program Hydromodification Management Plan

The SCVURPPP Hydromodification Management Plan (HMP) complies with the NPDES permit. It delineates areas where increases in runoff are most likely to affect channel health and water quality and provides management options to maintain pre-project runoff patterns. The HMP is designed to prevent erosion in watersheds where new projects as well as redevelopment projects are located. Stormwater treatment and site design measures may include non-mechanical water quality improvement techniques (e.g., grassy swales, bioretention, detention in landscaping), or may be stormwater detention systems. The non-mechanical water quality improvement techniques are generally preferred to promote "natural" water quality improvements. The Proposed Project is located in an area that is exempt from HMP requirement. HMP controls will not be required for the Proposed Project. The Proposed Project would also be exempt from HMP if it would create less than 1-acre of impervious surface. The Proposed Project is exempt since it is located in a section of the creek that is tidally influenced.

Stormwater Provision C.3 Regulations

The Stormwater Provision C.3 regulations include post-construction stormwater controls to meet local municipal requirements as well as the State requirements in the NPDES permit. Municipalities require post-construction stormwater controls as part of a project's obligation under Stormwater Provision C.3. Under the regulations, which are a provision of the NPDES permit issued by the SFRWQCB, municipal stormwater systems are allowed to discharge to local creeks, San Francisco Bay, and other water bodies within the basin. LID treatment controls, such as infiltration or biotreatment, will be required for the Proposed Project. The Proposed Project applicant will be required to submit a Stormwater Water Management Plan to the City to show how the Proposed Project will comply with the C.3 requirements.

4.8.3 Flooding

A Flood Insurance Rate Map (FIRM) is the official map of a community prepared by FEMA to delineate both the special flood hazard areas and the flood risk premium zones applicable to the community. According to FEMA, the Proposed Project area is located within the 100-year floodplain (Federal Emergency Management Agency 2009).

4.8.4 Surface Water Quality

Water quality in a typical surface water body is influenced by processes and activities that take place within the watershed. In a semi-urban environment, such as is present in the Proposed Project area, water quality is affected primarily by discharges from both point and nonpoint sources. Point and nonpoint sources include winter storms, overland flow, construction sites, exposed soil, roofs, parking lots, and streets.

A number of water bodies in Santa Clara County are included in the 2006 State of California 303(d) list of impaired water bodies. Stevens Creek is listed by the RWQCB as an impaired water body because of elevated levels of diazinon and toxicity.

4.8.5 Groundwater

California Department of Water Resources Bulletin 118 places the Proposed Project in the Santa Clara Sub-basin of the Santa Clara Valley Groundwater Basin. The groundwater sub-basin has a total surface area of 153,600 acres, or 240 square miles. Groundwater storage is estimated to be 350,000 acre-feet (California Department of Water Resources 2004).

The water-bearing formations of the Santa Clara Sub-basin include Pliocene to Holocene continental deposits of unconsolidated to semi-consolidated gravel, sand, silt, and clay. Two members form this group, the Santa Clara Formation (Plio-Pleistocene age) and younger alluvium (Pleistocene to Holocene age) (California Department of Water Resources 2004). The combined thickness of these two units probably exceeds 1,500 feet (California Department of Water Resources 2004).

Natural recharge relies on infiltration from streams that exit the upland areas within the drainage basin as well as direct percolation from precipitation that falls on the basin floor.

The SCVWD conducts an artificial recharge program that releases locally conserved or imported water to in-stream and off-stream facilities (California Department of Water Resources 2004). SCVWD's controlled in-stream recharge accounts for about 45% of groundwater recharge in SCVWD facilities (California Department of Water Resources 2004). In-stream recharge occurs along stream channels in the alluvial apron upstream from the confined zone. Spreader dams (temporary or permanent impoundments in the stream channel) are a key component of the in-stream recharge program, increasing recharge capacity by approximately 10% (California Department of Water Resources 2004).

Off-stream recharge facilities include abandoned gravel pits and areas specifically excavated for recharge purposes. Recharge from water delivered to these facilities accounts for approximately 35% of the recharge in the SCVWD (California Department of Water Resources 2004).

4.8.6 Effects

4.8.6.1 Criteria for Determination of Adverse Effect

The criteria for determining the effect of the Proposed Project on hydrology and water quality are based on the State CEQA Guidelines (Appendix G of the State CEQA Guidelines-14 CCR 15000 et seq.) and professional standard and practices.

An effect on hydrology and water quality was considered adverse if construction or operation of the Proposed Project would have a substantial adverse effect on:

- Water quality.
- Groundwater supplies.
- Drainage patterns.
- Erosion and sedimentation.

- Watershed hydrology.
- Stormwater drainage system capacity.
- Risks related to flooding or inundation.

4.8.6.2 Sources and Methods

The Proposed Project's impacts on hydrology and water quality were analyzed to determine their potential to increase erosion and flooding, alter site drainage, and affect water quality. The impact analysis considered the addition of impervious areas, the alteration of site drainage, and the location (i.e., within the 100-year flood inundation area). The Proposed Project's impact on water quality considered sedimentation and non-storm runoff into the local storm drain system.

The following impact analysis relied on City, SCVWD, and State guidelines to determine regulatory compliance requirements applicable to the Proposed Project.

4.8.6.3 Project Effects

Effect HYD-1	Violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

Potential impacts to water quality would be short term because they would be related to construction. Temporary construction activities may affect water quality through erosion, sedimentation, or contamination from hazardous materials. Grading and paving activities at bridge approaches and foundations may cause erosion impacts. Furthermore, sedimentation from bridge construction may contribute to sediment contamination in the storm system if it is not properly contained. Bridge abutment and support construction would occur outside the Stevens Creek levees. The limits of the levees are defined by slope changes, from steep slopes in the levee to the shallow slopes outside the levee footprint. Stormwater runoff within the Proposed Project area may contaminate groundwater through contact with motor oil, car exhaust, chemicals, detergents, or any other materials associated with the operation of construction vehicles.

BMPs associated with erosion and sediment control would be required as per the Bay View Parcel EIMP to reduce the amount of sediment-related pollutants in stormwater discharges. Erosion control is any source control practice that protects the soil surface and prevents soil particles from being detached by rainfall, flowing water, or wind.

Because the Proposed Project would involve more than 1 acre of disturbance, it would require compliance with the terms of the NPDES General Construction Permit. As part of obtaining coverage under the NPDES permit, the Proposed Project and/or its contractor(s) would develop and implement a spill prevention and control plan consistent with the provisions of the Proposed Project SWPPP to minimize the potential for, and effects from, erosion, sedimentation, and spills of hazardous, toxic, or petroleum substances during construction of the Proposed Project, as described in the hydrology and water quality environmental commitments identified in Section 3.2.4.4.

The Proposed Project would have a minor impact under NEPA and a less than significant impact under CEQA.

Effect HYD-2	Substantially deplete groundwater supplies or substantially interfere with groundwater recharge.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

Construction activities would include building three bridges (two vehicular and one pedestrian/bicycle) across Stevens Creek and making improvements to an existing bridge that crosses Stevens Creek. Bridge abutments and supports would occur outside the Stevens Creek levees, excluding construction of the new Charleston Road pedestrian/bicycle bridge. The Charleston Road pedestrian/bicycle bridge would disturb only the top of the levees where the bridge abutments and supports would be installed. Because these construction activities would occur outside of Stevens Creek and would not affect creek storage, groundwater recharge from in-stream channels would not be affected.

There are no off-stream recharge facilities at the Proposed Project site. Therefore, off-stream facilities would not be affected. There is a chance that the Proposed Project could add off-stream recharge facilities, which could increase groundwater recharge.

The majority of groundwater recharge for the Santa Clara Valley Groundwater Basin occurs through in-stream channels and off-stream facilities. However, direct percolation of precipitation can also affect groundwater recharge. Because the Proposed Project would increase the amount of impervious area, minor effects on existing groundwater recharge could occur. However, the Proposed Project would have a less-than-significant impact on groundwater recharge.

The Proposed Project would have a minor impact under NEPA and a less than significant impact under CEQA.

Effect HYD-3	Potentially alter the existing drainage pattern of the site or area in a manner that would result in substantial erosion or siltation on site or off site.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

Construction of the two-lane vehicular bridges and the pedestrian/bicycle bridge across Stevens Creek at Crittenden Lane and Charleston Road within the Bay View Area of NASA ARC would alter stormwater runoff in the Proposed Project vicinity. Runoff would be directed away from the crown of the span to existing stormwater infrastructure in the City of Mountain View and approved future infrastructure to be built in the Bay View Area of NASA ARC facility. Implementation of hydrology and water quality environmental commitments identified in Section 3.2.4.4 would ensure that these systems are able to handle the increases in stormwater or are upgraded to accommodate the increased runoff.

No structures would be built within Stevens Creek; however, three proposed bridges and one existing bridge would completely span the Creek and the levees of the creek. Table 4.8.1 provides data regarding the approximate linear footage of the increased roadway or pedestrian/bicycle path between each bridge.

Table 4.8.1. Increased Roadway/Pedestrian and Bicycle Path

Site Location	Approximate Increased Roadway/Pedestrian and Bicycle Path (feet)
Crittenden Lane—Two-Lane Vehicular Bridge	1,200
Crittenden Lane—Pedestrian/Bicycle Bridge	1,100
Charleston Road—Two-Lane Vehicular Bridge	1,400
Charleston Road—Pedestrian/Bicycle Bridge	950

The bridges would connect to existing grades at Crittenden Lane and Charleston Road within the Bay View Area of NASA ARC. There would be no substantial erosion or siltation along the western part of each bridge because of existing connections to impervious areas. However, because the eastern end of each bridge would connect to existing pervious grades within the Bay View Area of NASA ARC, there would be some erosion and/or siltation at the eastern approach of each bridge.

Drainage would be concentrated at each end of the four bridges and directed into existing stormwater infrastructure in the City of Mountain View and approved future infrastructure to be built in the Bay View Area of NASA ARC facility. BMPs installed at the eastern end of each bridge would control erosion and sedimentation that may result from altered drainage patterns created by the Proposed Project.

Under the Proposed Project's environmental commitments and as part of obtaining coverage under the NPDES permit, the Proposed Project and/or its contractor(s) would develop and implement a spill prevention and control plan consistent with the provisions of the project SWPPP to minimize the potential for, and effects from, erosion, sedimentation, and spills of hazardous, toxic, or petroleum substances during construction of the Proposed Project, as described in the hydrology and water quality environmental commitments identified in Section 3.2.4.4. NASA and City of Mountain View may stipulate additional BMPs. Adherence to BMPs from the SWPPP and from NASA and City of Mountain View would minimize the possibility of erosion and sedimentation.

With implementation of hydrology and water quality environmental commitments identified in Section 3.2.4.4, the impact would be minor under NEPA and less than significant under CEQA.

Effect HYD-4	Alter substantially the existing drainage pattern of the site or area or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off the site or exceed the capacity of existing or planned stormwater drainage systems.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

The Proposed Project would increase impervious areas by approximately 115,600 to 140,200 square feet (see Table 4.8.2 and Table 4.8.3 below for the delineation of impervious area at each

bridge and drainage location). The increase in impervious area would increase stormwater runoff as well as sources of polluted runoff.

Table 4.8.2. Altered Drainage Area for Bridges

Site Location	Approximate Increased Area (square feet)
Crittenden Lane—Two-Lane Vehicular Bridge	42,000
Crittenden Lane—Pedestrian/Bicycle Bridge	13,200–26,400
Charleston Road—Two-Lane Vehicular Bridge	49,000
Charleston Road—Pedestrian/Bicycle Bridge	11,400–22,800
Total	115,600–140,200

Table 4.8.3. Altered Drainage Area per Location

Site Location	Approximate Increased Area (square feet)
Crittenden Lane (northwestern boundary)	27,600–34,200
Charleston Road (southwestern boundary)	30,200–35,900
Bay View Area of NASA ARC (northeastern boundary)	27,600–34,200
Bay View Area of NASA ARC (southeastern boundary)	30,200–35,900

To treat increased runoff from impervious surfaces in the urbanized area (western boundary), the Proposed Project would need to implement hydrology and water quality environmental commitments identified in Section 3.2.4.4. These commitments state that post-construction stormwater control will be in accordance with the Santa Clara Valley Urban Runoff Pollution Prevention Program, implemented pursuant to the Municipal Regional Stormwater NPDES Permit No. CAS612008 (the region's "MS4" stormwater permit program). As stated in the MS4 permit, the goal of these permit requirements is to reduce runoff and mimic a site's predevelopment hydrology by minimizing disturbed areas and impervious cover and then infiltrating, storing, detaining, evapotranspiring, and/or biotreating stormwater runoff close to its source. Areas within Crittenden Lane and Charleston Road could incorporate mechanical treatment systems (e.g., hydrodynamic separator, media filtration device, underground detention system) due to the lack of open space for non-mechanical water quality improvement techniques at the Proposed Project site. Runoff from the proposed bridges would be directed away from the crown of the span to these mechanical treatment systems. The capacity of the stormwater systems at Crittenden Lane and Charleston Road may need to be designed to include stormwater storage. If either storm system lacks the conveyance capacity for the added runoff from impervious surfaces, the storm system may need to be upgraded.

Implementation of hydrology and water quality environmental commitments identified in Section 3.2.4.4 would create capacity and treat post-construction runoff from impervious surfaces. The impact would be minor under NEPA and less than significant under CEQA.

Effect HYD-5	Place within a 100-year flood hazard area structures that would impede or redirect flood flows.
Level of Effect	This impact is considered to be minor under NEPA and less than significant under CEQA.

Discussion

Because the entire site is within the 100-year flood hazard area, the two-lane vehicular bridge and the pedestrian/bicycle bridges would be placed within the 100-year flood zone. However, the proposed bridge would not impede or redirect flood flows in a manner that would significantly differ from current conditions. The pedestrian/bicycle bridge and improvements would be installed at the top of the levee, providing clearance from the approximated 100-year flood flows in Stevens Creek. The two-lane vehicular bridges would have an additional 12 feet of clearance at the top of the levee. The bridges would not impede any flows within Stevens Creek. Bridge abutments and bridge supports would be placed at open areas outside the levee footprint, excluding the Charleston Road pedestrian/bicycle Bridge. The bridge abutments and supports would have little effect on flood flows because these structures would be placed in open areas where flood flows would result in minor redirections.

The impact would be minor under NEPA and less than significant under CEQA.

Effect HYD-6	Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of failure of a levee or dam.
Level of Effect	This impact is considered to be minor under NEPA and less than significant under CEQA.

Discussion

The Proposed Project would not create more risks related to flooding. No structures would be built in Stevens Creek, and no changes would be made to the existing levees, except for minor modifications at the new pedestrian/bicycle bridge. The Levee Recertification Report by Schaaf & Wheeler approximates the 100-year water surface elevation below the tops of the levees (Schaaf & Wheeler 2009).

Stevens Creek Reservoir, located upstream of the Proposed Project site, is owned and operated by the SCVWD. In 1985, the reservoir was successfully seismically retrofitted to meet current design standards put forth by the California Division of Safety of Dams. The design earthquake used for the retrofit was an 8.3 earthquake centered on the San Andreas fault. The retrofit was modeled under these conditions with no catastrophic failure. According to the SCVWD, the reservoir has a total capacity of 3,138 acre-feet of water. The Proposed Project does not include any modifications to the dam and, therefore, would not change the level of risk associated with the upstream reservoir.

The impact would be minor under NEPA and less than significant under CEQA.

Effect HYD-7	Expose people, structures, or facilities to increased risk of inundation by seiche, tsunami, or mudflow.
Level of Effect	This impact is considered to have no impacts under NEPA and CEQA.

Discussion

Confined bodies of water are not in the Proposed Project area; therefore, there would be no risk of seiche or tsunami. The risk of mudflow is minor, and steep slopes occur only at the levees. Levees within the Proposed Project area are maintained by SCVWD.

There would be no impacts under NEPA and CEQA.

One Bridge/Two Lane Alternative—Crittenden Option

The Crittenden Lane One Bridge/Two Lane Alternative would result in the same type of effects as the Proposed Project but would lessen the potential extent of effects to occur in the vicinity of Charleston Road than could occur with the Proposed Project.

No-Action Alternative

Under the No-Action alternative, there would be no new effects on hydrology and water quality.

4.9 Noise

This section describes existing noise conditions at the Proposed Project site, summarizes applicable regulations and policies, and analyzes potential short-term construction and long-term operational impacts on noise conditions that could result from implementation of the Proposed Project.

4.9.1 Affected Environment

4.9.1.1 Noise Terminology

The following are brief definitions of noise terminology used in this evaluation.

Sound. A vibratory disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.

Noise. Sound that is loud, unpleasant, unexpected, or otherwise undesirable.

Decibel (dB). A unitless measure of sound on a logarithmic scale, which indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micropascals.

A-Weighted Decibel (dBA). An overall frequency-weighted sound level in decibels, which approximates the frequency response of the human ear.

Day-Night Level (L_{dn}). The energy average of A-weighted sound levels occurring during a 24-hour period, with a 10-dB penalty added to sound levels occurring between 10:00 PM and 7:00 AM.

Equivalent sound level (L_{eq}). L_{eq} represents an average of the sound energy occurring over a specified period. In effect, $\mathbf{L_{eq}}$ is the steady-state sound level containing the same acoustical energy as the time-varying sound that actually occurs during the same period. The 1-hour A-weighted equivalent sound level ($\mathbf{L_{eq}}$[h]) is the energy average of A-weighted sound levels occurring during a 1-hour period and is the basis for noise abatement criteria (NAC) used by the California Department of Transportation and the Federal Highway Administration (FHWA).

Maximum and Minimum Sound Levels (L_{max} and L_{min}). The maximum or minimum sound level measured during a measurement period.

In general, humans commonly hear a sound level increase of 3 dB as a perceptible increase in noise. Sound level increases of less than 3 dB are generally not noticeable. An increase of 5 dB is clearly noticeable, and an increase of 10 dB is perceived as twice as loud.

4.9.1.2 Existing Conditions

The existing noise environment in the Proposed Project area is characteristic of an urban industrial environment (e.g., local traffic, aircraft overflights, and commercial and industrial noise sources), with noise levels typically in the range of 55–65 dBA L_{dn}. The Proposed Project site is about 0.8 mile north of Highway 101, and lies 0.8 mile west of Moffett Federal Airfield, parallel to the runway flight

path. Other noise sources in the Proposed Project area include the wind tunnel complex and NASA ARC Arc Jet complex.

4.9.1.3 Noise-Sensitive Land Uses

Noise-sensitive land uses typically include residences, schools, libraries, hospitals, recreational outdoor use areas and other similar uses. The nearest residential use is the Santiago Villa Mobile Home Park home park located approximately 800 feet south of the Proposed Project site. Shoreline Golf Links and Mountain View Park lie approximately 0.5 mile northwest of the Proposed Project site.

4.9.2 Regulatory Setting

The Proposed Project site is located within the City of Mountain View. Applicable noise guidelines are provided in the City of Mountain View Municipal Code and General Plan (City of Mountain View 1992). City regulations are discussed below.

4.9.2.1 Federal

Noise Control Act of 1972

The Noise Control Act of 1972 (Public Law 92 574) established a requirement that all federal agencies administer their programs to promote an environment free of noise that would jeopardize public health or welfare. EPA was given the following responsibilities.

- Providing information to the public regarding identifiable effects of noise on public health and welfare.
- Publishing information on the levels of environmental noise that will protect the public health and welfare with an adequate margin of safety.
- Coordinating federal research and activities related to noise control.
- Establishing federal noise emission standards for selected products distributed in interstate commerce.

U.S. Environmental Protection Agency

In 1974, in response to the requirements of the federal Noise Control Act, the EPA identified indoor and outdoor noise limits to protect public health and welfare (communication disruption, sleep disturbance, and hearing damage). Outdoor L_{dn} limits of 55 dB and indoor L_{dn} limits of 45 dB are identified as desirable to protect against speech interference and sleep disturbance for residential, educational, and healthcare areas. Sound-level criteria to protect against hearing damage in commercial and industrial areas are identified as 24-hour L_{eq} values of 70 dB (both outdoors and indoors).

Federal Highway Administration

The FHWA has developed methods for evaluating construction noise, which are discussed in the Roadway Noise Construction Model User's Guide (FHWA 2006). The FHWA does not recommend specific noise level criteria for construction activities.

4.9.2.2 State

The State of California General Plan Guidelines (Office of Planning and Research 2003) provides noise compatibility guidelines for land use planning; however, these guidelines offer no information on construction noise. The state has also published the Model Community Noise Ordinance (California Office of Noise Control 1977), which provides guidance to cities and counties on how to develop a community noise ordinance. These guidelines include recommended limits on construction noise levels. These are guidelines only and are not enforceable. Construction noise is typically regulated at the local level.

4.9.2.3 Local

Mountain View General Plan Noise Element

The City's General Plan specifies that "the noise element's policies and actions are aimed at controlling and diminishing environmental noise and at protecting residents from being exposed to too much noise." In the General Plan noise policies, the City describes its objectives in terms of an achievable noise quality level. The City's objective is 55 DNL for the outdoor noise level and 45 DNL for the indoor noise level or residential and public uses.

Mountain View City Code

The City of Mountain View does not currently have an ordinance that prohibits "loud noise" (City of Mountain View 2011). The City Code, Chapter 8.1 provides guidelines for construction noise as follows: "No construction activity shall commence prior to 7 a.m. nor continue later than 6 p.m., Monday through Friday, nor shall any work be permitted on Saturday or Sunday or holidays unless prior written approval is granted by the building official."

4.9.3 Effects

4.9.3.1 Criteria for Determination of Adverse Effect

Criteria for determining the effect of the Proposed Project on noise conditions were based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 et seq.).

Implementation of the Proposed Project would be considered to result in an adverse noise or vibration affect if construction or operation of the Proposed Project results in any of the following affects.

- Noise that conflicts with applicable plans, ordinances, or agency standards.
- Exposure of people to excessive groundborne vibration or noise.
- A substantial change in ambient noise levels.

4.9.3.2 Sources and Methods

Construction Noise

The assessment of potential construction noise levels was based on methodology developed by the FTA (2006) and FHWA (2006). Noise levels produced by commonly used construction equipment are summarized in Table 4.9-1. Individual types of construction equipment are expected to generate maximum noise levels ranging from 80 to 85 dBA at a distance of 50 feet. The construction noise level at a given receiver depends on the type of construction activity, the noise level generated by that activity, and the distance and shielding between the activity and noise-sensitive receivers.

Utilization factors for construction noise are used in the analysis when the applicable construction noise ordinance uses a noise standard based on L_{eq} or L_{dn} noise exposure. A utilization factor represents the amount of time a type of equipment is used during a specified time interval.

Table 4.9-1. Construction Equipment Noise Emission Levels

Equipment	Typical Noise Level (dBA) 50 Feet From Source
Grader	85[a]
Bulldozers	85[a]
Truck	84[b]
Loader	85[a]
Air Compressor	81[a]
Backhoe	80[a]
Pneumatic Tool	85[a]
Excavator	85[b]
Auger Drill Rig (for drilled piles)	85[a]
Pile Driver (sonic)	96[a]

Sources:
[a] FTA 2006.
[b] Thalheimer 2000.

Notes:
dBA = A-weighted decibel.

4.9.3.3 Traffic Noise Modeling

Existing traffic noise levels were evaluated using the FHWA Traffic Noise Model Lookup program (TNM). This model estimates average noise levels at fixed distances from the roadway centerline based on estimated traffic volumes for automobiles and medium- and heavy-duty trucks, vehicle speeds, and a designated noise drop-off rate. Shielding effects from topographical features and buildings are not accounted for in the model.

4.9.3.4 Project Effects

Effect NOI-1	Exposure of noise-sensitive land uses to vibration and noise during construction of the Proposed Project.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

Potential worst-case equipment noise levels from general construction activities of the Proposed Project (excluding pile driving) were evaluated by combining the noise levels of the three loudest pieces of equipment that would likely operate at the same time (excavator, loader, and grader). Assuming 40% utilization within a given hour of day, the combined noise level is 86 dBA L_{eq} (1 hour) at 50 feet. As described in the Proposed Project, the normal working day for construction activities would be between 7:00 a.m. and 7:00 p.m. on weekdays. Construction could also occur on Saturdays between 9:00 a.m. and 7:00 p.m., but no construction would occur on Sundays or City holidays. Pile driving would be limited to between the hours of 8:00 a.m. and 6:00 p.m. Because no construction activities would occur before 7 a.m. or after 10 p.m., the L_{dn} is assumed to be equivalent to the L_{eq} (1 hour) in this analysis. The estimated sound levels from general construction activities as a function of distance based on calculated point-source attenuation over "soft" (i.e., acoustically absorptive) ground are shown in Table4.9- 2.

Table 4.9-2. Predicted Noise Levels From General Construction Activities (Excavator, Grader, and Loader)

Distance Between Source and Receiver (Feet)	Calculated L_{eq} (1 hour)/L_{dn} Sound Level (dBA)
50	86
100	78
200	70
300	65
400	62
500	60
600	58
700	56
800	54
850	54
1000	52

Note:
Calculations are based on methodology developed by FTA 2006. Calculation do not include the effects, if any, of local shielding from walls, topography, or other barriers that may reduce sound levels further.
L_{eq} (1hr)= Hourly-equivalent sound level (over 1 hour).
dBA = A-weighted decibel.

The results shown in Table 4.9-2 indicate that during periods of general construction activity, residences located within 750 feet of an active construction site could be exposed to construction noise in excess of the City General Plan standard of 55 dBA L_{dn}. However, the residential use nearest to the boundary of the Proposed Project site is approximately 800 feet away. As shown in Table 4.9-2, the predicted sound level at 800 feet from the site would be 54 L_{dn} and would be below the City

General Plan standard of 55 L_{dn}. This effect would be minor adverse under NEPA and less than significant under CEQA.

Estimated sound levels from drilled (sonic) pile driving conducted during periods of construction activities described above are shown in Table 4.9-3. Because noise from pile driving is not constant, a utilization factor of 20% has been applied (Thalheimer 2000). The combined level of the sonic pile driver, drill rig, and equipment from Table 4.9-2 operating simultaneously is 90 dBA L_{eq} (1 hour) at 50 feet.

Table 4.9-3. Predicted Noise Levels From Construction Activities—Pile Driving and Construction Equipment

Distance Between Source and Receiver (Feet)	Calculated L_{eq} (1hr)/L_{dn} Sound Level (dBA)
50	90
100	83
200	75
300	70
400	67
500	64
600	62
800	59
850	58
1000	56
1100	55
1200	54

Note:
Calculations are based on FTA 2006. Calculation do not include the effects, if any, of local shielding from walls, topography, or other barriers that may reduce sound levels further.
L_{eq} (1hr)= Hourly equivalent sound level (1 hour).
dBA = A-weighted decibel.

The results shown in Table 4.9-3 indicate that during periods of pile driving, residences located within 1,100 feet of an active construction site could be exposed to construction noise in excess of the City General Plan standard of 55 dBA L_{dn}. The nearest residences are located at approximately 800 feet where construction noise is predicted to be about 58 L_{dn}. Although these residences could be exposed to noise exceeding 55 L_{dn}, this effect is not considered adverse because the predicted noise level is only slightly greater than 55 L_{dn} and because pile driving would be temporary and short-term and would occur between 8 a.m. and 6 p.m. when construction activities are normally allowed in the City.

Because the nearest residences are located approximately 800 feet from the Proposed Project site, effects related to vibration from construction activities would be minor adverse under NEPA, and less than significant under CEQA.

Effect NOI-2	Exposure of existing noise-sensitive land uses to increased traffic noise during operation of the Proposed Project.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

Operation of the Proposed Project would not significantly increase noise levels at residential uses. At a distance of 800 feet traffic noise levels are predicted to be less than 55 L_{dn} along the proposed bridge during peak commute times. Traffic noise levels due to the Proposed Project would result in an increase of less than 1 dB over existing ambient noise levels. New construction designed to meet current thermal insulation standards would typically provide at least 20 dB of exterior-to-interior noise reduction. Accordingly, interior noise levels due to the Proposed Project are predicted to be below the City's interior noise standard of 45 L_{dn}. Therefore, exposure of noise-sensitive land use to increased traffic noise is not predicted to result in an adverse effect and would be minor adverse under NEPA, and less than significant under CEQA.

4.9.3.5 One Bridge/Two Lane Alternative—Crittenden Option

The Crittenden Lane One Bridge/Two Lane Alternative would result in the same potential effects as the Proposed Project, but would lessen the potential for effects to occur in the vicinity of Charleston Road that could occur with the Proposed Project and would completely avoid impacts to residential receptors that occur close to the proposed Charleston Road crossing.

4.9.3.6 No-Action Alternative

Under the No-Action Alternative, there would be no new effects on noise conditions.

4.10 Recreation

This section describes existing recreation conditions at the Proposed Project site, summarizes applicable regulations and policies, and analyzes potential short-term construction and long-term operational impacts on recreation conditions that could result from implementation of the Proposed Project.

4.10.1 Affected Environment

4.10.1.1 Study Area

Approximately 1,000 acres of park and open space are found within the City of Mountain View, including bicycle and pedestrian trails along Stevens Creek, Permanente Creek, and the Hetch-Hetchy ROW. The study area for this analysis is the City's North Bayshore Area, which is where the Proposed Project site is located. As shown in Figure 4.10-1, this area includes numerous recreational areas, such as Shoreline Park, Charleston Park, Stevens Creek Trail, and a community dog park. Approximately 0.6 acre of community parks and 6.5 acres of neighborhood parks are found in the North Bayshore Area. Vista Slope, Crittenden Hill, and Charleston Slough combine with the Shoreline Park to form the regional open space area.

4.10.1.2 Regional Setting

The regional setting includes recreational areas that are available for regional use. The recreational facilities below, which are close to the Proposed Project area, are connected to an extensive network of trails and open space in the Bay Area.

Stevens Creek Trail

The Proposed Project would connect to Stevens Creek Trail, a paved trail that, when complete, will extend along Stevens Creek from Dale Avenue/Heatherstone Way to Shoreline Park. Currently, 4.8 miles of the trail are open, from Sleeper Avenue to Shoreline Park. The trail extends through woodlands, tidal marshes, and neighborhood parks. Presently, the only access points to the trail in the North Bayshore Area are at the end of La Avenida and Charleston Road (City of Mountain View 2008).

Shoreline Park

The Proposed Project site is located approximately 0.3 mile south of Shoreline Park, a 750-acre regional wildlife and recreation area. Immediately to the east of Shoreline Park is the Stevens Creek Shoreline Nature Study Area. This is a 55-acre nature preserve that is accessible via a pedestrian bridge from Shoreline Park.

The Bay Trail

In 1989, ABAG adopted the Bay Trail Plan to develop a planned recreation corridor (the Bay Trail) that, when complete, will encircle San Francisco and San Pablo bays with a continuous 500-mile network of bicycling and hiking trails.

K:\Projects_1\City_of_MountainView\00642_11_Stevens_Crossings\mapdoc\Figures\Recreation_Fig.mxd (11/04/11 HW)

ICF INTERNATIONAL

Figure 4.10-1
Recreational Facilities

The Bay Trail will connect the shoreline of all nine Bay Area counties, link 47 cities, and cross the major toll bridges in the region. To date, approximately 310 miles of the alignment, more than 60% of the Bay Trail's ultimate length, have been completed (Association of Bay Area Governments 1999).

Approximately 2.25 miles of the Bay Trail runs in an east-west direction through the City of Mountain View. To the west, it links with the trail system in Palo Alto. The Proposed Project would connect to the Stevens Creek Trail, which, in turn, connects to the Bay Trail approximately 0.3 mile north of the proposed Crittenden Lane Pedestrian Bridge.

Permanente Creek Trail

The Proposed Project is located approximately one mile east of Permanente Creek Trail (PCT). The PCT segment from Highway 101 to Old Middlefield Way is currently in construction and is anticipated to be completed by March 2012.

4.10.2 Regulatory Setting

4.10.2.1 Local

Mountain View General Plan

The City of Mountain View General Plan, Environmental Management chapter, includes goals related to the improvement and preservation of open space. Specifically, Goal B of the Environmental Management chapter is related to the improvement of open space areas to provide recreational and leisure opportunities for the community. Policy 3 of this goal focuses on the development of trails, including Stevens Creek Trail.

Parks and Open Space Plan

The City of Mountain View Parks and Open Space Plan (Plan) was updated in 2008 to provide a comprehensive review of open space needs for the City of Mountain View. The Plan serves as a tool to help implement the open space goals in the general plan. To achieve these goals, the Plan offers a long-range vision to guide decisions made to advance park and open space resources as well as environmental conservation efforts that enhance the quality of life for all who live and work in the City. The Plan includes recommendations to increase, improve, preserve, and provide access to open space and develop trail systems. These recommendations are intended to ensure that parks and open space and access to these resources are evenly distributed throughout the town. Recommendations included in the Plan in the Proposed Project area include:

- Continue development of Stevens Creek Trail for biking, hiking, and wildlife preservation.
- Preserve and improve the public trail around Charleston Retention Basin and provide access to Stevens Creek Trail.
- Work with other cities and agencies to develop Stevens Creek Trail and the Bay Trail for the purpose of developing a regional network of interlinked systems.

A main focus of the Plan is to improve and provide safe and convenient access to existing parks and open space. According to the Plan, improved access could reduce the need for the acquisition of additional open space.

The Plan has adopted a standard of 3 acres of open space per 1,000 persons living in the City. Currently, 13.51 acres of open space exist in the City of Mountain View, including regional open space and school parks, per 1,000 residents (City of Mountain View 2008).

4.10.3 Effects

4.10.3.1 Criteria for Determination of Adverse Effect

The criteria for determining the effect of the Proposed Project on recreation conditions are based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 et seq.).

An effect on recreation conditions was considered adverse if construction or operation of the Proposed Project would have a substantial adverse effect on:

- The physical environment due to the construction of new park facilities.
- The quality of existing recreational facilities.

4.10.3.2 Sources and Methods

Identifying a Proposed Project area's recreation conditions involves the following:

- Reviewing service providers' web sites, the City of Mountain View General Plan, the City of Mountain View General Plan Update Current Conditions Report, and the City of Mountain View Parks and Open Space Plan.

4.10.3.3 Project Effects

Effect REC-1	The Proposed Project would 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.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

The Proposed Project would not introduce residential development into the Proposed Project area and therefore would not directly generate an increase in population that could affect local or regional parkland and recreational facilities. However, during construction of the Proposed Project, access to Stevens Creek Trail would be restricted, affecting access to the Bay Trail and the northern portion of Stevens Creek Trail. Pedestrians and bicyclists using these trails would be detoured around the Proposed Project site for a period of several weeks during construction. All detours necessary during construction would be noticed at least 4 weeks in advance of the detour being implemented and appropriate safety precautions (such as flaggers and safety staff directing the public to the detour) will be used when construction equipment is active. However, this impact

would be temporary, and alternative access would be provided in the immediate vicinity of the Proposed Project, thereby not restricting access to the Bay Trail and other portions of Stevens Creek Trail.

Upon completion of construction, there would be no restrictions of access to Stevens Creek Trail or the Bay Trail. Furthermore, the Proposed Project would increase and improve pedestrian and bicycle access to already-established recreational areas, including Stevens Creek Trail, Shoreline Park, and the Bay Trail. Therefore, the Proposed Project could result in an increase in use of nearby recreational areas due to greater connectivity. However, this increase in recreational use would not require the City to provide new or physically altered facilities because, according to the City, enhanced safe access to existing recreational facilities helps to minimize the need for new open space opportunities (City of Mountain View 2008).

As discussed above, approximately 13.51 acres of open space exist for every 1,000 people in the City of Mountain View. This is well above the open space standard adopted in the City of Mountain View Parks and Open Space Plan. Although more users would be expected to use the existing recreational facilities, this is not considered an adverse effect because the City of Mountain View has an excess of open space available, as defined by the Plan. Further, according to the Plan, the North Bayshore Area is not considered deficient with respect to open space. Therefore, the quality of existing recreational facilities would not be adversely affected.

The impacts would be minor under NEPA and less than significant under CEQA.

Effect REC-2	The Proposed Project would construct recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

The Proposed Project would include the construction of a new pedestrian/bicycle bridge at Charleston Road. This would provide a new access point to Stevens Creek Trail. The bridge would extend the bike lanes and sidewalks on Charleston Road eastward, connecting to the NASA ARC pathways on the east side of the Creek. No structures would be built within Stevens Creek. The bridge deck would be built 6 to 18 feet above the existing surface of Stevens Creek Trail. To match the trail grade, the vertical difference would be absorbed by repaving Stevens Creek Trail 100 to 150 feet in each direction, thereby reconciling the elevation difference. The alteration of the existing Trail would be minor under NEPA and less than significant under CEQA.

The existing Crittenden Lane Pedestrian Bridge would remain. It would be enhanced to allow direct access to Stevens Creek Trail along the top of the west levee as well as to the unnamed trail along the top of the east levee. The existing approach to the bridge would be modified to provide a flatter grade that is ADA compliant. These improvements would not result in any alterations to Stevens Creek Trail.

The impacts would be minor under NEPA and less than significant under CEQA.

4.10.3.4 One Bridge/Two Lane Alternative—Crittenden Option

The Crittenden Lane One Bridge/Two Lane Alternative would result in the same potential effects as the Proposed Project but would lessen the extent and intensity of potential effects compared with the Proposed Project. The benefits of an additional ADA-compliant pedestrian/bicycle crossing at Charleston Road would not be realized. Pedestrian travel times to the Bay View Area from the south could be increased by up to 6 minutes and bicycle trips by up to 2 minutes.

4.10.3.5 No-Action Alternative

Under the No-Action Alternative, there would be no new effects on recreation conditions.

4.11 Transportation and Circulation

This section describes existing transportation and circulation conditions at the Proposed Project site, summarizes applicable regulations and policies, and analyzes potential short-term construction and long-term operational effects on transportation and circulation conditions that could result from implementation of the Proposed Project.

4.11.1 Affected Environment

4.11.1.1 Study Area

The Proposed Project would provide the connection between the Bay View Area and the North Bayshore Area for Google operated shuttles and security patrols, emergency service vehicles, delivery vehicles serving both the Bay View Area and the North Bayshore Area, and pedestrians and bicycles by the construction of the bridges. Currently, the shuttles travel between the Bay View Area and the North Bayshore Area would have to route through US Highway 101 or local streets south of Highway 101 because these is no street connection between these two areas north of Highway 101. Therefore, the study area for transportation and circulation includes existing streets along the existing shuttle routes that would be altered to utilize the new bridges. The key streets within the study area are listed below.

- Crittenden Lane between Shoreline Boulevard and proposed bridge.
- Charleston Road between Shoreline Boulevard and proposed bridge.
- Highway 101 between Shoreline Boulevard and Moffett Boulevard.
- Middlefield Road between Shoreline Boulevard and Moffett Boulevard.
- Central Expressway between Shoreline Boulevard and Moffett Boulevard.
- Shoreline Boulevard between Central Expressway and Crittenden Lane.
- Moffett Boulevard between Central Expressway and Highway 101 westbound ramps.

4.11.1.2 Roadway System Operation

Roadway System

Regional and local roadways in the study area are described below (Mountain View 2009).

Highway 101 is a north/south freeway that extends from San Francisco through San Mateo and Santa Clara Counties. In Mountain View, Highway 101 includes three mixed-flow lanes and one HOV lane per direction except for a short section at State Route(SR) 85 where two HOV lanes are provided. Through the City, northbound is generally the peak morning commute direction. Highway 101 is part of the Congestion Management Program (CMP) roadway system in the study area.

Central Expressway is an east-west, four-lane expressway in the Proposed Project vicinity. It runs parallel to Highway 101 in the City with the major access points at Shoreline Boulevard and Moffett Boulevard in the study area.

Charleston Road is a four-lane arterial between Amphitheatre Parkway and Shoreline Boulevard. Charleston Road is a three-lane collector road from Shoreline Boulevard to its eastern terminus at the PG&E ROW. Charleston Road has a 35 miles per hour (mph) posted speed limit.

Crittenden Lane a two-lane local street which extends from Shoreline Boulevard at its western terminus to its eastern terminus at the PG&E ROW.

Middlefield Road is a four-lane east-west residential arterial in the Proposed Project vicinity. Middlefield Road has a 35 mph posted speed limit.

Moffett Boulevard is a four-lane, north-south arterial road which extends from Central Expressway at its southern terminus to its northern terminus at NASA ARC. Moffett Boulevard is posted with a 40 mph speed limit from NASA ARC to Middlefield Road and 35 mph from Middlefield Road to Central Expressway.

Shoreline Boulevard is a four-lane north-south arterial between Amphitheatre Parkway and Middlefield Road. Shoreline Boulevard is a five-lane residential arterial between Middlefield Road and Central Expressway. It serves the Google campus and local businesses in the North Bayshore Area north of Highway 101 and residential uses south of Middlefield Road. Shoreline Boulevard is posted with 35 mph speed limit.

Traffic Volumes and Roadway Operations

The existing traffic volumes and LOS for study area streets are summarized in Table 4.11-1 below according to the current conditions report prepared for the General Plan update (Mountain View 2009).

LOS is a scale used to determine the operating quality of a roadway segment or intersection based on volume-to-capacity (V/C) ratio or average delay experienced by vehicles on the facility. The levels range from A to F, with LOS A representing free traffic flow and LOS F representing severe traffic congestion. The City has adopted LOS D as the minimum overall performance standard for City-controlled roadways, while VTA strives to maintain LOS E operations on all CMP-monitored facilities.

Roadways were analyzed by comparing the counted daily volumes to the threshold volumes which are determined based the roadway type and the LOS standard of the street. It is important to note that daily volume thresholds are used for planning purposes to generally size roads and are not intended to address detailed operational issues at the intersection level that are dependent on the peak hour traffic volumes, number of turn lanes, signal timing, adjacent driveway operations, etc. Based on the analysis results shown in Table 4.11-1, Highway 101 in the study area does not meet the VTA CMP LOS standard of LOS E because it operates at LOS F.

According to the NADP EIS, Highway 101 between SR 237 and SR 85 was identified to operate at LOS F during the AM and PM peak hours on both directions. In addition, the intersection of Middlefield Road and Shoreline Boulevard was also identified to operate at LOS E during the PM peak hour, which exceeds the City's LOS standard of LOS D (NASA Ames Research Center 2002)

Table 4.11-1. Existing Roadway Segment Volumes and Level of Service*

Roadway	Segment	Roadway Type	Daily Volume Threshold	ADT	LOS
Highway 101 Northbound	SR 85—Old Middlefield Road	4-lane freeway	81,400	113,500	F
Highway 101 Southbound	Old Middlefield Road—SR 85	4-lane freeway	81,400	113,500	F
Central Expressway	Shoreline Boulevard—Moffett Boulevard	4-lane divided arterial	35,400	28,100	D
Charleston Road	East of Shoreline Boulevard	2-lane local street	N/A	N/A	N/A
Crittenden Lane	East of Shoreline Boulevard	2-lane local street	N/A	N/A	N/A
Middlefield Road	San Veron Avenue—Moffett Boulevard	4-lane divided arterial	35,400	13,700	C
Moffett Boulevard	Middlefield Road—Central Avenue	4-lane undivided arterial	27,400	13,500	C
Shoreline Boulevard	Charleston Road—Highway 101	4-lane divided arterial	35,400	30,000	D
Shoreline Boulevard	Highway 101—Middlefield Road	4-lane divided arterial	35,400	25,000	D

Source: Mountain View 2009
ADT = average daily traffic; LOS = level of service; N/A = no analysis is available for this location.
*- Traffic volumes and LOS based on 12-hour averages.

4.11.1.3 Transit Network

VTA operates bus service in Santa Clara County. In the study area, the local bus route 40 runs on Charleston Road and Shoreline Boulevard from Amphitheatre Parkway to L' Avenida Street; the local bus route 51 runs on Moffett Boulevard between Central Expressway and Ames Research Center; the community bus route 32 runs on Middlefield Road throughout the city; and the express bus line 104 runs on Highway 101 between Penitencia Creek Transit Center and Palo Alto. Local bus routes provide frequent stops on local roads, community bus routes use smaller 25-passenger buses and lower fares, to serve downtown Mountain View, the San Antonio Shopping Center, local schools and hospitals, and express bus lines utilize highways and freeways to bypass local roads and to reduce travel time with fewer bus stops.

VTA also operates Light Rail Transit (LRT) service between downtown Mountain View and Winchester Station in Campbell, passing through downtown San Jose. The closest station to the Proposed Project site is located in downtown Mountain View at the Moffett Boulevard/Central Expressway intersection. No bus shuttle service is provided between the station and Proposed Project site.

Regional commuter rail service is provided via Caltrain and managed under contract with the San Mateo County Transit District (SamTrans). Caltrain operates between Gilroy and San Francisco, with the nearest station located in downtown Mountain View near the Moffett Boulevard/Central Expressway intersection.

4.11.1.4 Shuttle Service

Altamont Commuter Express (ACE) is a passenger rail line that extends to San Jose with a stop at the Great America Station in Santa Clara. The ACE Orange Shuttle that provides service from the Great America Station, North Bayshore Area, and to eastern Palo Alto via Highway 101, Shoreline Boulevard, Charleston Boulevard, Garcia Avenue and Marine Way in the City.

Caltrain provides an extensive shuttle program in Santa Clara County with 12 shuttle lines running from and to various Caltrain stations during commute hours only. In the study area, two shuttle routes serve portions of the employment areas between the North Bayshore Area and the Mountain View Caltrain station. The North Bayshore Shuttle runs on Central Expressway, Rengstorff Avenue, Garcia Avenue and Marine Way in the City. The Shoreline Shuttle runs on Villa Street, Shoreline Boulevard, Crittenden Lane, Charleston Boulevard, Garcia Avenue and Marine Way in the City.

4.11.1.5 Non-Motorized Transportation

Bicycle facilities are classified into four categories: Class I (bike paths) are completely separated, off-street, paved ROW (shared with pedestrians) paths, which exclude motor vehicle traffic; Class II (bike lanes) are striped and signed lanes for one-way bike travel on a roadway; Class IIIa (bike routes) are on-street bike routes on local residential or collector streets when the travel lane is wide enough and the traffic volume is low enough; and Class IIIb (bike boulevard) are modified bike routes that providing a more convenient and efficient through-route than a typical bike route by adding signage and pavement markings.

In the study area, Stevens Creek Trail is a bicycle path, with a bicycle/pedestrian crossing on Crittenden Lane. The trail extends from the Shoreline Bay Trail to the intersection of Dale Avenue/Heatherstone Way in Mountain View and will eventually connect to to the De Anza Trail in Cupertino. Charleston Road, Shoreline Boulevard, and Middlefield road are classified as bike lanes; and Moffett Boulevard is classified as a bike route.

4.11.2 Regulatory Setting

4.11.2.1 Federal

No federal regulation is applicable for identifying environmental effects of the Proposed Project on transportation and circulation.

4.11.2.2 State

Caltrans has jurisdiction over the State highway system, including freeways, U.S. highways, and State Routes. Caltrans strives to maintain LOS C operations on all of its facilities but acknowledges that numerous roadway segments under its control in urban areas will operate at LOS D or worse. Although impacts to freeway segments are evaluated based on the performance standard established by the VTA, Caltrans can request additional information to determine anticipated impacts to State facilities. (NASA Ames Research Center 2002)

4.11.2.3 Local

Congestion Management Program

VTA is responsible for maintaining the performance and standards of CMP roadway system. VTA strives to maintain LOS E operations on all CMP-monitored facilities. VTA requires local jurisdictions to analyze impacts of new developments or land use policy changes on CMP facilities if they are expected to generate 100 or more new peak hour trips (Mountain View 2009). The Proposed Project would not generate more than 100 peak hour trips. Therefore, an analysis based on the requirements of VTA, the administering agency for the CMP, is not required.

Santa Clara County

The County of Santa Clara County maintains roadways in unincorporated areas and expressway facilities. The only County maintained roadway included in this study area is Central Expressway. The County strives to maintain an LOS D standard for roadway operations and also follows the CMP criteria for regional facilities (NASA Ames Research Center 2002).

City of Mountain View

The Circulation Chapter/Element of the City of Mountain View General Plan states specific goals, policies and actions designed to maintain acceptable traffic operations and to reduce congestion. Improved circulation is expected to be provided through enhancement of transit, bicycle, and pedestrian modes, as well as the use of aggressive Transportation Demand Management measures to reduce single-occupant vehicle trips. This document establishes the LOS standards for local roadways (LOS D), acknowledges higher levels of congestion on regional roadways (LOS E standard), and includes plans for future bicycle facilities and walkways (NASA Ames Research Center 2002).

4.11.3 Effects

4.11.3.1 Criteria for Determination of Adverse Effect

Criteria for determining the effect of the Proposed Project on transportation and circulation conditions were based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 et seq.).

An effect on transportation and circulation conditions was considered adverse if construction or operation of the Proposed Project would have a substantial adverse effect on:

- conformance with applicable plans, ordinance, or policies that establish measures of effectiveness for performance of the circulation system;
- conformance with applicable congestion management plans;
- safety associated with traffic patterns or design features; or
- emergency access.

4.11.3.2 Sources and Methods

Identifying the Proposed Project area's transportation and circulation conditions involves the following steps.

- Identify trips generated by the existing Google shuttles that would use the proposed bridges to travel between the Bay View Area and the North Bayshore Area; calculate the change of traffic volumes on study area roadways as a result of the new bridge connections; and evaluate the operation traffic impact on study area roadways.
- Evaluate construction traffic impact on study area roadways
- Address the construction and operation impacts on transit services and non-motorized facilities.

The Proposed Project is not expected to generate new shuttle trips from the Bay View district and the North Bayshore Area; therefore, the impact analysis is assessed based on more qualitative measures.

4.11.3.3 Project Effects

Effect TRA-1	Conflict with applicable plans, ordinance, or policies that establish measures of effectiveness for performance of the circulation system
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA

Discussion

Construction

Construction of the Proposed Project would result in short-term increases in the traffic volumes on the Proposed Project access roads. The construction-related trips would stem from workers traveling to and from the Proposed Project site, equipment and material deliveries, and the transport of spoils (rock and soil). Depending on the planned construction activity and the need for material deliveries, the number of generated trips would vary on a daily basis and could cause increased delays along Proposed Project access haul routes in the Proposed Project vicinity. As discussed in the Affected Environment, Highway 101 and the Middlefield Road/Shoreline Boulevard intersection in the study area were identified to operate at a deficient level during peak hours. The construction-related vehicles accessing the Proposed Project site via these routes could potentially worsen the traffic operation and result in a potentially adverse effect under NEPA and potentially significant impact under CEQA. As described in the Section 3.2.4.4 Environmental Commitments, the Proposed Project construction contractor will be required to develop and implement a Traffic Control Plan to minimize and avoid impacts on traffic operation and circulation during construction of the Proposed Project, which will avoid creating additional delay on roadways and intersections currently operating at congested conditions, either by choosing routes that avoid these locations, or constructing during nonpeak times of day. Traffic Control Plans shall be submitted to the City of Mountain View Traffic Engineer and NASA for review and approval prior to implementation.

Implementation of the Traffic Control Plan would reduce the effect to a minor level under NEPA and less than significant under CEQA.

Operation

Google operates two types of shuttle services to its North Bayshore campus: the commuter shuttle service and the local shuttle service.

The commuter shuttles (Google motor coaches) make approximately 300 daily runs carrying over 3,300 commute riders from the communities in the Bay Area to the campus. It is assumed that all of these runs would route through the new Bay View area via the Stevens Creek Crossings, meaning that there would be a total of 300 runs using the Stevens Creek Crossings each day (Monday through Friday). Assuming that each run has to return to the origin, the increased daily traffic volume on the Stevens Creek Crossings would be about 600 vehicle trips per day. The split between AM and PM is almost even, with a few more PM runs than AM. The increased hourly traffic volumes on the Stevens Creek Crossings are estimated below (Kevin Mathy pers. comm.).

- AM arrivals begin at 7:00 a.m. and stop by 11:30 a.m. By spreading the shuttle runs evenly across this period, the increased hourly traffic volume on the Stevens Creek Crossings would be about 68 vehicle trips per hour.
- PM departures begin at 15:45 p.m. and stop by 22:00 p.m. By spreading the shuttle runs evenly across this period, the increased hourly traffic volume on the Stevens Creek Crossings would be about 48 vehicle trips per hour.

The local shuttle service operates among and between various selected Google buildings in North Bayshore campus during the mid-day period carrying an average of 100 daily trips and a maximum of 200 daily trips on peak days. It is assumed that approximately half of the current shuttle trips would route through the new NASA ARC Bay View district via the Stevens Creek Crossings. Therefore, the increased daily traffic volume on the Stevens Creek Crossings would be an average of 100 vehicle trips per day. It is assumed that the mid-day period spans from 9:00 a.m. to 15:00 p.m. daily (Monday through Friday). By spreading the shuttle runs evenly across the mid-day period, the increased hourly traffic volume on the Stevens Creek Crossings would be an average of nine vehicle trips per hour (Kevin Mathy pers. comm.).

Table 4.11-2 summarized the increased traffic volumes on study area roadways, as a result of the Proposed Project. The existing Google shuttles run up Shoreline Boulevard and down to the terminus of both Charleston Road and Crittenden Lane in the North Bayshore campus. Without the Proposed Project Google shuttles would have to route through Highway 101 or local streets south of Highway 101 to service the new Bay View Area. With the completion of the Proposed Project, the shuttles would use the crossings on Charleston Road and Crittenden Lane to access the Bay View Area instead of routing through already congested Highway 101 and local streets south of Highway 101.

Overall, the Proposed Project would not result in a net increase in traffic volumes on roadway system in the Proposed Project vicinity and would be expected to reduce the traffic volumes on the study area roadways. The Proposed Project would not worsen the traffic operation and circulation of the existing roadway system. Furthermore, the Proposed Project would include new crossings for pedestrians and bicyclists using the Stevens Creek Trail. Therefore, the Proposed Project is in conformance with applicable plans, ordinance, or policies that establish measures of effectiveness for performance of the circulation system.

The effect would be minor under NEPA and less than significant under CEQA.

Table 4.11-2. Estimated Traffic Volume Increase on Existing Roadway Segments

Roadway	Segment	Increased Daily Traffic Volume	Increased Hourly Traffic Volume in Peak Hour
Stevens Creek Crossings		700	68
Charleston Road	East of Shoreline Boulevard	No Change	No Change
Crittenden Lane	East of Shoreline Boulevard		
Shoreline Boulevard	Crittenden Lane—Charleston Road		
Shoreline Boulevard	Charleston Road –Middlefield Road	-700	-68
Highway 101 Northbound	SR 85—Old Middlefield Road		
Highway 101 Southbound	Old Middlefield Road—SR 85		
Central Expressway	Shoreline Boulevard—Moffett Boulevard		
Middlefield Road	San Veron Avenue—Moffett Boulevard		
Moffett Boulevard	Middlefield Road—Central Avenue		
Project Total		0	0

Peak hours = 7:00 a.m. to 9:00 a.m. in the morning and 4:00 p.m. to 6:00 p.m. in the evening.
Source: Kevin Mathy pers.comm.

Effect TRA-2	Conflict with applicable congestion management plans
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA

Discussion

Construction

Highway 101 within the study area is part of CMP roadway system. As discussed in Effect TRA-1 above, the project-generated vehicles traveling on Highway 101 during the peak hours could potentially worsen the traffic operation of Highway 101, which operates at a deficient level.

The implementation of the Traffic Control Plan described under Effect TRA-1 would reduce the effect to a minor level under NEPA and less than significant under CEQA.

Operation

Highway 101 within the Proposed Project vicinity is part of CMP roadway system; however, as discussed in Effect TRA-1 above, the Proposed Project would not result in any trip increase to Highway 101 segments.

Therefore, the traffic effect to CMP facilities would be minor under NEPA and less than significant under CEQA.

Effect TRA-3	Substantially increase safety hazards associated with traffic patterns or design features
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

Construction

Construction vehicles delivering materials to the Proposed Project site would share roadways with other vehicles, bicyclists, and pedestrians. Construction vehicles with slower speeds and wider turning radii could increase traffic safety hazards because of potential conflicts with automobiles, bicyclists, and pedestrians. As described in the Section 3.2.4.4 Environmental Commitments, the Proposed Project construction contractor will be required to develop and implement a Traffic Control Plan to minimize and avoid impacts on safety hazards during construction of the Proposed Project, which will include measures such as maintaining pedestrian and bicycle access and circulation, and requiring traffic controls in the area and at entrance, including flaggers, illuminated signs and a temporary stop sign to slow oncoming traffic.

The implementation of the Traffic Control Plan would reduce the effect to a minor level under NEPA and less than significant under CEQA.

Operation

Safety impacts are considered significant if design elements of the Proposed Project would result in conditions that would increase the risk of accidents, either for vehicular or non-motorized traffic. No unusual design features or uses are proposed as part of the Proposed Project that would substantially increase safety hazards. Therefore, safety hazards due to a design feature or incompatible use would not occur.

The effect is considered minor under NEPA and less than significant under CEQA.

Effect TRA-4	Result in inadequate emergency access
Level of Effect	This impact is considered minor adverse under NEPA and less than significant under CEQA

Discussion

Construction

Emergency access to the Proposed Project site could be affected by construction of the Proposed Project because slow moving construction vehicles could delay or obstruct the movement of emergency vehicles. As described in the Section 3.2.4.4 Environmental Commitments, the Proposed Project construction contractor will be required to develop and implement a Traffic Control Plan to minimize and avoid impacts on emergency access during construction, which will include measures such as providing access for emergency vehicles at all times and providing advance notice of lane closures to local fire and police departments to ensure that alternative evacuation and emergency routes are designed to maintain response times.

The implementation of the Traffic Control Plan would reduce the effect to a minor level under NEPA and less than significant under CEQA.

Operation

The emergency service vehicles would be allowed to use the proposed bridges to access Bay View district and the North Bayshore Area. Therefore, the Proposed Project would result in improved emergency access.

The effect is considered minor under NEPA and less than significant under CEQA.

4.11.3.4 One Bridge/Two Lane Alternative—Crittenden Option

Under the Crittenden Lane One Bridge/Two Lane Alternative, the Google Shuttle Service would operate in a manner identical to the Proposed Project, with the exception that the 350 existing round trips (700 single direction trips) would all be routed across the Crittenden Lane crossing. (Kevin Mathy pers. comm.) This would eliminate the operational loop routing of the shuttles to the Bay View Area site and would result in traffic volume increase on Crittenden Lane and at the intersection of Shoreline Boulevard and Crittenden Lane, which could potentially worsen the traffic operation and result in exceeding the City's LOS standard at these locations. Therefore, the alternative would result in an adverse effect on Effect TRA-1 during operation of the Proposed Project. There would be no other effects on the CMP, safety hazards, and emergency access in comparison to the Proposed Project.

4.11.3.5 No-Action Alternative

Under the No-Action Alternative, Google's shuttle service would have to route through Highway 101 or local streets south of Highway 101 to service the new Bay View Area and would result in traffic volume increase on Highway 101 and local streets that already operate at the congested condition. Highway 101 between SR 237 and SR 85 was identified to operate at LOS F during the AM and PM peak hours on both directions and the intersection of Middlefield Road and Shoreline Boulevard was also identified to operate at LOS E during the PM peak hour, which exceeds the City's LOS standard of LOS D (NASA Ames Research Center 2002) The No-Action Alternative would continuously worsen the traffic operation at these locations and could potential cause Shoreline Boulevard to exceed the City's LOS standard. Therefore, the alternative would result in an adverse effect on Effect TRA-1 during operation of the Proposed Project. There would be no other effects on the CMP, safety hazards, and emergency access in comparison to the Proposed Project.

4.12 Public Services and Utilities

This section describes existing public services and utilities at the Proposed Project site, summarizes applicable regulations and policies, and analyzes potential short-term construction and long-term operational impacts on public services and utilities that could result from implementation of the Proposed Project.

4.12.1 Affected Environment

4.12.1.1 Study Area

The proposed Stevens Creek Crossings Project is located in the City of Mountain View, in Santa Clara County (refer to Figures 3-1 and 3-2 in Chapter 3, Proposed Action and Alternatives). The Proposed Project site crosses a portion of a PG&E transmission line corridor, a plant nursery that is permitted within the PG&E corridor, the Stevens Creek Trail, and the SCVWD maintained Stevens Creek stream channel.

The Proposed Project area for the eastern bridge approaches includes portions of two existing public roads, the eastern termini of both Charleston Road and Crittenden Lane in the City of Mountain View. The Proposed Project area for the western bridge approaches is in the Bay View Area of NASA ARC, which is within the legal boundaries of the City of Mountain View.

Land uses surrounding the Proposed Project site include commercial office space with some light industrial development in the North Bayshore Area of the City and undeveloped land at NASA ARC (refer to Figures 3-2 and 3-3 in Chapter 3, Proposed Action and Alternatives).

4.12.1.2 Regional Setting

Unless otherwise noted, the following regional setting information for public services and utilities was obtained from the Mountain View General Plan Update Current Conditions Report, Administrative Draft (MIG and LSA Associates, Inc. 2009).

Public Services

Schools

The City is served by three public school districts: Mountain View-Whisman School District, Mountain View-Los Altos Union High School District, and Los Altos Elementary School District.

Fire Protection and Emergency Medical Services

Fire protection and emergency medical services in the City are provided by the City of Mountain View Fire Department (Fire Department), which operates out of five fire stations: Station 1, located at 251 South Shoreline Boulevard; Station 2, located at 160 Cuesta Drive; Station 3, located at 301 North Rengstorff Avenue; Station 4, located at 229 North Whisman Road; and Station 5, located at 2195 North Shoreline Boulevard. Emergency transport services are provided by Rural Metro through a contract with Santa Clara County.

Police Protection Services

Police services in the City are provided by the City of Mountain View Police Department (Police Department), which operates out of one police station, located at 1000 Villa Street. The Police Department separates the City into five beats. The Police Department's goal is to respond to Priority E and Priority 1 calls, which warrant emergency dispatch and are the highest priority, in less than 4 minutes at least 55.5% of the time.

Libraries

There is only one library in the City: Mountain View Public Library (Public Library), located at 585 Franklin Street in downtown Mountain View.

Other Public Services

In addition to schools, fire protection and emergency medical services, police protection services, and libraries, the City contains the following community facilities: the Mountain View Center for the Performing Arts, which is located on Castro Street in downtown Mountain View; the Mountain View Senior Center, located at 266 Escuela Avenue; the Mountain View Community Center, located at 201 South Rengstorff Avenue in Rengstorff Park; the Mountain View Teen Center, located at 298 Escuela Avenue; Rengstorff House,[3] located at 3070 North Shoreline Boulevard in Shoreline Park; and the Adobe Building, which is available for a variety of events, ranging from weddings to corporate meetings.

Utilities

Gas and Electricity

Gas and electric services in the City are provided by PG&E (City of Mountain View 2011a).

Water

The City of Mountain View purchases the majority of its drinking water from the SFPUC and the SCVWD. These sources are supplemented by water pumped from seven active groundwater wells owned and operated by the City. Beginning in 2009, Mountain View also began receiving non‐potable recycled water from the RWQCP to help meet irrigation needs, saving potable water for domestic use and offsetting groundwater pumped by a local irrigation well. In 2010, water supplies used by the City (both potable and non‐potable) included 84 percent SFPUC water, 9 percent SCVWD treated water, 4 percent groundwater and 3 percent recycled water (City of Mountain View 2011b).

Wastewater

The City's wastewater is treated at the Palo Alto Regional Water Quality Control Plant (RWQCP) (City of Mountain View 2011c), located at 250 Hamilton Avenue in Palo Alto, California (City of Palo Alto 2011). The City's sanitary and stormwater collection systems are operated and maintained by the Wastewater Section of the Public Services Division (City of Mountain View 2011d).

[3] Rengstorff House offers educational programs that focus on the area's early history. The facility is available for special events and meetings.

Solid Waste

The City's exclusive hauler, Recology, provides roll-off boxes for construction sites. All collected materials are transported by Recology to the Sunnyvale Materials Recovery and Transfer Station (SMaRT Station) at 301 Carl Road in Sunnyvale. The SMaRT Station transports all non-recyclable construction waste to the Kirby Canyon Landfill in San Jose for disposal.

4.12.1.3 Project Setting

The Proposed Project area is served by elementary and middle schools in the Mountain View-Whisman School District and by high schools in the Mountain View-Los Altos Union High School District. The closest fire station to the Proposed Project area is Station 5, located at 2195 North Shoreline Boulevard (MIG and LSA Associates, Inc. 2009). The Proposed Project area is located in Beat 5 of the Police Department (City of Mountain View 2000). Section 4.12.1.2, Regional Setting, provides information regarding utility providers in the Proposed Project area.

As discussed in Chapter 3, Proposed Action and Alternatives, the Stevens Creek levees are owned and maintained by the SCVWD, and the strip of land west of Stevens Creek is part of a PG&E transmission line corridor. As part of the Proposed Project, the PG&E transmission towers would be raised to meet a minimum 30-foot safety separation between high-voltage lines and bridge/roadway structures.

4.12.2 Regulatory Setting

4.12.2.1 Federal

Clean Water Act

Enacted in 1972, this Federal legislation completely revised the existing Water Pollution Control Act. Section 304 of the CWA established primary drinking water standards. States are required to ensure that potable water intended for the public meets these standards. State primary and secondary drinking water standards are promulgated in 22 CCR 64431–64501. Secondary drinking water standards incorporate non-health risk factors, including taste, odor, and appearance. The NPDES regulates the discharge of drainage to surface waters. Federal NPDES regulations are administered by the State Water Resources Control Board (SWRCB) and through the RWQCBs. Municipal storm drainage is required to meet board standards under waste discharge regulations/NPDES permits.

4.12.2.2 State

Porter-Cologne Water Quality Control Act (Section 13000 et seq.)

The Porter-Cologne Act directs the SWRCB and RWQCBs to prepare Basin Plans, which establish water quality objectives and beneficial uses for each body of water within the regional boundaries, including groundwater basins. The Porter-Cologne Act empowers the SWRCB and RWQCBs to protect the beneficial use of California waters. Therefore, it provides broader authority than that offered by the CWA alone. The SWRCB and RWQCBs adopt regulations to protect surface water quality.

Under the General Construction Permit (Order 2009-0009-DWQ), construction projects are required to prepare a Notice of Intent (NOI) and a SWPPP and implement and maintain BMPs to avoid adverse effects on receiving water quality as a result of construction activities. The SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants, to be implemented if there is a BMP failure; and a sediment monitoring plan if the site discharges directly to a water body on the Section 303(d) list for sediment. The issue of water quality is also addressed in Section 4.8, Hydrology and Water Quality.

4.12.2.3 Local

City of Mountain View Construction and Demolition Debris Ordinance

The City's Construction and Demolition Debris Ordinance requires at least 50% of debris from construction, renovation, and/or demolition projects of 5,000 square feet or more to be diverted from landfills through salvage and recycling. The City's exclusive hauler, Recology, provides roll-off boxes, and materials hauled by Recology can be easily verified by the City for compliance with the Construction and Demolition Debris Ordinance. Boxes hauled by Recology are recycled at the City's SMaRT station, and a 78% diversion rate is achieved (City of Mountain View 2011e).

4.12.2.4 Impact Avoidance Measures Incorporated into Project Design

The following measures would be incorporated into the Proposed Project to avoid and/or minimize impacts on public services and utilities in the Proposed Project area:

- Authorized utility access to and within the existing PG&E transmission line corridor and SCVWD levee structures will be maintained.
- PG&E transmission towers will be raised to meet a minimum 30-foot safety separation between high-voltage lines and bridge/roadway structures.
- An encroachment permit and a licensing agreement from SCVWD will be obtained for construction of the new vehicular bridges at Crittenden Lane and Charleston Road.
- The tops of the levees will be elevated at the southern crossing point of the pedestrian/bicycle bridge at Charleston Road by approximately 6 to 12 inches in accordance with SCVWD flood control requirements.
- A looped system configuration will be constructed to allow safe and unimpeded passage of the multiple buses and emergency response vehicles that would be using this facility on a continuous basis.
- The contractor will employ Recology, the City's exclusive hauler, for roll-off boxes and construction waste hauling services.

4.12.3 Effects

4.12.3.1 Criteria for Determination of Adverse Effect

Criteria for determining the effect of the Proposed Project on public services and utilities were based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 et seq.).

An effect on public services was considered adverse if construction or operation of the Proposed Project would have a substantial adverse effect on:

- Fire protection.
- Police protection.
- Schools.
- Other public facilities.

An effect on utilities was considered adverse if construction or operation of the Proposed Project would have a substantial adverse effect on:

- Wastewater treatment requirements.
- Water or wastewater treatment facilities.
- Stormwater drainage facilities.
- Water supply.
- Wastewater treatment capacity.
- Landfill capacity.
- Solid waste.

4.12.3.2 Sources and Methods

Identifying a Proposed Project area's public services and utilities involves the following steps:

- Review of the City of Mountain View's web site.
- Review of service providers' web sites.
- Review of the Mountain View General Plan Update Current Conditions Report.
- Contacting utility service providers.

4.12.3.3 Project Effects

This section discusses potential short-term (construction) and long-term (operational) effects on public services and utilities that could result from implementation of the Proposed Project.

Effect PSU-1	The Proposed Project would not adversely affect fire protection, police protection, schools, or other public facilities and would not require the provision of new or physically altered governmental facilities to maintain acceptable service ratios, response times, or other performance objectives in the Proposed Project area.
Level of Effect	This impact is considered beneficial under NEPA and CEQA.

Discussion

This section discusses potential short-term (construction) and long-term (operational) effects on public services.

Construction

The construction phase of the Proposed Project would last approximately 22 months. It is unlikely to materially increase the need for emergency fire or police protection services materially. Existing fire and police services are expected to be adequate and capable of ensuring safety during construction at the Proposed Project site. No schools or other public facilities would be affected by construction of the Proposed Project because the Proposed Project would not affect any roads that are currently used in the area. Building plans would be subject to review by the City, Fire Department, and Police Department prior to the issuance of any building permits.

Therefore, construction-period public services impacts related to fire and police protection, schools, and other public facilities would be minor under NEPA and less than significant under CEQA.

Operation

The Proposed Project would not result in an increased need for police or fire protection or additional schools or other public facilities. Rather, the new bridges would improve circulation in the area and result in a beneficial effect for service providers. Because the Bay View Area is within the City, the City is required to provide a first-responder emergency medical response to calls within 7 minutes, 59 seconds. With construction of the Proposed Project, Station 5 would be able to reach the Proposed Project site and the Bay View Area in approximately 2 minutes via Crittenden Lane. Without the Proposed Project, Station 4 would be the fastest responder, requiring approximately 9 minutes.

As described earlier, the Police Department's goal is to respond to Priority E and Priority 1 calls in less than 4 minutes. The police response time with the Proposed Project, assuming a worst-case scenario at the City's only police station, would be 6 minutes via the Charleston Road Crossing. The response time would be 12 minutes without the Proposed Project.

The Proposed Project would greatly enhance emergency response times for calls to the Proposed Project site.

This would be a beneficial effect under NEPA and no impact under CEQA.

Effect PSU-2	The Proposed Project would not have an adverse effect on water supply, water treatment facilities, or wastewater treatment facilities.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

This section discusses potential short-term (construction) and long-term (operational) effects on water supply, water treatment facilities, and wastewater treatment facilities.

Construction

Construction would require the occasional use of water for mixing concrete, washing equipment and vehicles, dust control, and other activities. The amount of water used during construction on a daily basis would be minimal. Construction water would not be treated by wastewater treatment facilities. Therefore, construction impacts would be minor under NEPA and less than significant under CEQA.

Operation

The Proposed Project would construct bridges across Stevens Creek but would not create a land use that would require an additional water supply or wastewater treatment for its operation. Therefore, it would not require new or expanded water entitlements, result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, or exceed wastewater treatment requirements or wastewater treatment capacity of the RWQCP.

Therefore, there would be no operational effect under NEPA and no impact under CEQA.

Effect PSU-3	The Proposed Project would not adversely affect landfill capacities. It would comply with Federal, State, and local statutes and regulations related to solid waste.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

Because the Proposed Project would construct bridges and would not generate solid waste during its operation, the following discussion is limited to construction effects.

As described in Chapter 3, Proposed Action and Alternatives, the Proposed Project design would endeavor to achieve balanced cut and fill; therefore, the disposal of excess excavated materials would not be required. In addition, no demolition would be required because the existing Crittenden Lane Pedestrian Bridge would remain in place. Liquid construction waste would be disposed of offsite in accordance with the waste management and materials pollution control BMPs found in the Caltrans *Construction Site Best Management Practices Manual*. Petroleum-based compounds would be contained and removed to an officially designated landfill that has been authorized to accept that type of waste.

The Proposed Project specifications would contain requirements for the handling, storage, and cleanup of hazardous materials, including petroleum-based products, cement, or other construction pollutants. As discussed in Section 4.12.2.3, the City's Construction and Demolition Debris Ordinance requires at least 50% of debris from construction, renovation, and/or demolition projects of 5,000 square feet or more to be diverted from landfills through salvage and recycling. The City's exclusive hauler, Recology, provides roll-off boxes, and materials hauled by Recology can be easily verified by the City to ensure compliance with the Construction and Demolition Debris Ordinance. Boxes hauled by Recology are recycled at the City's SMaRT station, and a 78% diversion rate is achieved (City of Mountain View 2011d). If less than 50% of project construction waste is recycled, project construction would result in a significant impact under CEQA. Implementation of environmental commitments described in Section 3.2.4.4 would ensure that the minimum 50% diversion rate would be achieved.

All non-recyclable, non-hazardous waste (if any) from the Proposed Project site would be transferred from the SMaRT Station to the Kirby Canyon Landfill for disposal (Flores pers. comm.). The Kirby Canyon Landfill is operated by Waste Management, Inc., with a lease expiration date of December 31, 2034. Considering current waste generation rates, the landfill has more than enough capacity (i.e., for upwards of 7 million tons) for the lease period. The capacity estimates account for all planned development (Petraborg pers. comm.). Therefore, any non-recyclable waste generated

from project construction diverted to the Kirby Canyon landfill would not adversely affect the landfill.

Impacts on landfills would be minor under NEPA and less than significant under CEQA.

4.12.3.4 One Bridge/Two Lane Alternative—Crittenden Option

The Crittenden Lane One Bridge/Two Lane Alternative would result in the same potential effects as the Proposed Project for most public services but would increase police response times to the Bay View Area by up to 4 minutes in comparison to the Proposed Project, potentially compromising the City's ability to meet response-time requirements.

4.12.3.5 No-Action Alternative

Under the No-Action Alternative, the crossings would not be built. If, under this scenario, the City is the emergency response provider for the Bay View Area, then response times would be compromised, which would constitute a major adverse effect under NEPA and a significant impact under CEQA that would require mitigation. The No-Action Alternative would have no other identified effects on public services.

4.13 Global Climate Change and Greenhouse Gas Reduction

This section describes existing global climate change and greenhouse gas reduction conditions at the Proposed Project site, summarizes applicable regulations and policies, and analyzes potential short-term construction and long-term operational impacts on global climate change and greenhouse gas reduction conditions that could result from implementation of the Proposed Project.

4.13.1 Affected Environment

4.13.1.1 Overview of Greenhouse Gas

Gases that trap heat in the atmosphere are referred to as greenhouse gases (GHGs) because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse does. The accumulation of GHGs has been implicated as the driving force for global climate change. Examples of GHGs that are produced both by natural processes and industry include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Examples of GHGs created and emitted primarily through human activities include fluorinated gases and sulfur hexafluoride (SF_6). The primary GHGs generated by construction activities are CO_2, CH_4, and N_2O.

The Intergovernmental Panel on Climate Change (IPCC) estimates that CO_2 accounts for more than 75% of all anthropogenic (i.e., human-made) GHG emissions. Three-quarters of anthropogenic CO_2 emissions are the result of fossil fuel burning, and approximately one-quarter result from land use change (Intergovernmental Panel on Climate Change 2007). CH_4 is the second-largest contributor of anthropogenic GHG emissions. It results from growing rice, raising cattle, combustion, and mining coal (National Oceanic and Atmospheric Administration 2005). N_2O, although not as abundant as CO_2 or CH_4, is a powerful GHG. Sources of N_2O include agricultural processes, nylon production, fuel-fired power plants, nitric acid production, and vehicle emissions.

GHG emissions other than CO_2 are commonly converted into carbon dioxide equivalents (CO_2e), which takes into account the differing global warming potential (GWP) of different gases. For example, the IPCC finds that N_2O has a GWP of 310 and CH_4 has a GWP of 21. Thus, emissions of 1 metric ton of N_2O and 1 metric ton of CH_4 are represented as the emissions of 310 metric tons and 21 metric tons of CO_2e, respectively. This method allows for the summation of different GHG emissions into a single total.

4.13.1.2 State and Local Greenhouse Gas Inventory

California GHG emissions in 2008 totaled approximately 473.8 million metric tons (MMT) of CO_2e. ARB found that transportation represents 37% of the State's GHG emissions, followed by electricity generation (both in state and out of state) at 24% and industrial sources at 19%. Commercial and residential fuel use (primarily for heating) accounted for 9% of GHG emissions (California Air Resources Board 2010). In the Bay Area, the transportation sector (i.e., on-road motor vehicles, off-highway mobile sources, and aircraft) and the industrial and commercial sectors are the largest sources of GHG emissions, each accounting for approximately 36% of the Bay Area's 95.8 MMT of

CO_2e emitted in 2007. Electricity generation accounts for approximately 16% of the Bay Area's GHG emissions, followed by residential fuel usage at 7%, off-road equipment at 3%, and agriculture at 1% (Bay Area Air Quality Management District 2010).

4.13.2 Regulatory Setting

4.13.2.1 Federal

Although climate change and GHG reduction is a concern at the Federal level, at this time, no legislation or regulations have been enacted specifically addressing GHG emissions reductions and climate change. However, recent activity suggests that regulation may be forthcoming. Foremost among recent developments have been the U.S. Supreme Court's decision in Massachusetts v. EPA, the "Endangerment Finding," and the "Cause or Contribute Finding," which are described below. Despite these findings, the future of GHG regulations at the Federal level is still uncertain.

Massachusetts et al. v. U.S. Environmental Protection Agency (2007)

Twelve U.S. states and cities, including California, in conjunction with several environmental organizations, sued EPA to regulate GHGs as a pollutant, pursuant to the CAA. The court ruled that the plaintiffs had standing to sue, finding that GHGs fit within the CAA's definition of a pollutant and EPA's reasons for not regulating GHGs were insufficiently grounded.

Endangerment Finding (2009)

On December 7, 2009, the EPA administrator found that current and projected concentrations of CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6 threaten the public health and welfare of current and future generations. Additionally, the administrator found that combined emissions of CO_2, CH_4, N_2O, and hydrofluorocarbons from motor vehicles contribute to atmospheric concentrations and thus to the threat of climate change. Although the endangerment finding in itself does not place requirements on industry, it was an important step in EPA's process to develop GHG regulation.

President's Council on Environmental Quality Draft Guidance (2010)

On February 18, 2010, Nancy Sutley, chair of the CEQ, issued a memorandum providing guidance regarding consideration of the effects of climate change and GHG emissions under NEPA. The draft guidance suggests that the effects of projects directly emitting GHGs in excess of 25,000 metric tons of CO_2e annually be considered in a qualitative and quantitative manner. The CEQ does not propose this reference as a threshold for determining significance but as "a minimum standard for reporting emissions under the CAA." The draft guidance also recommends that the cumulative effects of climate change on a proposed project be evaluated. The draft guidance is still undergoing public comments and will not be effective until issued in final form (Sutley 2010).

4.13.2.2 State

A variety of legislation has been enacted in California related to climate change, much of which sets aggressive goals for GHG reductions within the State. The following key legislation is applicable to the Proposed Project.

Executive Order S-3-05 (2005)

Under Executive Order S-3-05, State agencies were ordered to reduce California's GHG emissions to (1) 2000 levels by 2010, (2) 1990 levels by 2020, and (3) 80% below 1990 levels by 2050.

Assembly Bill 32 (2006)

In 2006, the California legislature passed Assembly Bill 32 (AB 32), also known as the Global Warming Solutions Act. AB 32 sets the same overall GHG emissions reduction goals while further mandating that ARB create a plan that includes market mechanisms and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases."

Climate Change Scoping Plan (2008)

The Climate Change Scoping Plan, approved by ARB in 2008 to fulfill AB 32, is the State's roadmap to reach GHG emissions reduction goals. The plan outlines a number of key strategies to reduce GHG emissions from business-as-usual emissions projected for 2020 back to 1990 levels. The measures in the scoping plan will be in effect by 2012 and include a number of discrete early-action measures to reduce GHG emissions.

State CEQA Guidelines (2011)

The 2011 State CEQA Guidelines included a new section (Section 15064.4) that specifically addresses the significance of GHG emissions. Section 15064.4 calls for a good-faith effort to describe, calculate, or estimate GHG emissions. Section 15064.4 further states that the significance of GHG impacts should include consideration of the extent to which the project would increase or reduce GHG emissions, exceed a locally applicable threshold of significance, and 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 may be found to have a less-than-significant impact if it complies with an adopted plan that includes specific measures to sufficiently reduce GHG emissions (Section 15064(h)(3)). However, the revised guidelines do not require or recommend a specific analysis methodology or provide quantitative criteria for determining the significance of GHG emissions.

4.13.2.3 Local

The BAAQMD's Air Quality Guidelines (Bay Area Air Quality Management District 2011) provide a threshold of significance of 1,100 metric tons per year of CO_2e for land use development projects. The guidelines do not recommend a GHG emission threshold for construction-related emissions. However, BAAQMD recommends that GHG emissions from construction be quantified and disclosed, a determination regarding the significance of these GHG emissions be made in relation to meeting AB 32 GHG emissions reduction goals, and BMPs be incorporated to reduce GHG emissions during construction, as feasible and applicable.

4.13.3 Effects

4.13.3.1 Criteria for Determination of Adverse Effect

The criteria for determining the effect of the Proposed Project on global climate change and GHG reduction conditions are based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 et seq.).

An effect on global climate change and GHG reduction conditions was considered adverse if construction or operation of the Proposed Project would:

- generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.; or
- conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

4.13.3.2 Sources and Methods

As discussed in the project description and Section 4.11, Transportation, the Proposed Project would not result in any net increase in traffic volumes on the roadway system in the vicinity of the Proposed Project. Furthermore, with the Proposed Project, the Google shuttles would use the crossings on Charleston Road and Crittenden Lane to access the Bay View Area from the North Bayshore campus instead of already-congested Highway 101 and local streets south of Highway 101. Therefore, the Proposed Project would be expected to reduce travel distance and travel time for the shuttles, which would also reduce tailpipe emissions generated from shuttle operations. Consequently, operation of the Proposed Project would not result in any adverse effect under NEPA or significant impact under CEQA related to GHG emissions. The assessment therefore focuses on evaluating GHG impacts from construction activities.

GHG emissions from project construction would result from fuel usage by equipment and vehicles. The primary GHG emissions generated from these sources would be CO_2, CH_4, and N_2O. CO_2 emissions generated from on-site construction equipment and off-site vehicle trips were estimated using the RCEM, following the same assumptions described in Section 4.3, Air Quality.

The RCEM does not quantify CH_4 and N_2O emissions from off-road equipment or vehicle trips. Emissions of CH_4 and N_2O from diesel-powered sources (e.g., equipment, haul trucks) were determined by scaling the estimated CO_2 emissions by the ratio CH_4/CO_2 (0.000057) and N_2O/CO_2 (0.000026) emissions expected per gallon of diesel fuel according to the California Climate Action Registry (2009). GHG emissions from gasoline-powered employee commutes were determined by dividing the CO_2 emissions by 0.95. This statistic is based on EPA's recommendation that CH_4, N_2O, and other GHG emissions account for 5% of on-road emissions (U.S. Environmental Protection Agency 2011).

4.13.3.3 Project Effects

Effect GHG-1	Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

Individual projects contribute to the cumulative effects of climate change by directly or indirectly emitting GHGs during construction and operation. Direct operational emissions include GHG emissions from new vehicle trips and area sources (e.g., natural gas combustion). Indirect operational emissions include those from electricity providers; energy generated to pump, treat, and convey water; and landfill operations.

As previously discussed, operation of the Proposed Project would neither generate new vehicles trips nor add additional capacity to the local streets. Likewise, the Proposed Project would not use a significant amount of electricity or natural gas to support an increased level of lighting or the operation/maintenance requirements of the proposed bridges. Consequently, the Proposed Project would not generate any direct long-term operational emissions or contribute to indirect emissions. This assessment therefore focuses exclusively on direct emissions generated during construction of the Proposed Project.

Construction of the Proposed Project would begin in January 2013 and be complete in October 2014, which accounts for weather considerations, seasonal restrictions, and anticipated permitting requirements. It is assumed that bridges on Charleston Road and Crittenden Lane would be constructed one after another. It is also assumed that construction of the vehicle and pedestrian bridges on Charleston Road would take approximately 10 months the first year and construction of the vehicle bridge on Crittenden Lane would take approximately 8 months the second year. Table 4.13-1 summarizes the construction-related GHG emissions from diesel-fueled equipment and vehicles as well as the gasoline-fueled employee vehicles. The GHG calculation spreadsheet is provided in Appendix D.

Table 4.13-1. Estimated Construction GHG Emissions

	Diesel Equipment			Gasoline Vehicles		Total
Project Element	CO_2	CH_4	N_2O	CO_2	Other	GHGs
Charleston Road Bridge (metric tons of CO_2e/year)	295	0.02	0.008	16	0.85	315
Crittenden Lane Bridge (metric tons of CO_2e/year)	202	0.01	0.005	11	0.57	216

Note: CO_2 emissions are estimated using the RCEM, described in described in Section 4.3, Air Quality. CH_4 and N_2O are calculated by scaling the estimated CO_2 emissions according to the California Climate Action Registry (2009) and EPA (U.S. Environmental Protection Agency 2011).
Sources: California Climate Action Registry 2009, U.S. Environmental Protection Agency 2011.

As shown in Table 4.13-1, construction of the Proposed Project would result in GHG emissions ranging from 216 to 315 metric tons of CO_2e per year. This is equivalent to adding 39 to 57 typical passenger vehicles per year to the road during construction (U.S. Environmental Protection Agency 2011). Although not established as a construction threshold, these construction-related emissions are also below the BAAQMD's 1,100-metric-ton operational threshold.

Construction emissions are primarily the result of diesel-powered construction equipment and heavy-duty haul trucks. These emissions are considered short term because they cease once construction is complete.

As discussed above, the BAAQMD's air quality guidelines do not recommend a GHG emissions threshold for construction-related emissions. However, they do recommend implementation of BMPs to help control and reduce GHG emissions. Implementation of the BAAQMD's BMPs discussed under environmental commitments under Section 3.2.4.4 will reduce construction-related GHG emissions.

This impact is considered minor under NEPA and less than significant under CEQA.

Effect GHG-2	Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.
Level of Effect	This impact is considered minor under NEPA and less than significant under CEQA.

Discussion

The State has adopted several policies and regulations for the purpose of reducing GHG emissions. The most stringent of these is AB 32, which is designated to reduce statewide GHG emissions to 1990 levels by 2020. As discussed in Effect GHG-1, the Proposed Project would not generate any long-term operation-related GHG emissions. Thus, the Proposed Project would not conflict with the State goals listed in AB 32 or in any preceding State policies adopted to reduce GHG emissions.

This impact is considered minor under NEPA and less than significant under CEQA.

4.13.3.4 One Bridge/Two Lane Alternative—Crittenden Option

During construction, the Crittenden Lane One Bridge/Two Lane Alternative would result in the same effects as the Proposed Project but would lessen the extent and intensity of potential effects compared with the Proposed Project. As determined in the Transportation section, the routing required for the Crittenden Lane One Bridge/Two Lane Alternative would adversely affect traffic operation on Crittenden Lane and at the intersection of Shoreline Boulevard and Crittenden Lane. This increase in delay would result in an incremental increase in operational GHG emissions in comparison to the Proposed Project.

4.13.3.5 No-Action Alternative

As discussed in the Transportation section, the No-Action Alternative would adversely affect traffic operation on Highway 101 or local streets south of Highway 101 and increase shuttle travel distance between the Bay View Area and the North Bayshore Area. This increase in delay and travel distance would result in an incremental increase in operational GHG emissions in comparison to the Proposed Project.

4.14 Land Use and Planning, Mineral Resources, and Population and Housing

This section describes existing conditions related to land use and planning, mineral resources, and population and housing at the Proposed Project site, summarizes applicable regulations and policies, and analyzes potential short-term construction and long-term operational impacts that could result from implementation of the Proposed Project. Because of the nature of the Proposed Project (i.e., a bridge project with no impact on population, zoning, or mineral rights), these resources would not be affected by the Proposed Project and are briefly summarized to document the determination that there is no effect.

4.14.1 Land Use and Planning

4.14.1.1 Division of an Established Community

Construction of the bridges would not create any physical division to an established community. Rather, it would connect the existing office park facilities in the North Bayshore area in the City of Mountain View to similar soon-to-be-developed facilities in the Bay View Area of NASA ARC. The Proposed Project would also enable pedestrians and bicyclists to access Stevens Creek Trail. Therefore, the Proposed Project would enhance connections between established communities.

4.14.1.2 Consistency with Applicable Land Use Plans and Policies

The Proposed Project area is located in the City of Mountain View and subject to the City of Mountain View General Plan and other related Mountain View planning documents. The Proposed Project site falls under two land use and zoning designations. The general plan land use designation for Crittenden Lane Bridge and the area to the east of Stevens Creek, including the eastern termini of Charleston Road Bridge, is Institutional. This land use designation is intended for public and quasi-public uses that serve an important regional function and are vital to the city, including NASA ARC. The Proposed Project would be available for use by pedestrians, bicyclists, and transit vehicles. It would connect pedestrians and bicyclists to numerous regional recreational uses, including Stevens Creek Trail, the Bay Trail, and Shoreline at Mountain View Park. Public transit would also be permitted to use the vehicular bridges, thereby connecting commuters to NASA ARC. As a public pedestrian/bicycle bridge, the Proposed Project would be allowed under the Institutional land use designation as a public and quasi-public use. Therefore, the Proposed Project would be consistent with the Institutional land use designation.

Crittenden Lane Bridge and the area to the east of Stevens Creek are zoned as Public Facility (PF). According to the Mountain View Municipal Code (Section 36.20A.A(e)), "uses and facilities…developed on city-owned land and intended for a purpose found by the city to be in the public interest" are permitted uses. The Proposed Project would be consistent with this zoning because it would provide a public connection between recreational areas and the Bay View Area of NASA ARC.

The general plan land use designation for the area west of Stevens Creek, the area where the western termini of Charleston Road Bridge falls, is Regional Park. This designation is intended for

open space and recreational uses that draw visitors from a wide area and preserve regional natural resources and features. The Proposed Project would enhance connectivity for pedestrians and bicyclists en route to Shoreline Regional Park and Stevens Creek Trail. Therefore, the Proposed Project would be consistent with the Regional Park land use designation.

The area west of Stevens Creek is zoned as Agriculture (A). According to the Mountain View General Plan Update Current Conditions Report, the "A" designation preserves lands best suited for agricultural use and protects them from encroachment by incompatible uses. This designation also preserves agricultural land that may be suited for eventual development to other uses. A permitted use under the "A" designation is public parks and recreational areas. A permitted accessory use in is one that is appurtenant to a permitted use (Section 36.8.2(e)). Because the bridges would support public recreational areas, the Proposed Project would be consistent with current zoning. The Proposed Project would not affect land uses in the area.

The Proposed Project would not change any existing land uses in the area. The Proposed Project would not conflict with policies of the City of Mountain View General Plan or the zoning or land use designation for the Proposed Project site.

Therefore, the Proposed Project would have no effect under NEPA and no impact under CEQA with respect to land use and planning.

4.14.1.3 Conservation Plans

There is no habitat conservation plan (HCP) or natural community conservation plan (NCCP) that encompasses the Proposed Project site. The nearest HCP is the Santa Clara Valley HCP/NCCP, which encompasses the cities of San Jose, Morgan Hill, and Gilroy. The City of Mountain View is not included. Therefore, the Proposed Project would not conflict with an HCP.

There would be no effect under NEPA and no impact under CEQA.

4.14.2 Mineral Resources

According to the City of Mountain View General Plan (1992), there are no significant mineral resources in the City. Further, the Proposed Project site is located in a Mineral Resource Zone (MRZ-1). MRZ-1 is an area where available information indicates that no significant mineral deposits are present. In addition, it has been determined that little likelihood exists for the presence of significant mineral deposits (Kohler-Antablin 1996).

Therefore, there would be no effect under NEPA and no impact under CEQA with respect to mineral resources.

4.14.3 Population and Housing

The construction of new bridges at Crittenden Lane and Charleston Road would not displace existing housing or people during construction or following completion of the Proposed Project. The areas east and west of Stevens Creek are not zoned or designated for residential uses.

The Proposed Project is part of a TDM plan required by Mitigation Measure CIR-1 of the 2002 NADP PEIS. The TDM is required, in part, because residential uses were proposed as part of the 2002

NADP PEIS, which would result in an increase in population and housing. All impacts related to population and housing were analyzed in the 2002 NADP PEIS.

The Proposed Project is designed to facilitate pedestrian and bicycle access to the Bay Trail and other adjoining recreational areas as well as enhance commuting options for bicyclists and public transit users. The Proposed Project does not include removal or construction of new homes or creating new businesses. Therefore, it would not directly or indirectly induce population growth.

There would be no effect under NEPA and no impact under CEQA.

4.15 Socioeconomics and Environmental Justice

This section describes existing environmental justice and socioeconomic conditions in the Proposed Project area, summarizes applicable regulations and policies, and analyzes potential short-term construction and long-term operational impacts on environmental justice communities that could result from implementation of the Proposed Project.

4.15.1 Affected Environment

4.15.1.1 Study Area

The study area for the socioeconomics and environmental justice analysis is the census tract within which the Proposed Project site is located (Census Tract 5046.01). Figure 4.14-1 shows the location of this census tract. As shown in the figure, Santiago Villa, a mobile-home park, is located within this census tract, approximately 500 feet southwest of the Proposed Project site. For this analysis, data regarding minorities and low-income households specific to this census tract is compared with data for the City of Mountain View as a whole.

4.15.1.2 Project Setting

Table 4.14-1 shows the percentage of people identifying themselves with a specific race in the Proposed Project area compared with the City of Mountain View. The term "minority" includes persons who identify themselves as black/African American, Asian, Native Hawaiian/Pacific Islander, Native American/Native Alaskan, or of Hispanic/Latino origin. As shown in the table, the Proposed Project area has less of a minority population than the City as a whole.

Table 4.14-1. Race in Project Area and Mountain View

Race	Project Area (Census Tract 5046.01) (percent)	City of Mountain View (percent)
White	64.6	56.0
Asian	13.6	26.0
Other	10.0	9.8
Two or more races	5.0	5.1
Black	3.4	2.2
Native Hawaiian or other Pacific Islander	3.2	0.5
American Indian and Alaska Native	0.1	0.5
Combined Minority [a]	35.3	44.1

Source: U.S. Census Bureau, 2010.
[a] The term "combined minority" includes Asian, other, two or more races, black, Native Hawaiian or other Pacific Islander, and American Indian and Alaska Native.

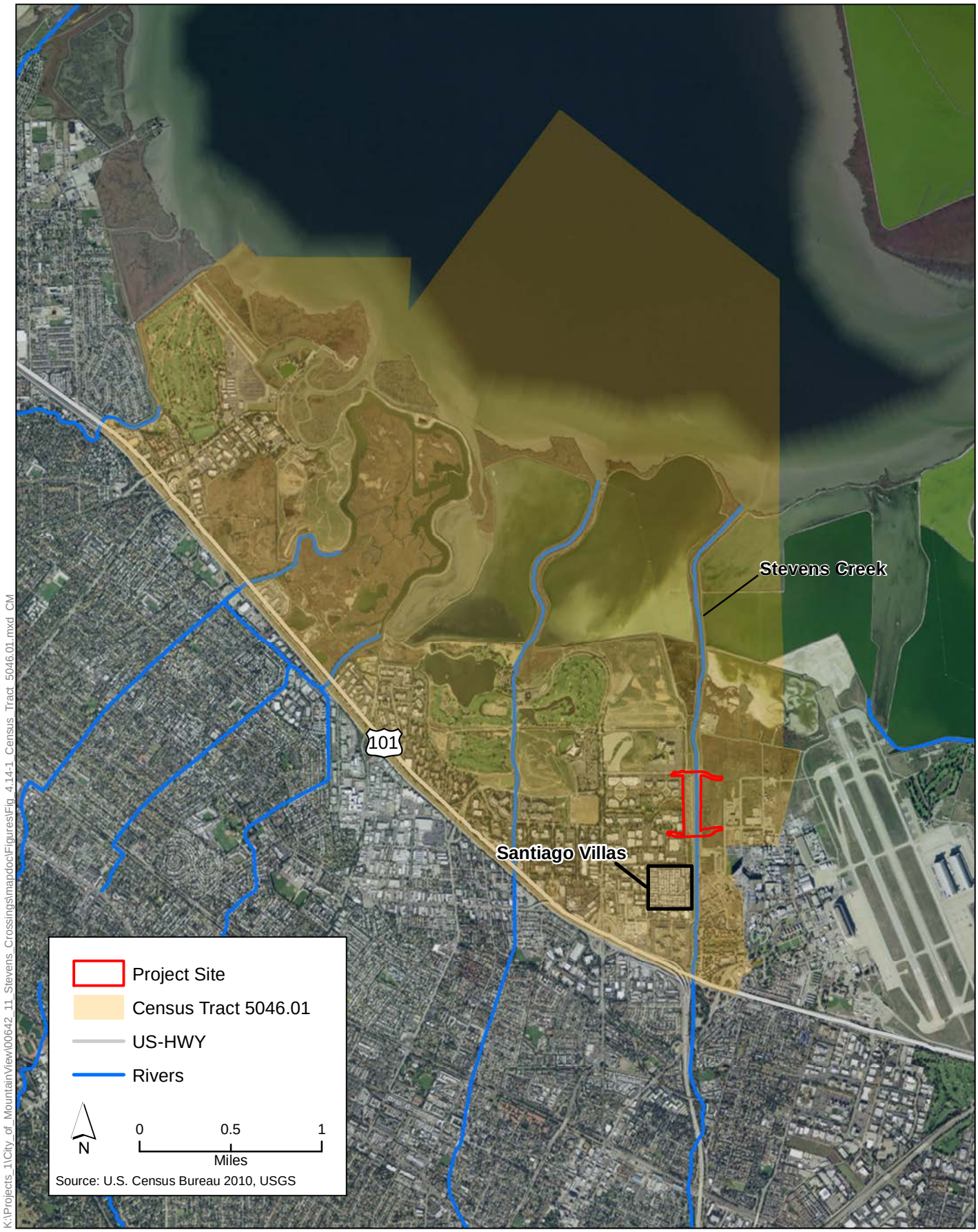

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Figure 4.14-1
Census Tract Study Area

Approximately 26% of the population in the Proposed Project area (Census Tract 5046.01) is Hispanic, and 74% of the population is non-Hispanic (U.S. Census Bureau 2010).

According to the Department of Housing and Urban Development (HUD), a low-income household is one whose income does not exceed 80% of the median income for the area (Department of Housing and Urban Development n.d.). The median income for the City of Mountain View is approximately $80,000 (U.S. Census Bureau 2000).[4] Therefore, a low-income household would have an income below $64,000. Nearly 80% of households in the Proposed Project area are considered low-income compared with nearly 45% in the City (U.S. Census Bureau 2000).

4.15.2 Regulatory Setting

4.15.2.1 Federal

Executive Order 12898: Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations

Environmental justice is the idea that low-income and minority populations should not be disproportionately burdened by environmental hazards. In 1994, President Clinton issued Executive Order 12898, Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations. All projects involving a Federal action (funding, permit, or land) must comply with this Executive Order.

The U.S. Department of Transportation (2011) summarizes the three fundamental concepts of environmental justice as follows:

1. To avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority populations and low-income populations.
2. To ensure full and fair participation by all potentially affected communities in the transportation decision-making process.
3. To prevent a denial of, reduction in, or significant delay in the receipt of benefits by minority populations and low-income populations.

4.15.3 Effects

4.15.3.1 Criteria for Determination of Adverse Effect

The criteria for determining the effect of the Proposed Project on environmental justice and socioeconomic conditions are based on the three fundamental concepts of environmental justice, which are based on Executive Order 12898.

An effect on environmental justice and socioeconomic conditions was considered adverse if construction or operation of the Proposed Project would:

[4] At this time, the U.S. Census Bureau has not released 2010 data related to income.

- Have disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority populations and low-income populations.
- Not provide full and fair participation by all potentially affected communities in the transportation decision-making process.
- Deny, reduce, or significantly delay the receipt of benefits by minority populations and low-income populations.

4.15.3.2 Sources and Methods

Identifying a project area's minority and low-income populations involves the following steps:

- Reviewing the U.S. Census Bureau data for the project area and the City of Mountain View.

4.15.3.3 Project Effects

Effect EJ-1	The Proposed Project would be located in an area with a low-income community that could be affected by Proposed Project construction activities.
Level of Effect	This effect is considered minor under NEPA.

Discussion

As described above in the Project Setting, the Proposed Project area has less of a minority population than the City as a whole. Therefore, the Proposed Project would not have any effect on a disproportionately high minority population. The Proposed Project could, however, have an effect on a low-income community. As described in the Project Setting, approximately 80% of the households in the Proposed Project area are low-income households. The high percentage of low-income households in the Proposed Project area could be related to the Santiago Villa Mobile Home Park, which is within the same census tract.

As discussed throughout this document, several potentially adverse effects on the overall population are expected to result from implementation of the Proposed Project, including effects on aesthetics, air quality, and noise. In accord with Environmental Commitments proposed in Section 3.2.4.4, the Proposed Project applicant will provide all communications regarding the Proposed Project in Spanish and English, and additional languages if deemed necessary during Proposed Project outreach. With implementation of this environmental commitment, impacts would be minor under NEPA. These potentially adverse effects would be satisfactorily avoided or minimized.

Residents of the Santiago Villa Mobile Home Park could experience a disproportionately high level of temporary impacts related to noise and air quality during construction of the Proposed Project. As the nearest sensitive receptors, residents at the park may be exposed to general inconveniences related to having a construction site in the vicinity (e.g., increased fugitive dust, noise). However, these impacts would also affect recreationalists who use the trails and come from other areas. Views of the construction site from the Santiago Villa Mobile Home Park would be mostly shielded by the existing mature trees. Only a small portion of the new Charleston Road Bridge would be visible.

As discussed under Effect NOI-1of the Noise section (Section 4.9), because the nearest residences at the Santiago Villa Mobile Home Park are located approximately 800 feet from the Proposed Project site, no adverse effects related to vibration from construction activities are anticipated. The

Proposed Project includes environmental commitments (Section 3.2.4.4) to adhere to dust control measures as described in this document, to implement BAAQMD-recommended measures, and to appoint an Environmental Coordinator to ensure that these commitments are followed. Adherence to Proposed Project environmental commitments will reduce fugitive dust and other air emissions from construction.

The Proposed Project would not result in significant adverse human health or environmental effects over the long term. The Proposed Project would facilitate increased use of nearby recreation areas. Further, private vehicles would not be allowed access to the bridges, thereby minimizing potential long-term effects related to traffic, noise, and air quality.

With implementation of Environmental Commitments proposed in Section 3.2.4.4, potentially adverse effects on human health or the environment due to construction would be less than significant. Because the effects would be minor under NEPA and less than significant under CEQA, the low-income groups in the Proposed Project area would not be disproportionately affected by temporary construction activities.

This impact is considered minor under NEPA.

Effect EJ-2	The Proposed Project would not provide full and fair participation to all potentially affected communities in the decision-making process.
Level of Effect	This impact is considered minor under NEPA.

Discussion

As discussed in the setting, approximately one-quarter of the residents in the Proposed Project area are Hispanic. Implementation of Environmental Commitments proposed in Section 3.2.4.4 would require all communications regarding the Proposed Project to be bilingual and include any other mechanisms necessary to reduce cultural, language, and economic barriers to participation. Furthermore, all residents within the Proposed Project vicinity, irrespective of race, income, or gender, would be notified of any public meetings regarding the Proposed Project. Any public meetings would be held at a location convenient to the community. Therefore, the Proposed Project would ensure full and fair participation by all potentially affected communities in the Proposed Project decision-making process.

This impact is considered minor under NEPA.

Effect EJ-3	The Proposed Project would deny Proposed Project benefits to minorities or low-income populations.
Level of Effect	This impact would have no effect under NEPA.

Discussion

The Proposed Project would not involve the taking of any property that would require relocation. The pedestrian/bicycle bridges would be open to the public. There would be no denial, reduction, or significant delay of benefits to any population.

This impact would have no effect under NEPA.

4.15.3.4 One Bridge/Two Lane Alternative—Crittenden Option

The Crittenden Lane One Bridge/Two Lane Alternative would result in the same potential effects as the Proposed Project but would lessen the potential for effects to occur in the vicinity of Charleston Road that could occur with the Proposed Project.

4.15.3.5 No-Action Alternative

Under the No-Action Alternative, there would be no new effects on population and housing conditions or environmental justice conditions.

4.16 Cumulative Effects

Cumulative impacts on environmental resources result from incremental effects of proposed actions when combined with other past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (Federal, State, and local) or individuals. In accordance with NEPA, a discussion of cumulative impacts resulting from projects that are proposed, or anticipated for the foreseeable future, is required.

4.16.1 Current and Reasonably Foreseeable Actions

NASA ARC conducts facility renovations and improvements on an ongoing basis. Other reasonably foreseeable major Federal Actions include the following.

4.16.1.1 NASA Ames Development Plan Final PEIS and ROD

In 2002, the NADP PEIS was prepared to assess environmental consequences associated with development under the proposed NADP. The goal of this plan is intended to bring new research and development uses to NASA ARC. This includes 5.7 million square feet of new use and demolition of 1.3 million square feet of existing facilities. NASA has approved a 20-year master plan (2002b) that delineates the described physical and capital plans. NASA has leased portions of its property to other Federal agencies and private entities. For example, the southern portion of the property, includes the University Associates Development Area, an educational space to be shared by a number of universities and educational organizations. Approximately 7,088 new employees and students are expected to use the facilities on a daily basis, and 4,909 residents are expected to live in the proposed 1,930 housing units (NASA Ames Research Center 2002a).

In 2008, NASA entered into a 40-year agreement with Planetary Ventures, LLC (a wholly owned subsidiary of Google Inc.) under which Planetary Ventures leases 42.2 acres of land in the Bay View Area and may construct up to 1.2 million square feet of offices and research and development facilities in a campus-style setting (Google Inc. 2008). Construction is expected to begin in 2013. This development would be within the primary area served by the Proposed Project.

4.16.1.2 United States Department of the Defense

In 2007, an EA was prepared by the Army to address the construction of 270,000 square feet of facilities for the Army, including full buildout and operation of an Armed Forces Reserve Center (AFRC) at Moffett Field and demolition of 346,876 square feet of housing and other facilities. The project site is located on approximately 30 acres of land at the former Orion Park military housing site, located west of NASA ARC campus and north of the existing California Air National Guard Medical Training Building (U.S. Department of the Army 2007). All of this land is Department of Defense/Army land and not leased from NASA.

In 2009, an EA was prepared by the California Air National Guard (CAANG) for the 129th Rescue Wing (RQW) Installation Development Master Plan. The 129th RQW will consolidate its facilities into one contiguous parcel to the east of the Moffett Federal Airfield runways and construction of a new Munitions Storage Complex (MSC). In addition, the 129th RQW will remedy some of its functional

space shortfalls by vacating certain facilities and constructing new facilities. This action will remove 129th RQW from areas of the NASA ARC from areas that would be opened to the public under the NADP and provide a single secure facility for the 129th RQW (California Air National Guard 2009).

4.16.2 Analysis of Cumulative Impacts

Cumulative impacts associated with the actions described in this EA, in addition to the impacts described previously, are described in the sections listed below.

4.16.2.1 Aesthetics

The potential exists for development of the Proposed Project and Planetary Ventures' development of the Bay View Area of NASA ARC to result in a cumulative adverse effect on the visual character of the area. Figures 4.16-1 and 4.16-2 are a rendering of the Proposed Project with the proposed development. The development restrictions enacted under the NADP PEIS would ensure that the development is contextually consistent with the character of the developments on the opposing side of Stevens Creek. As determined for the Proposed Project, high-sensitivity and low-sensitivity viewers in all of the VAUs are accustomed to the existing urban setting. This includes the visually dominating PG&E towers and power lines, A to Z Tree Nursery's construction equipment immediately west of VP-1, power lines above the riparian vegetation to the east, and the large PG&E towers in the middleground northeast of the Proposed Project site. Thus, cumulative development (i.e., the Proposed Project and development of the Bay View Area of NASA ARC) would not result in additional adverse effects within any of the VAUs.

4.16.2.2 Air Quality

The operation of the Proposed Project would not result in an increase of vehicle trips on roadway system in the Proposed Project vicinity. With the Proposed Project, the shuttles would be traveling on the proposed crossings to reduce the travel distance and travel time, which would also reduce the tailpipe emissions generated from the shuttle operation. In addition, as described in Section 4.3.3.3 (*Project Effects)*, construction and operational emissions resulting from the Proposed Project would be well below the BAAQMD thresholds and General Conformity thresholds and would not induce population or employment growth. Therefore, the Proposed Project, in combination with other projects in the area, would not result in a significant cumulative impact on air quality.

4.16.2.3 Biological Resources

Vegetation and wildlife resources in the Proposed Project area have been extensively altered because of past, present, and ongoing development and maintenance activities. This includes development of residential and office spaces, including NASA ARC, and construction and maintenance of roads, levees along Stevens Creek, and a PG&E transmission line corridor. Previously approved development of additional residential and office space in the Bay View Area of NASA ARC would have additional impacts on vegetation and wildlife resources in the Proposed Project area. The cumulative loss, degradation, and fragmentation of vegetation communities and wildlife habitat from these actions have contributed to declines in native vegetation, wildlife populations, and biodiversity in the Proposed Project area. Additionally, past and present development and maintenance activities have resulted in the introduction and spread of noxious weeds and likely

Illustration by Mark Pechenik (http://www.markpechenik.com)

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Figure 4.16-1
Artistic Rendering of Proposed Crittenden Lane Crossing, Looking North

Illustration by Mark Pechenik (http://www.markpechenik.com)

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Figure 4.16-2
Artistic Rendering of Proposed Charleston Road Crossing, Looking North

resulted in the loss and degradation of habitat for special-status plant and wildlife species in the Proposed Project area.

The Proposed Project would result in some impacts on vegetation. These would be associated with direct and indirect disturbances of vegetation communities and the potential loss or disturbance of habitat for special-status plant species. However, because of the highly disturbed nature of the Proposed Project area, impacts on vegetation communities in general would be low and would not contribute significantly to a cumulative impact on vegetation communities. Additionally, as stated above, no permanent or temporary strictures would be built within Stevens Creek, and no changes would be made to the existing levees, except for minor modifications that may be required by the SCVWD at the new pedestrian/bicycle bridge. Therefore, any additional cumulative impacts on sensitive vegetation communities (i.e., riparian and wetland areas) from the Proposed Project would be avoided.

No special-status plant species were observed in the Proposed Project area, and it is unlikely that special-status plant species occur in the Proposed Project area; therefore, there would be no addition to cumulative impacts on special-status plant species from the Proposed Project. With implementation of the environmental commitments, impacts from the introduction and spread of noxious weeds would be low, and no significant contribution to cumulative impacts would occur.

The Proposed Project would result in some wildlife impacts in the Proposed Project area through the permanent removal of small areas of wildlife habitat and the temporary disturbance and displacement of wildlife. Furthermore, wildlife could be killed incidentally during construction and by associated traffic. Ongoing pedestrian and bicycle traffic and maintenance vehicle operations on the levee trails and roads within the Proposed Project area generate a level of background disturbance for wildlife in the area. However, the effects of the proposed additional crossings, once constructed, are not anticipated to result in a significant increase in background disturbance for wildlife species. The highly disturbed character of the Proposed Project area and limited amount of undeveloped habitat in the surrounding area provides marginal habitat for sensitive and common wildlife species, reducing the effect of any impacts on wildlife species. The Proposed Project would not affect special-status fish species habitat either during or after construction. Construction would occur outside of the OHWM, and both bridges would span Stevens Creek channel. Ultimately, the Proposed Project would contribute to the cumulative loss and fragmentation of wildlife habitat. With implementation of the environmental commitments, the potential for incremental cumulative impacts on wildlife and fish resources to occur is low, and no significant contribution to cumulative impacts would occur.

4.16.2.4 Cultural Resources

No impacts on cultural resources, including human remains, are expected. However, environmental commitments have been established to ensure that impacts related to Proposed Project activities would be mitigated. Cultural resource impacts are generally localized and site specific. Cumulative future development in the Proposed Project area would be subject to review on a case-by-case basis by the appropriate Lead Agency.

4.16.2.5 Geology and Soils

Although the Proposed Project area is subject to a range of geologic hazards and constraints, these factors would typically be addressed through a combination of engineering designs and geotechnical

environmental commitments, as required by applicable State and local codes, specific to a project's needs. Geologic factors are not typically considered to create a cumulative impact, except in the case of multiple similar projects within a restricted geologic area where hazards cannot be mitigated with confidence. No cumulative effect would result from construction or operation of the Proposed Project.

4.16.2.6 Hazards and Hazardous Materials

Because the Proposed Project developer and construction contractor would be subject to NASA's EIMP, under the terms of the lease for the Bay View Area, the Proposed Project would be made subject to that plan, ensuring consistency for proposed preventative and protective measures. Therefore, the Proposed Project, in combination with other projects in the area, would not result in a significant cumulative impact.

4.16.2.7 Hydrology and Water Quality

The study area for cumulative water quality impacts includes Stevens Creek, which could be affected by construction at the top of the levees related to the Charleston Road Pedestrian Bridge. Runoff from the Proposed Project site would not affect Stevens Creek because of the levee's placement on either side of the Creek. Two existing levees run parallel to Stevens Creek, which would prevent sediment and other pollutants from entering the Creek. Pollution could enter the creek only at development on levees or within the Creek itself.

Both construction and operation of related projects, as well as other cumulative growth and development, could result in the release of sediments or other pollutants into the local stormwater system, thereby adversely affecting the water quality of local water resources. Construction and operation of the proposed build alternatives could also generate and release additional pollutants, thereby contributing to cumulative adverse water quality effects. However, all construction projects that disturb more than 1 acre, which includes the proposed build alternatives, would be required to comply with NPDES General Permit for Construction Activities requirements. Under this Permit, Applicants are required to prepare and implement a SWPPP to minimize water quality impacts. Additionally, the Proposed Project would include an analysis of the current storm drain system to assess runoff capacity. Cumulative growth and development could cause an increase in stormwater runoff, which would have an impact on the current storm system. If the storm drain system does not have adequate capacity for increased runoff, then the storm drain system will need to be upgraded per the Standard Storm Drain Provisions of the City of Mountain View. Capacity would need to be analyzed as part of new development to make sure increased stormwater runoff is managed appropriately. With implementation of the environmental commitments proposed, the Proposed Project would not result in considerable cumulatively water quality impacts. The projects will also be required to comply with the stormwater treatment requirements in accordance with the Municipal Regional Stormwater Permit (MRP) and the City's Water Quality Guidelines for New Development.

4.16.2.8 Noise

Construction of the Proposed Project would result in a temporary increase in noise levels in the vicinity of the construction areas. Noise from construction would be highly localized and

intermittent and would stop once construction is complete. Construction noise would not contribute to an adverse cumulative effect.

There are no operational project elements that would result in an adverse effect due to noise. Operation of the bridge crossings would not contribute to a noticeable increase in noise levels. Therefore, operational noise due to the Proposed Project would not result in an adverse cumulative effect.

4.16.2.9 Recreation

The Proposed Project would add cumulative local recreational capacity and infrastructure that would serve the Bay View Area. Because no cumulative effect was identified in the NADP PEIS, the Proposed Project represents a cumulative net beneficial effect on local recreational infrastructure.

4.16.2.10 Transportation and Circulation

The Proposed Project would add cumulative local transportation capacity and infrastructure that would serve the Bay View Area and reduce trips on Highway 101, which currently has an LOS of F. This additional infrastructure was evaluated or determined to be necessary to mitigate effects identified under the NADP PEIS. Hence, the Proposed Project represents a cumulative net beneficial effect on local transportation infrastructure by providing additional multimodal transit capacity.

4.16.2.11 Public Services/Utilities

As discussed previously, the Proposed Project would not result in an increased need for police or fire protection or additional schools or other public facilities. Rather, the new bridges would improve circulation in the area and result in a beneficial effect for service providers. Therefore, no cumulative effect on public services is anticipated. In addition, the Proposed Project would not require new or expanded water entitlements or additional wastewater treatment capacity. Therefore, there would be no cumulative effect on water supply or wastewater treatment facilities. Lastly, Proposed Project design would endeavor to achieve balanced cut and fill. Therefore, the disposal of excess excavated materials would not be required, and no demolition would be required because the existing Crittenden Lane Pedestrian Bridge would remain in place. The Proposed Project would also comply with the City's Construction and Demolition Debris Ordinance and recycle a minimum of 50% of construction debris. The Kirby Canyon Landfill has more than enough capacity (i.e., for upwards of 7 million tons) for the lease period, and capacity estimates account for all planned development. Therefore, if any non-recyclable waste is generated by construction of the Proposed Project, it would not cause a cumulatively considerable effect on the Kirby Road Landfill.

4.16.2.12 Global Climate Change and Greenhouse Gas Reduction

The Proposed Project would not generate any long-term operations-related GHG emissions. Therefore, the Proposed Project would not result in a significant cumulative impact on climate change.

4.16.3 Irreversible and Irretrievable Commitment of Resources

NEPA CEQ regulations require environmental analyses to identify any irreversible and irretrievable commitments of resources that would result from the Proposed Project should it be implemented

(40 CFR Section 1502.16). Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects the uses of these resources have on future generations. Irreversible effects result primarily from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Bridge construction materials, such as gravel, asphalt, metal, cement, and gasoline for construction equipment, would constitute the consumption of non-renewable resources.

The Proposed Project would not have irreversible impacts because future options pertaining to use of Proposed Project locations would remain possible. The sites could be used for alternative uses in the future, ranging from natural open space to urban development. No loss of future options would occur as a result of the Proposed Project.

The primary irretrievable impacts of the Proposed Project would involve the use of energy, labor, materials and funds and the conversion of some lands from an undeveloped condition through the construction of infrastructure. Irretrievable impacts would occur as a result of construction, facility operation, and maintenance activities. Direct losses related to biological productivity and the use of natural resources would not be appreciable.

Chapter 5
Persons Consulted and List of Preparers

An environmental study team led by ICF International under contract to the City of Mountain View prepared this Initial Study/Environmental Assessment. The analyses were coordinated primarily with Margaret Netto at the City and Geoff Lee at NASA ARC.

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Chapter 6
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Appendix A

CEQA Checklist/Mitigated Negative Declaration and NEPA Finding of No Significant Impact

Checklist

Environmental Checklist

1.	**Project Title:**	Stevens Creek Crossings Project
2.	**Lead Agency Name and Address:**	City of Mountain View Community Development Department 500 Castro Road, 1st Floor Mountain View, CA 94041
3.	**Contact Person and Phone Number:**	Margaret Netto (650-903-6306)
4.	**Project Location:**	The project area for the eastern bridge approaches also includes the portions of two existing public roads, the eastern termini of both Charleston Road and Crittenden Lane in the City of Mountain View. The project area for the western bridge approaches is in the Bay View Area of the NASA Ames Research Center facility, but is within the legal boundaries of the City of Mountain View.
5.	**Project Sponsor's Name and Address:**	Planetary Ventures, LLC 1600 Amphitheatre Parkway Mountain View, CA 94043
6.	**General Plan Designation:**	Institutional , Regional Park, Agriculture
7.	**Zoning:**	Public Facility, Agriculture

8. **Description of Project:**

The Proposed Project would create two new two-lane vehicular bridge crossings extending Charleston Road and Crittenden Lane across Steven Creek and into the Bay View Area of the NASA Ames Research Center. Additionally one new pedestrian/bicycle bridge would be installed immediately north of the new Charleston Road vehicular bridge and ADA and safety improvements would be implemented at the existing Crittenden Lane pedestrian bridge.

The Project site starts at the eastern termini of both Charleston Road and Crittenden Lane in Mountain View. From there, the two proposed roadways and the pedestrian/bike trail will be built eastward across the adjoining PG&E transmission line corridor, over the Stevens Creek levees owned and maintained by the Santa Clara Valley Water District (SCVWD), across the Creek, and down again into the adjacent Bay View development area that is part of the Federally-owned NASA Ames Research Center (See Exhibits 5, 6, and 7 in Appendix B). Construction of the road and creek crossings will be built to accommodate emergency response and transit vehicles on the vehicular roadways, although private vehicular use will not be allowed. The pedestrian/bike paths will be available for public use, built to City of Mountain View standards.

The net effect of the Project will be to create an east-west transit connection across Stevens Creek where none currently exists, and provide new public access to the Stevens Creek Trail. It will enable easy, safe and environmentally-friendly links between the existing Google office facilities on the west side of Stevens Creek and the expansion of those same facilities on the east side of the Creek under a ground lease signed between Planetary Ventures and NASA Ames Research Center. The Project facilities will be owned and financed by Planetary Ventures, a wholly-owned subsidiary of Google, Inc.

9. **Surrounding Land Uses and Setting:**

The project site falls into two land use and zoning designations. The General Plan land use designation for the Crittenden Lane bridges and the area to the east of Stevens Creek, including the eastern termini of the Charleston Road bridges, is Institutional. This land use designation is intended for public and quasi-public uses that serve an important regional function and are

vital to Mountain View including, the NASA Ames Research Center. The project would connect pedestrians and bicyclists to numerous regional recreational uses including the Stevens Creek Trail, the Bay Trail, and the Shoreline-at-Mountain View Park. These areas are zoned as "Public Facility (PF)." According to the Mountain View Municipal Code (Section 36.20A.A(e)), "uses and facilities…developed on city-owned land and intended for a purpose found by the city to be in the public interest" are permitted uses.

The General Plan land use designation for the area west of the Stevens Creek within which the western termini of the Charleston Road bridges fall is Regional Park. This designation is intended for open space and recreational uses that draw visitors from a wide area and preserve regional natural resources and features including Shoreline Regional Park and open space along Stevens Creek. A portion of the western terminus is also zoned as "Agriculture (A)." According to the Mountain View General Plan Update Current Conditions Report, the A district preserves lands best suited for agricultural use and protects them from the encroachment of incompatible uses. This district also preserves agricultural land that may be suited for eventual development to other uses…" A permitted use in the A district is public parks and recreation areas.

10. Other Public Agencies Whose Approval is Required:

National Aeronautics and Space Administration (NASA)

Environmental Factors Potentially Affected

The environmental factors checked below would potentially be affected by this project (i.e., the project would involve at least one impact that is a "Potentially Significant Impact"), as indicated by the checklist on the following pages.

☒ Aesthetics	☒ Agricultural and Forestry	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☒ Geology/Soils
☒ Greenhouse Gas Emissions	☐ Hazards and Hazardous Materials	☒ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☒ Noise
☐ Population/Housing	☒ Public Services	☒ Recreation
☒ Transportation/Traffic	☐ Utilities/Service Systems	☒ Mandatory Findings of Significance

Determination

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have an impact on the environment that is "potentially significant" or "potentially significant unless mitigated" but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards and (2) has been addressed by mitigation measures based on the earlier analysis, as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the project, nothing further is required.

MNetto — Signature

1/26/12 — Date

Margaret Netto — Printed Name

City of Mountain View — For

The following impact discussions utilize the CEQA Guidelines Initial Study Checklist questions as the threshold for determining the level of impacts associated with the project, unless otherwise specified, as provided by the Governor's Office of Planning and Research (www.opr.com).

I. Aesthetics	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
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 along a scenic highway?	☐	☐	☐	☒
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	☒	☐

a,c. Discussed in detail in Chapter 4.1 of the Initial Study.

b. Project is not associated with any Local, State, or Federal designated scenic roadway.

d. Lighting associated with the project would be minimal and would conform to the City of Mountain View and Stevens Creek Trail Guidelines and would not result in a new source of substantial light or glare.

II. Agricultural and Forestry Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts on forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project, and forest carbon measurement methodology provided in the Forest Protocols adopted by the California Air Resources Board. Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?	☐	☐	☒	☐
c. Conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

a. According to the California Department of Conservation Santa Clara Important Farmland 2010 Map (Department of Conservation 2011), the project site and adjacent lands are designated as Urban and Built-Up Land and Other Land. The project site does not contain Prime Farmlands, Unique Farmland, or Farmlands of Statewide Importance.

b. The project site is not under a Williamson Act contract. Currently, there are no agricultural uses on this land even though the land is zoned such. This land is covered by overhead PG&E transmission lines and subleased to a nursery (A to Z Tree Nursery). The nursery has potted plants and trees but does not grow the plants on land.

c,d. According to the Department of Forestry and Fire Protection (2003), the land cover on the project site is Urban. There is no land zoned as forest or timberland in the City of Mountain View.

e. The project will not result in other changes in the existing environment that could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.

III. Air Quality	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b. Violate any air quality standard or contribute substantially 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 nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e. Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

a-e. All checklist questions are addressed in detail in Chapter 4.3 of the Initial Study.

IV. Biological Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
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 Game 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 Game 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, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

a-c,e. Discussed in detail in Chapter 4.4 of the Initial Study.

d. The project would have no impact on the movement of 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 along Stevens Creek.

f. There are no habitat conservation plans or natural community conservation plans on the project site. The nearest HCP is the Santa Clara Valley HCP/NCCP which encompasses the Cities of San Jose, Morgan Hill, and Gilroy. The City of Mountain View is not included in the HCP/NCCP.

V. Cultural Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☒	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☐	☒	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

a-c. Discussed in detail in Chapter 4.4 of the Initial Study.

VI. Geology and Soils	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
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 an onsite or offsite 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?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	☐	☐	☒	☐
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

a-f. Discussed in detail in Chapter 4.6 of the Initial Study.

VII. Greenhouse Gas Emissions	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

a,b. Discussed in detail in Chapter 4.13 of the Initial Study.

VIII. Hazards and Hazardous Materials	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
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 involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
f. Be located within the vicinity of a private airstrip and 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?	☐	☐	☒	☐
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?	☐	☐	☐	☒

a-h All checklist questions are addressed in detail in Chapter 4.7 of the Initial Study.

IX. Hydrology and Water Quality	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that 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 that would result in substantial erosion or siltation onsite or offsite?	☐	☐	☒	☐
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 runoff in a manner that would result in flooding onsite or offsite?	☐	☐	☒	☐
e. Create or contribute runoff water that 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 floodflows?	☐	☐	☒	☐
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?	☐	☐	☒	☐
j. Contribute to inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

a-f, h-j. Discussed in detail in Chapter 4.8 of the Initial Study.

g. The Proposed Project does not involve construction of homes or housing.

X. Land Use and Planning	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	☐	☐	☐	☒
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a 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?	☐	☐	☐	☒

a. Construction of the bridges would not create any physical division to an established community. The project would also enable lateral access for pedestrians and bicyclists to the Stevens Creek Trail and would enhance connections between established communities.

b. The project would not change any existing land uses in the project area. The project would not conflict with the City of Mountain View's General Plan policies and the zoning or land use designation of the project site.

c. There are no habitat conservation plans or natural community conservation plans on the project site. The nearest HCP is the Santa Clara Valley HCP/NCCP which encompasses the Cities of San Jose, Morgan Hill, and Gilroy. The City of Mountain View is not included in the HCP/NCCP.

XI. Mineral Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. 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?	☐	☐	☐	☒
b. 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?	☐	☐	☐	☒

a,b. According to the City of Mountain View 1992 General Plan, there are no significant mineral resources in Mountain View. Further, the project site is located in a Mineral Resource Zone (MRZ) 1. MRZ-1 zones are areas where adequate information indicated that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.

XII. Noise	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	☐	☐	☒	☐
b. Expose persons to or generate excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e. Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f. Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐

a-d. Discussed in detail in Chapter 4.9 of the Initial Study.

e, The project is not located within 2 miles of public airport or public use airport, there will be no impact. The nearest public airport is the Palo Alto Airport located 3 miles from the project.

f. The project is located within 0.5 miles of the Moffett Field airstrips; however, the project would only involve temporary construction activities. While the project would result in temporary increase in ambient noise levels during project construction, the noise would be short term and cease after the project is completed. Therefore, the project would not result in cumulative noise impacts to people residing or working within 2 miles of the airport. The impact would be less than significant.

XIII. Population and Housing	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c. Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

a. The project does not include constructing new homes or creating new businesses and therefore would not directly or indirectly induce population growth.

b,c. The construction of new bridges at Crittenden Lane and Charleston Road would not displace existing housing or people during construction or following completion of the project. Neither the areas east or west of Stevens Creek are zoned or designated for residential uses.

XIV. Public Services	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a 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 following public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

a. Discussed in detail in Chapter 4.12 of the Initial Study.

XV. Recreation	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
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 that might have an adverse physical effect on the environment?	☐	☐	☒	☐

a,b. Discussed in detail in Chapter 4.10 of the Initial Study.

XVI. Transportation/Traffic	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
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 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 because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e. Result in inadequate emergency access?	☐	☐	☒	☐
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?	☐	☐	☒	☐

a,b,d-f. Discussed in detail in Chapter 4.10 of the Initial Study.

c. The Proposed Project would have no impact on air traffic patterns.

XVII. Utilities and Service Systems	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
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 stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?	☐	☐	☒	☐
e. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g. Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

a-g. Discussed in detail in Chapter 4.11 of the Initial Study.

XVIII. Mandatory Findings of Significance	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☐
b. Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☒	☐	☐
c. Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☐

a. The project would not result in long-term impacts on the quality of the environment; fish, wildlife, or plant species (including special-status species), or prehistoric or historic cultural resources. However, the project has the potential to have minor adverse effects that could degrade the quality of the environment (water quality, biological resources, cultural resources, noise, air quality, and traffic). This impact is considered less than significant with implementation of the BMPs and additional mitigation measures identified in this IS/MND.

b. The project would not result in cumulative impacts that are individually or cumulatively considerable. The project effects are temporary and construction-related, and all potential impacts would be less than significant or reduced to less-than-significant levels with mitigation required as part of the proposed project. No impacts would result in a substantial contribution to a cumulative impact.

c. The project has the potential to have minor adverse effects on human beings from increased noise, dust, and traffic during construction and operation. This impact is considered less than significant because the impacts would be temporary and would be mitigated with the BMPs and additional mitigation measures identified in this IS/MND.

XIX. Earlier Analysis

Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, one or more effects have been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a discussion should identify the following on attached sheets.

a. **Earlier analyses used.** Identify earlier analyses and state where they are available for review.

b. **Impact adequately addressed.** Identify which effects from the above checklist were within the scope of and adequately analyzed in the earlier document pursuant to applicable legal standards and state whether such effects were addressed by mitigation measures based on the earlier analysis.

c. **Mitigation measures.** For effects that are "potentially significant unless mitigated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

Authority: Public Resources Code Sections 21083 and 21083.05.

Reference: Section 65088.4, Government Code; Sections 21080(c), 21080.1, 21080.3, 21082.1, 21083, 21083.05, 21083.3, 21093, 21094, 21095, and 21151, Public Resources Code; *Sundstrom v. County of Mendocino* (1988), 202 Cal. App. 3d 296; *Leonoff v. Monterey Board of Supervisors* (1990) 222 Cal.App.3d 1337; *Eureka Citizens for Responsible Govt. v. City of Eureka* (2007) 147 Cal.App.4th at 1109; *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656.

FONSI

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NOTICE (12-ARC-1)

National Environmental Policy Act; Stevens Creek Crossings Project

AGENCY: National Aeronautics and Space Administration (NASA)

ACTION: Draft Finding of No Significant Impact (FONSI)

SUMMARY: Pursuant to the National Environmental Policy Act of 1969, as amended (NEPA, 42 U.S. C. 4321 *et seq*.), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508), NASA's policies and procedures for implementing NEPA (14 CFR Subpart 1216.3), and based upon the analyses and evaluations in the Environmental Assessment for the project, NASA has concluded that an Environmental Impact Statement is not necessary and has made a draft Finding of No Significant Impact (FONSI) with respect to the Stevens Creek Crossings Project.

DATE: NASA will take no final action prior to 30 days following publication of the notice of this FONSI.

RESPONSIBLE OFFICIAL: S. Pete Worden
Director, Ames Research Center

ADDRESSES: The Draft Environmental Assessment (EA) for the Stevens Creek Crossings Project may be viewed at the following locations:

NASA Library
Building N-202
Ames Research Center
Moffett Field CA 94035
Reference Desk

City of Sunnyvale Public Library
665 West Olive Avenue
Sunnyvale CA 94086

City of Mountain View
Reference Desk
585 Franklin Street
Mountain View CA 94035

A limited number of copies of the Draft EA are available on a first request basis, by contacting NASA Ames Research Center Environmental Management Division at the address, telephone number, or electronic mail address indicated herein. It is also available at http://www.nasa.gov/centers/ames/business/foia/elec.html

FOR FURTHER INFORMATION CONTACT: Dr. Ann Clarke, Chief, Environmental Management Division, NASA Ames Research Center, MS 237-14, Moffett Field, CA 94035-1000; telephone: 650-604-2350; electronic mail: ann.clarke@nasa.gov.

SUPPLEMENTARY INFORMATION: NASA has reviewed the EA. The EA is incorporated by reference in this FONSI.

PURPOSE AND NEED

The purpose of the Proposed Action is to facilitate multimodal, east-west connections between the existing office park facilities owned by Google Inc. in the North Bayshore area of the City of Mountain View with similar facilities planned to be developed pursuant to a property lease held by Planetary Ventures, LLC (a wholly owned subsidiary of Google Inc.), in the Bay View Planning Area of the federally owned NASA Ames Research Center (ARC) located within the City of Mountain View. Separated by less than 0.8 kilometer (0.5 mile), travel between these two destinations is blocked by Stevens Creek, requiring a circuitous loop through city streets and U.S. Highway 101 to make a connection. The proposed bridge crossings would allow high-occupancy vehicles (buses, shuttles, etc.), non-motorized transport (pedestrians, bicyclists, etc.) and State and local emergency response vehicles to travel safely and efficiently between the two office park facilities without exacerbating the already congested U.S. Highway 101 corridor traffic problems. Additionally, the Proposed Action is designed to enable lateral public access for pedestrians and bicyclists to the Stevens Creek Trail at Charleston Road where none currently exists.

The Proposed Action is needed to provide a looped system configuration to allow safe and unimpeded passage of multiple buses and other high-occupancy vehicles that would use this facility on a continuous basis and to facilitate access by State and local emergency response vehicles coming from points west of Stevens Creek, including the City of Mountain View Fire Station at Shoreline Avenue and Crittenden Lane and the City's Police Station at Shoreline Avenue and Villa Street. Private vehicular use would not be allowed. Safety design elements have been incorporated into project design, such as two-lane bridges that can simultaneously allow emergency egress and ingress.

Implementation of the Proposed Action would prevent further degradation of U.S. Highway 101 facilities, improve traffic circulation and non-vehicular connectivity north of U.S. Highway 101, improve traffic circulation from the south side of the City of Mountain View to the north side, improve traffic circulation and reduce traffic conflicts at NASA ARC, improve access and safety for pedestrians and bicyclists, allow the City of Mountain View Police and Fire Department to meet required response times, while avoiding impacts to the wetlands and flood plain through design and operation.

PROPOSED ACTION

The Proposed Action is construction and implementation of the Stevens Creek Crossings Project. . The Proposed Action would create two new two-lane vehicular bridge crossings extending Charleston Road and Crittenden Lane across Stevens Creek and into the Planetary Ventures leasehold within the Bay View Area of the NASA Ames Research Center located within the City of Mountain View. Additionally, one new pedestrian/bicycle bridge would be installed immediately north of the new Charleston Road vehicular bridge, and Americans with Disabilities Act (ADA) and safety improvements would be implemented at the existing Crittenden Lane pedestrian bridge. The Proposed Action would result in a new formal, ADA-compliant access point to the Stevens Creek Trail at Charleston Road and make the existing access point at Crittenden Lane ADA compliant.

The proposed crossings start at the eastern ends of both Charleston Road and Crittenden Lane in Mountain View. From there, the two proposed roadways and the pedestrian/bike trail would be built eastward across the adjoining Pacific Gas & Electric (PG&E) transmission line corridor,

over the Stevens Creek levees owned and maintained by the Santa Clara Valley Water District (SCVWD), across Stevens Creek, and into the adjacent Bay View development area that is part of the NASA Ames Research Center and leased to Google's subsidiary Planetary Ventures. The road and creek crossings would be built to accommodate emergency response and transit vehicles on the vehicular roadways, although private vehicular use would not be allowed. The pedestrian/bike paths would be available for public use, built to City of Mountain View standards and outside the NASA security fence.

The net effect of the Proposed Action would be to create an east-west transit connection across Stevens Creek where none currently exists, and provide new public access to the Stevens Creek Trail. It would enable easy, safe and environmentally-friendly links between the existing Google office facilities on the west side of Stevens Creek and the expansion of those same facilities on the east side of the creek under a ground lease signed between Planetary Ventures, a wholly-owned subsidiary of Google Inc., and NASA Ames Research Center. The Stevens Creek Crossings Project would be owned by Google Inc.

ALTERNATIVES CONSIDERED

The EA considers the Proposed Action, No-Action Alternative, and an alternative to the proposed bridge crossings. These alternatives were evaluated for providing multimodal, east-west connections and emergency services access between the North Bayshore area of the City of Mountain View with the Bay View Area of the NASA Ames Research Center (NASA ARC):

Alternative 1: Stevens Creek Crossings Project (Proposed Action and Preferred Alternative). The Proposed Action would create two new two-lane vehicular bridge crossings, extending Charleston Road and Crittenden Lane across Steven Creek and into the Bay View Area of NASA ARC. Additionally, one new pedestrian/bicycle bridge would be installed immediately south of the new Charleston Road vehicular bridge, and ADA and safety improvements would be implemented at the existing Crittenden Lane pedestrian bridge.

Alternative 2: One Bridge/Two Lane Alternative–Crittenden Lane Option. Alternative 2 would create one new two-lane vehicular bridge crossing, extending Crittenden Lane across Stevens Creek and into the Bay View Area of NASA ARC. Additionally, ADA and safety improvements would be implemented at the existing Crittenden Lane pedestrian bridge. Under Alternative 2, the Crittenden Lane improvements would be constructed exactly as described in Alternative 1 (the Proposed Action). Alternative 2 was determined to increase police response times in comparison to the Proposed Action, resulting in inability to meet City of Mountain View mandated response times and resulting in significant adverse effects.

Alternative 3: No Action. Under the No-Action Alternative, the Proposed Action would not be implemented and the applicant would direct all trips into the Bay View Area as proposed in the approved NASA Ames Development Plan Programmatic Environmental Impact Statement. The Google Shuttle System and State and local emergency response vehicles would reach the Bay View Area from U.S. Highway 101 via Moffett Boulevard, RT Jones Road, and Wright Avenue. As U.S. Highway 101 is already rated as having an F level of service (LOS), routing new trips onto U.S. Highway 101 would result in a significant adverse effect on traffic.

ENVIRONMENTAL CONSEQUENCES

In the EA, which is incorporated by reference into this FONSI, the potential effects of the proposed action on the following 17 resource areas were examined: aesthetics, agricultural and forestry resources, air quality, biological resources, cultural resources, geology and soils, global climate change and greenhouse gas reduction, hazards and hazardous materials, hydrology and

water quality, land use and planning, public services and utilities, noise, recreation, socioeconomics and environmental justice, transportation and circulation, mineral resources, population and housing.

Implementing the Proposed Action would result in minor adverse effects. The Proposed Action would have no effect on mineral resources or population and housing. The adverse effects on aesthetics, agricultural and forestry resources, air quality, biological resources, cultural resources, geology and soils, global climate change and greenhouse gas reduction, hazards and hazardous materials, hydrology and water quality, land use and planning, public services and utilities, noise, recreation, socioeconomics and environmental justice, and transportation and circulation would not be significant.

Cumulative effects from implementing the Proposed Action would produce short-term and long-term minor adverse effects. These would result from concurrent construction activities and from future developments taking place in the vicinity of the Proposed Action.

FINDINGS

On the basis of the analyses performed in support of the EA and reference material used in the investigation, NASA has concluded that implementation of the Proposed Action would not individually or cumulatively have a significant impact on the quality of the environment. NASA has also concluded that implementation of the Proposed Action would be consistent with NASA regulations at 14 CFR subpart 1216.2, implementing Executive Order 11988, Floodplain Management, and Executive Order 11990, Protection of Wetlands. Therefore, preparation of an Environmental Impact Statement is not required. NASA will take no final action prior to 30 days following publication of the notice of this FONSI.

_____ _____

S. Pete Worden Date

Director, NASA Ames Research Center

Appendix B

Transit Connections Analysis

FEHR PEERS

MEMORANDUM

Date: October 20, 2011

To: David Hopkins, P.E., Sares Regis Group

From: Robert H. Eckols, P.E.

Subject: ***The Stevens Creek Crossings Project - The Need for Two Vehicular Bridge Connections***

SJ11-1220

This memorandum was prepared at the request of the Sares Regis Group, who is the developer for the Google NASA Bayview project (under a ground lease agreement between NASA Ames Research Center and Planetary Ventures LLC) and is the applicant for a City of Mountain View encroachment agreement for the proposed Stevens Creek Crossings Project ("Project"). Additionally, the City and NASA have initiated a cooperative environmental review of the Project, under the California Environmental Quality Act (CEQA) and the National Environmental Quality Act (NEPA). The draft Project Description describes the purpose and need for two new vehicular bridges and one new pedestrian/bicycle bridge over Stevens Creek to serve the NASA Bayview development site and improve public access to Stevens Creek Trail and the San Francisco Bay Trail. This memorandum focuses on the vehicular connections, and addresses a fundamental question posed by the Project:

WHY ARE MULTIPLE VEHICULAR BRIDGES A GOOD SOLUTION TO EXISTING AND FUTURE CONNECTIVITY BARRIERS?

While there is a need to provide at least one new vehicular bridge connection over Stevens Creek for use by emergency vehicles, a second connection is proposed to improve the public and private transit operations for the NASA Bayview site as well as adjacent areas within the North Bayshore Area along Charleston Road and Crittenden Lane east of Shoreline Boulevard, and the adjacent NASA Ames Research Center and other facilities to the east. A second vehicle crossing would also provide an important additional point of access for emergency vehicles without compromising response times, if an emergency event required rapid response or evacuation. The proposed vehicle bridges will be open to public use, but will only carry emergency vehicles, public transit vehicles, and private motor coaches and shuttles. Adjacent to these vehicle bridges will be public pedestrian / bicycle crossings of Stevens Creek that will connect between the top of the levees that run along on each side of the creek channel. Commuter bicyclists may choose to use either the vehicle bridges or the pedestrian / bicycle crossings.

BACKGROUND

Currently, there are no publicly accessible vehicle crossings of Stevens Creek between the North Bayshore Area of Mountain View and the NASA Ames Research Center. Both the Santa Clara Valley Transportation Authority (VTA) and Google provide transit service to the employees and residents within both NASA and North Bayshore. Under the existing conditions, in order to provide transit service between these two areas, transit vehicles are required to use US101 and/or local streets on the West side of US101. VTA currently operates two bus routes in the

area, Route 52 serves NASA and Route 40 serves the North Bayshore Area. Under the existing routing, it requires multiple transfers to move between NASA and North Bayshore using VTA buses.

Google operates private shuttle service between NASA and the Google campus located in North Bayshore. This service transports employees involved in joint projects that Google and NASA are working on, which are located in the Research Center. Today, the Google shuttles must use US101 to traverse between the two areas. US101 experiences heavily congested and stop-and-go conditions during both the AM and PM peak periods.

At its Mountain View campus, Google currently operates a fleet of just under 80 motor coaches that make over 300 daily runs (some one-way and some two-way trips) carrying over 3,300 riders. These vehicles carry commuters from distant locations such as San Francisco, the East Bay and the South Bay, as well as employees to and from local activity centers via smaller local shuttles. As Google expands their employee base in the North Bayshore Area, there will be an increased need to provide for greater mobility for Google employees within the expanding North Bayshore campus. Today, there are a limited number of local shuttles to and between selected building complexes during the mid-day period that carry an average of approximately 100 daily trips (on peak days almost 200 trips). As the physical area of the campus expands and the number of Google employees increases, it is anticipated there will be a need to increase the number of local shuttles to move employees between the various building stretching over the entire North Bayshore Area and into NASA Bayview. These local intra-campus shuttles will support the other alternatives modes of travel that Google employees currently use such as ride sharing, cycling and walking.

TRANSIT OPPORTUNITIES

There are five categories of transit opportunities created by providing a two-bridge connection into the NASA Bayview development site. It is assumed that these connections would only be available to emergency vehicles, public transit vehicles and private motor coaches / shuttles. The five categories are:

1. User Convenience through Operational Flexibility
2. Reduced Travel Times and Vehicle Miles Traveled
3. Reduced Delay due to Shoreline Amphitheatre Event Traffic
4. Improved Connection to the Bayshore/NASA Light Rail Station
5. Improved Connections to Downtown Mountain View

User Convenience through Operational Flexibility – Eliminating dead-end routes on both Charleston Road and Crittenden Lane by creating the opportunity for transit vehicles to loop through the NASA Bayview development maximizes the efficiency of transit operations between the North Bayshore Area and NASA Bayview campuses. By providing two bridges that form a loop connecting Crittenden, Charleston and Shoreline (See Figure 1A), transit vehicles will be allowed to circulate in either a clockwise or counterclockwise direction. The ability to operate a route in either direction will benefit both employee commuter transit and local shuttles. The greatest benefit will be to local shuttles that transport employees between the Google buildings. Operating shuttles in both directions allows for the user to choose the vehicle traveling in the

direction (clockwise or counter-clockwise) that will minimize their travel distance and reduce their travel time.

Reduced Travel Times and Miles Traveled – As stated earlier, the existing roadway configuration east of Shoreline Boulevard creates two dead-end cul-de-sacs when it comes to transit service on Charleston Road and Crittenden Lane east of Shoreline Boulevard. To provide transit to the Google buildings located at the eastern terminus of Charleston Avenue and continue on to the Crittenden complex without a two-bridge connection, adds approximately 5,000 feet (~1.0 mile) of additional travel distance. Figure 1B shows the existing travel distances caused by the two cul-de-sacs. While there would be some added time to traverse the segment located on the NASA Bayview site, the elimination of backtracking along Shoreline, Charleston, and Crittenden offsets the increase on the NASA Bayview site by 9/10 of a mile. Therefore, with the two bridge configuration, there will be a corresponding reduction in miles traveled compared to the existing routing.

Considering an average speed for transit vehicles of 15 mph (including time for stops), the travel time to traverse this additional distance (~4,800 feet) represents an increase of approximately four minutes. Given the current travel time within the North Bayshore Area is approximately 15 minutes, this loss of efficiency reflects a high percentage (27%) of the time required to unload the buses once they reach their Mountain View destinations. This time increment would likely increase due to additional congestion as traffic in the overall campus area increases.

Reduced Delay due to Shoreline Amphitheatre Event Traffic – The addition of a two-bridge connection also helps reduce or eliminate an existing problem for all visitors to events at Shoreline Amphitheatre, and a range of service vehicles related to event emergency response, event services, and traffic control. When there is a weekday event, Google buses are often delayed (and add to the congestion) trying to exit from the Crittenden area via Shoreline Boulevard. With the two-bridge configuration, transit vehicles could travel from the Crittenden campus to Charleston Road by passing through the NASA Bayview site. Once at Charleston, they could make their other pickups and exit the North Bayshore Area.

Improved Connection to Bayshore/NASA Light Rail Station – A two-bridge connection with a new alignment at Charleston Road could also be used to provide a direct transit connection between the North Bayshore Area and the Bayshore / NASA Light Rail Station. A shuttle connection through the NASA Bayview site would improve the travel times for light rail users destined to the North Bayshore area. Figure 2 shows the existing connection from the North Bayshore Area to the VTA light rail station in Downtown Mountain View (solid blue line). A light rail user travels via a shuttle to downtown (approximately 2 miles using Shoreline Boulevard) and then travels another 2. 5 miles via light rail (dashed orange line). The light rail passes through three stops (Evelyn, Whisman, & Middlefield) before reaching the Bayshore / NASA Station.

A direct transit connection using the proposed bridge at Charleston Road would travel 2.5 miles directly to the Bayshore / NASA Station (dashed blue line). Since this would include a road section of transit-only travel, the travel time to the Bayshore / NASA station would be similar to or less than traveling in the congested Shoreline Boulevard corridor. It takes approximately 10 minutes (based on schedule time) for the light rail to travel from downtown Mountain View to the Bayshore / NASA station. Therefore, this direct shuttle connection would reduce the users travel time by a minimum of 10 minutes and potentially more during congested conditions. A timing savings of 10 minutes could increase the desirability of using light rail for some users, particularly, when combined with the future express light rail service proposed by VTA to connect between BART (Milpitas) and Moffett Business Park.

Improved Connections to Downtown Mountain View – A transit bridge at Charleston Road will open the opportunity to provide an alternative transit route to downtown Mountain View as shown in Figure 2 (dashed green line). This alternative route to downtown would utilize Charleston Road, RT Jones Road, Moffett Boulevard and Castro Street. While the route would be 35% longer in distance than using Shoreline Boulevard, the alternative connection would generally be less congested during peak periods with a resulting shorter travel time. More importantly, this new route would reduce traffic burden on the over-taxed Shoreline Blvd. corridor.

CONCLUSIONS

1. By constructing two vehicular bridges connecting to the new Google campus at NASA Bayview, one located at Crittenden Lane and other at Charleston Road, it is possible to reduce the travel distance of transit vehicles, reduce travel times, and open other opportunities for improving transit access and circulation between the North Bayshore Area and NASA Bayview development. As the employee population increases in the North Bayshore Area, it will be necessary to continue to improve transit service in order to sustain and increase transit ridership, as well as promote other modes of transportation besides autos. Therefore, any opportunity to improve or enhance the transit users' experience will be beneficial in increasing ridership and reducing the number of vehicle trips on the roadways.

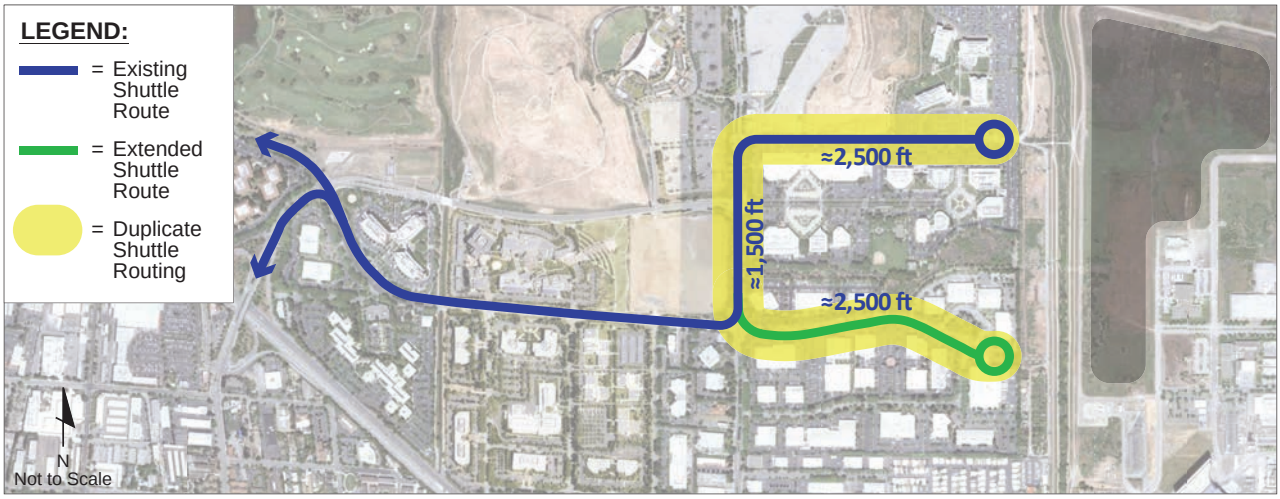
2. Multiple vehicular bridges are needed and are good for North Bayshore, NASA, and Google. Enabling and facilitating mass transit and other alternative mobility options is a pressing need for the North Bayshore Area. By providing alternative transit routes and increased access for pedestrians and bicyclists, the Stevens Creek Crossings Project will improve travel into/out of North Bayshore for all, not just Google employees.

3. Public safety within and around the Bayview site will have two ingress and egress routes connecting to Mountain View streets in North Bayshore. Fire and police response times will be reduced and, in the event one access point is blocked, the other bridge will provide a time-efficient alternative. In emergency situations, multiple routes are critical to efficient response and effective evacuation.

4. Google transit serves nearly 30% of the Google workforce in Mountain View. Motor coaches and shuttles are critical to reducing single-occupant vehicle trips to and from the workplace. To sustain this high level of transit service into the future, and to provide operational flexibility, an efficient looped system for transit vehicles is a key design principle.

The primary reason for proposing two vehicular bridge connections to the Bayview site from the existing Google campus is to maximize the flexibility for public and private transit operations that would serve both Google's existing North Bayshore campus and its future Bay View development. The two bridge connections improve mobility for transit users by reducing travel time and provide a more efficient system by eliminating the existing dead-end cul-de-sacs on Charleston Road and Crittenden Lane. Providing an alternative route out of the Crittenden complex would help reduce congestion and delays to all vehicles on Amphitheatre event days. There is also the opportunity to improve public and private transit connections from the Mountain View North Bayshore Area to the Bayshore / NASA Light Rail station and provide an new route to downtown Mountain View. Reducing transit service times and traffic delays, and improving convenience and route directness are key factors to maximizing potential transit ridership and minimizing the use of single-occupant vehicles within the North Bayshore Area.

A. Shuttle Bus Loop with Two Bridge Crossings



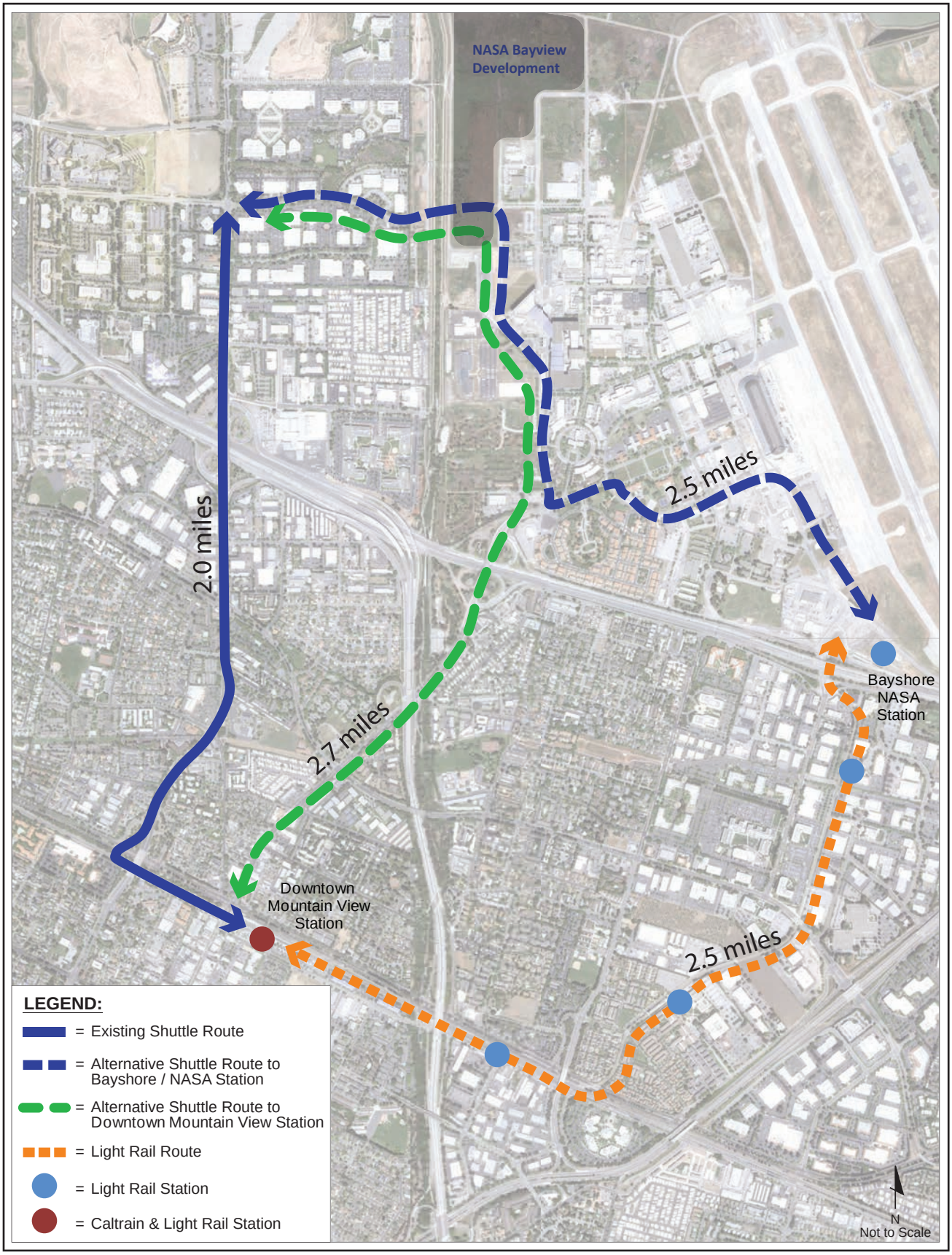
B. Shuttle Bus Routes with No Crossings

FEHR PEERS

Existing and Potential Shuttle Bus Routes

October 2011
SJ11-1259

Figure 1



FEHR PEERS

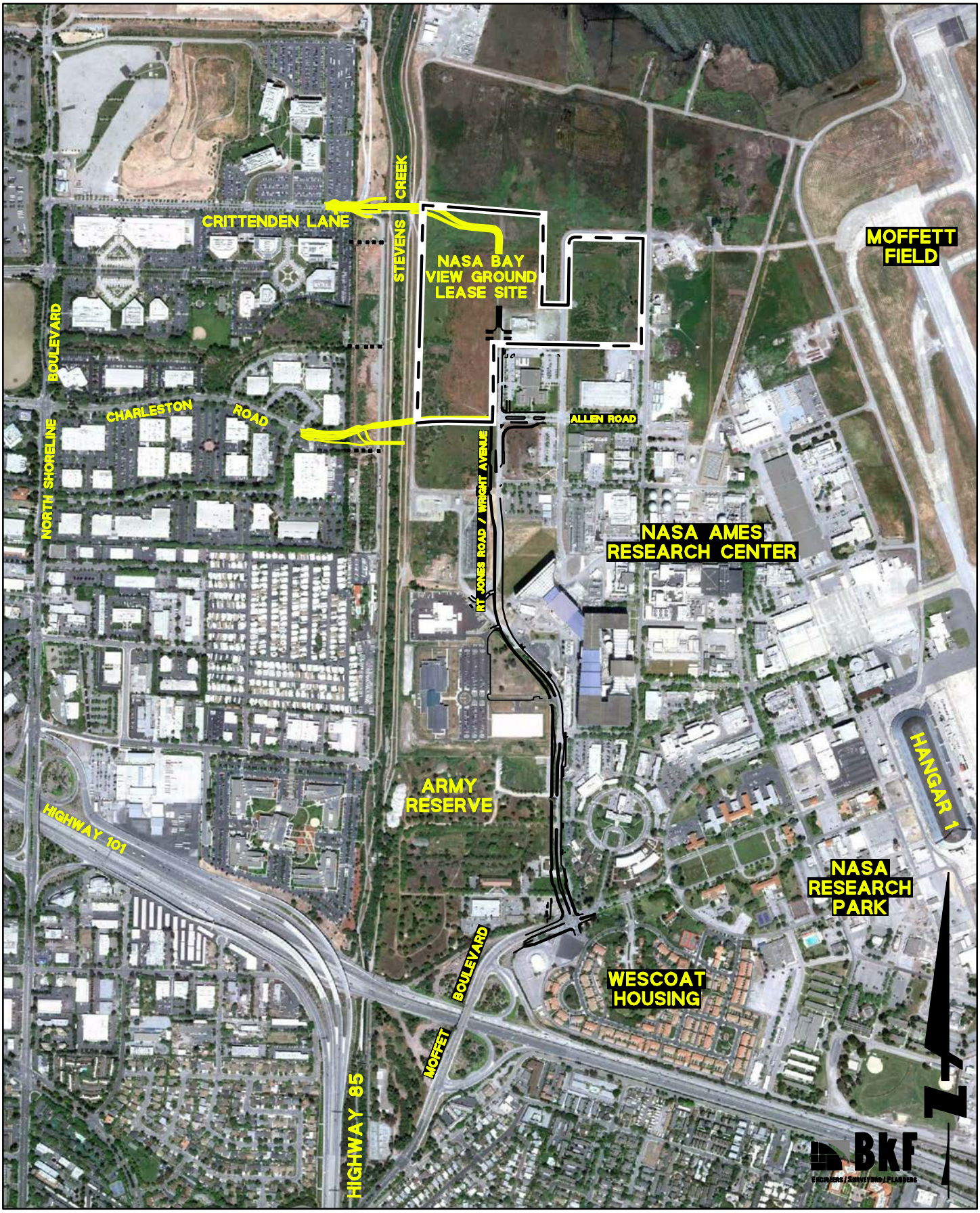
Potential New Transit Connections to Light Rail and Downtown via Stevens Creek Crossings Project

October 2011
SJ11-1259

Figure 2

Appendix C

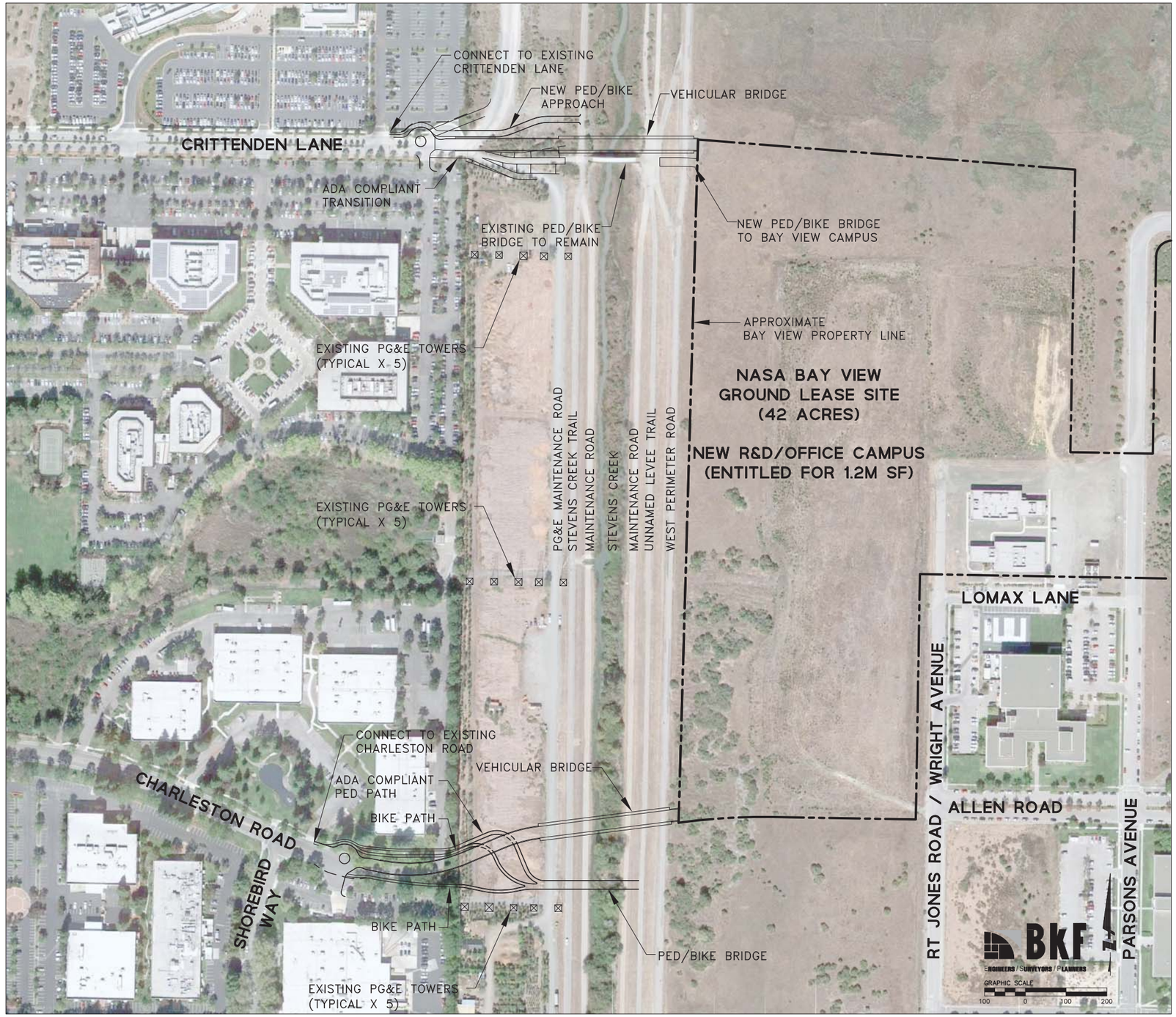
Applicant Exhibits for Stevens Creek Crossings Project



STEVENS CREEK CROSSINGS PROJECT

EXHIBIT 5
VICINITY MAP

SARES REGIS
901 MARINERS ISLAND BOULEVARD, 7TH FLOOR
SAN MATEO, CA 94404
T: 650-378-2800 F: 650-570-2233



STEVENS CREEK CROSSINGS PROJECT

EXHIBIT 7
CONTEXT PLAN

SARES REGIS 901 MARINERS ISLAND BOULEVARD, 7TH FLOOR
SAN MATEO, CA 94404
T: 650-378-2800 F: 650-570-2233

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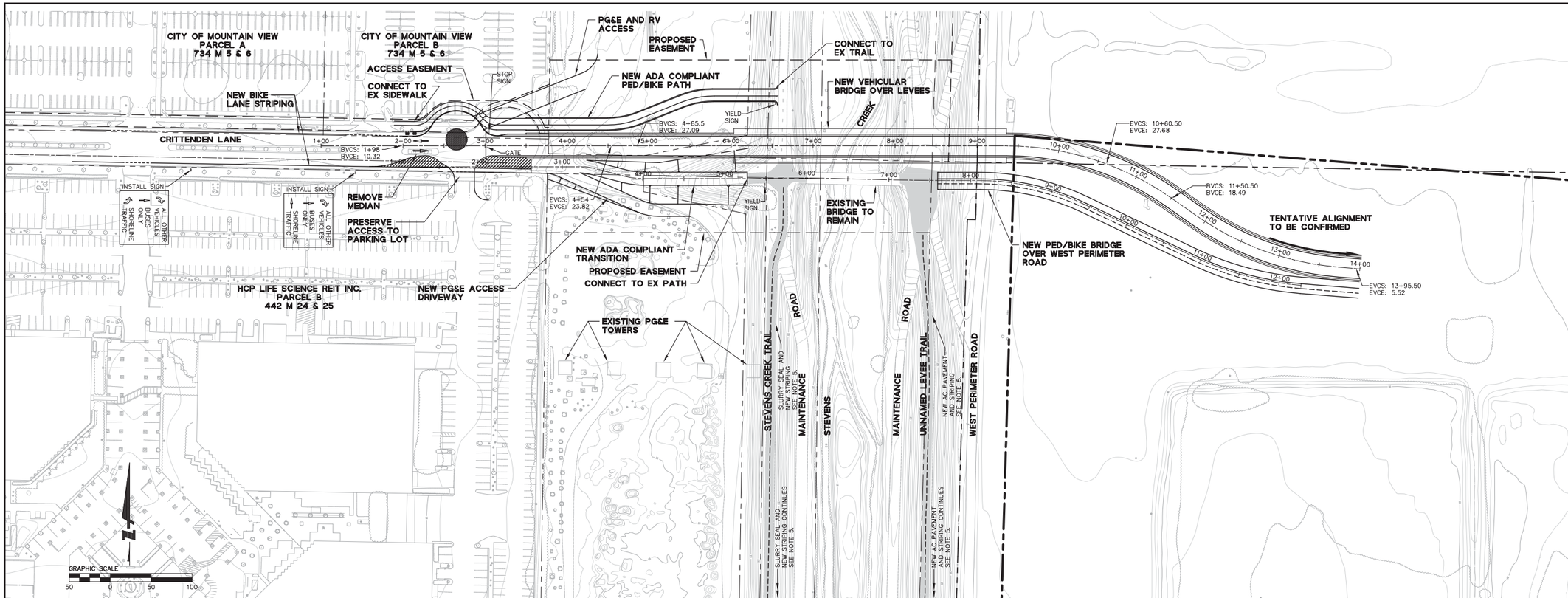
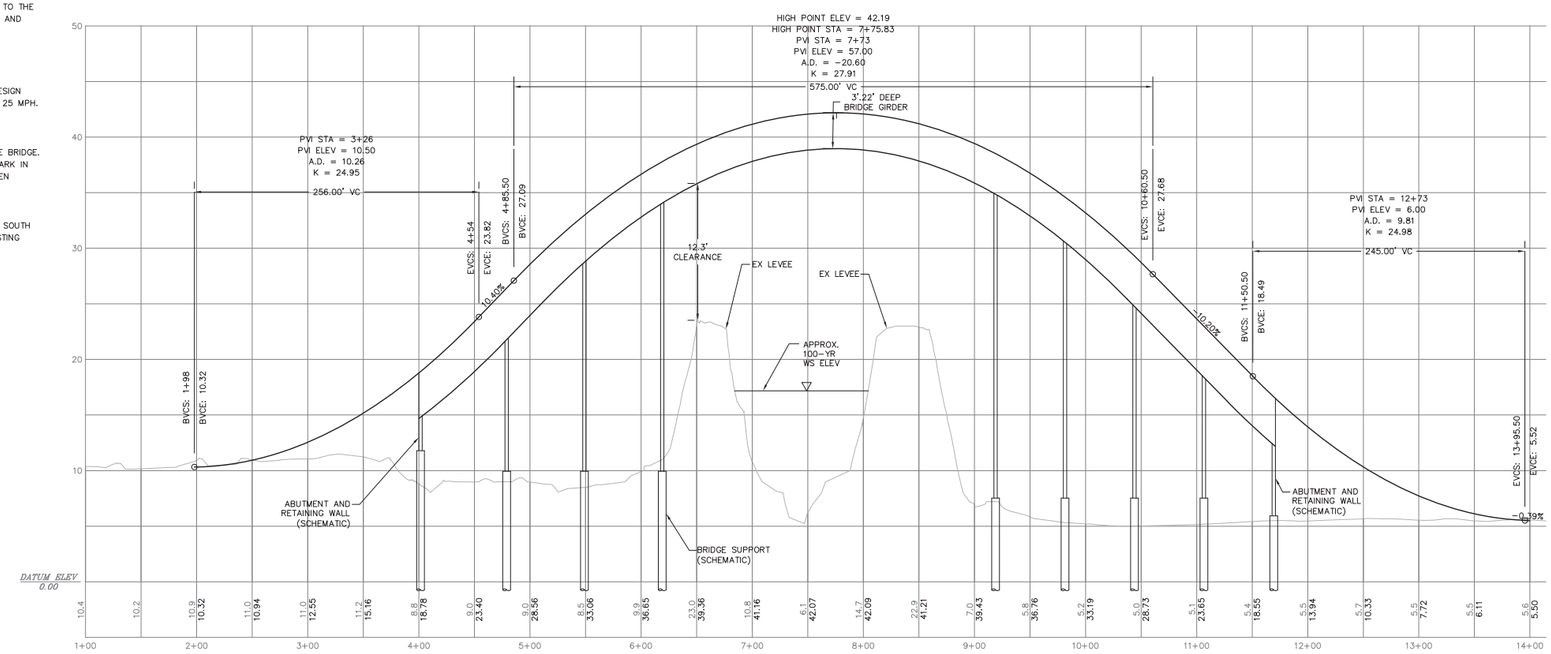


CONCEPTUAL CRITTENDEN LANE ALIGNMENT

1"=50'

NOTES:

1. ELEVATIONS BASED ON AERIAL SURVEY THAT WAS COMPLETED BY AEROGEODETIC IN DECEMBER OF 2012. THE ELEVATIONS ARE BASED ON THE NASA-NAVD88 DATUM. TO OBTAIN ELEVATIONS ON THE MOUNTAIN VIEW NAVD88 DATUM ADD 0.41 FEET TO THE ELEVATIONS SHOWN. MOUNTAIN VIEW BENCHMARKS II-23 AND II-24 WERE LOCATED AS PART OF THE SURVEY.
2. BRIDGE DECK THICKNESS BASED ON INPUT FROM OPAC CONSULTING ENGINEERS.
3. 100 YEAR WATER SURFACE ELEVATION BASED ON LEVEE RECERTIFICATION REPORT BY SCHAAF AND WHEELER.
4. HORIZONTAL AND VERTICAL ALIGNMENTS BASED ON A DESIGN SPEED OF 25 MPH. THE POSTED SPEED LIMIT SHALL BE 25 MPH.
5. NEW PAVING AND STRIPING INCLUDES THE FOLLOWING:
   A. STEVENS CREEK TRAIL
      - NEW AC PAVEMENT FOR THE RAISED LEVEE AND TRANSITIONS AT THE CHARLESTON ROAD PED/BIKE BRIDGE.
      - SLURRY SEAL TO THE SOUTH END OF THE NEW PARK IN BAY VIEW AND NORTH TO THE EXISTING CRITTENDEN PED/BIKE BRIDGE.
      - RESTRIPE THE NEW PAVEMENT SURFACE.
   B. UNNAMED LEVEE TRAIL
      - NEW AC PAVEMENT AND NEW STRIPING FROM THE SOUTH END OF THE NEW PARK IN BAY VIEW TO THE EXISTING CRITTENDEN PED/BIKE BRIDGE.



CONCEPTUAL CRITTENDEN LANE VEHICULAR PROFILE

H: 1"=50'
V: 1"=5'

PRELIMINARY - NOT FOR CONSTRUCTION
EXHIBIT 8

BKF
255 SHORELINE DRIVE, STE 200
REDWOOD CITY, CA 94065
650/482-6300
650/482-6399 (FAX)
ENGINEERS/SURVEYORS/PLANNERS

STEVENS CREEK CROSSINGS PROJECT
CHARLESTON ROAD & CRITTENDEN LANE BRIDGES
CRITTENDEN LANE VEHICULAR BRIDGE SCHEMATIC PLAN AND PROFILE

SANTA CLARA COUNTY, CALIFORNIA

CITY OF MOUNTAIN VIEW

SARES REGIS
Sares Regis Group of Northern California, L.P.
Corporate Center of Bayshore Boulevard, 7th Floor
San Mateo, CA 94404
T: 650-378-2800 F: 650-570-2233

Date	01/18/2012
Scale	AS SHOWN
Design	MO
Drawn	MO
Approved	CJH
Job No	20110020

Drawing Number:

DRAWING NAME: K:\Eng11\110020\DWG\3-BridgeCrossings\PLOTTED SHEETS\01-02 CRITTENDEN PP.dwg
PLOT DATE: 01-23-12 PLOTTED BY: DCON

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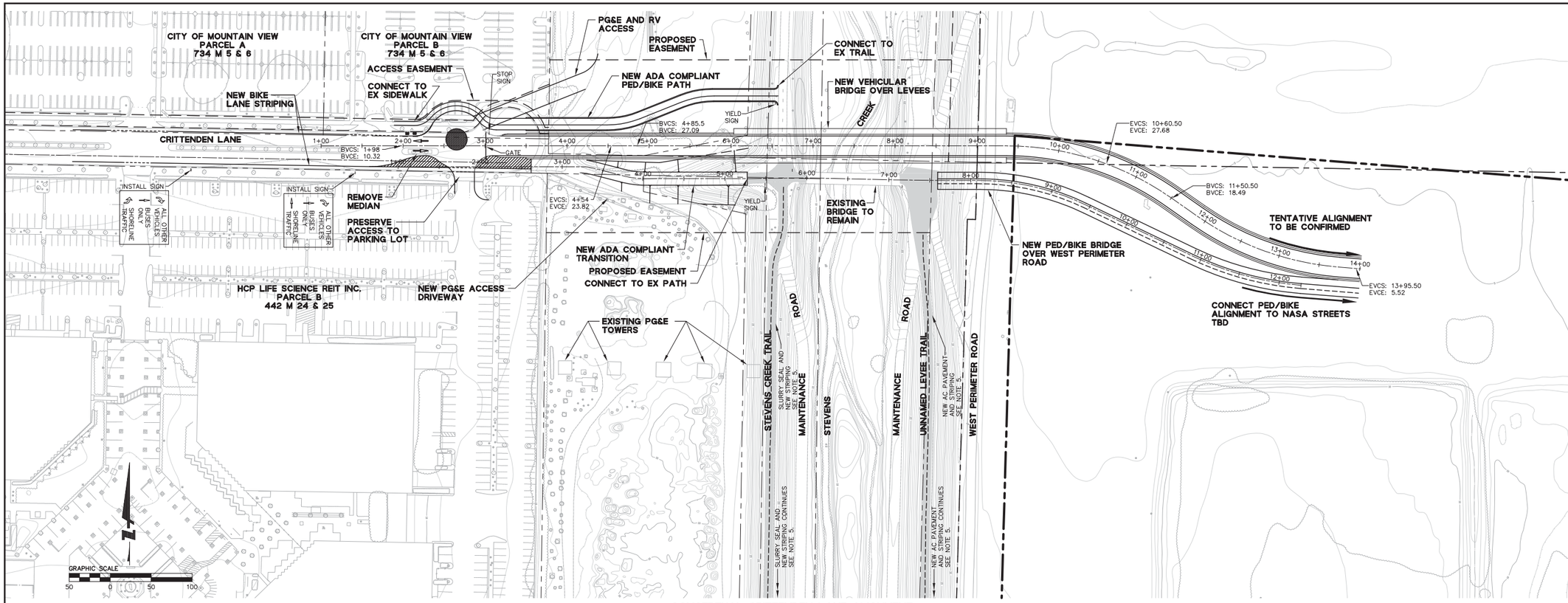

CONCEPTUAL CRITTENDEN LANE ALIGNMENT

1"=50'

NOTES:

1. ELEVATIONS BASED ON AERIAL SURVEY THAT WAS COMPLETED BY AEROGEODETIC IN DECEMBER OF 2012. THE ELEVATIONS ARE BASED ON THE NASA-NAVD88 DATUM. TO OBTAIN ELEVATIONS ON THE MOUNTAIN VIEW NAVD88 DATUM ADD 0.41 FEET TO THE ELEVATIONS SHOWN. MOUNTAIN VIEW BENCHMARKS II-23 AND II-24 WERE LOCATED AS PART OF THE SURVEY.
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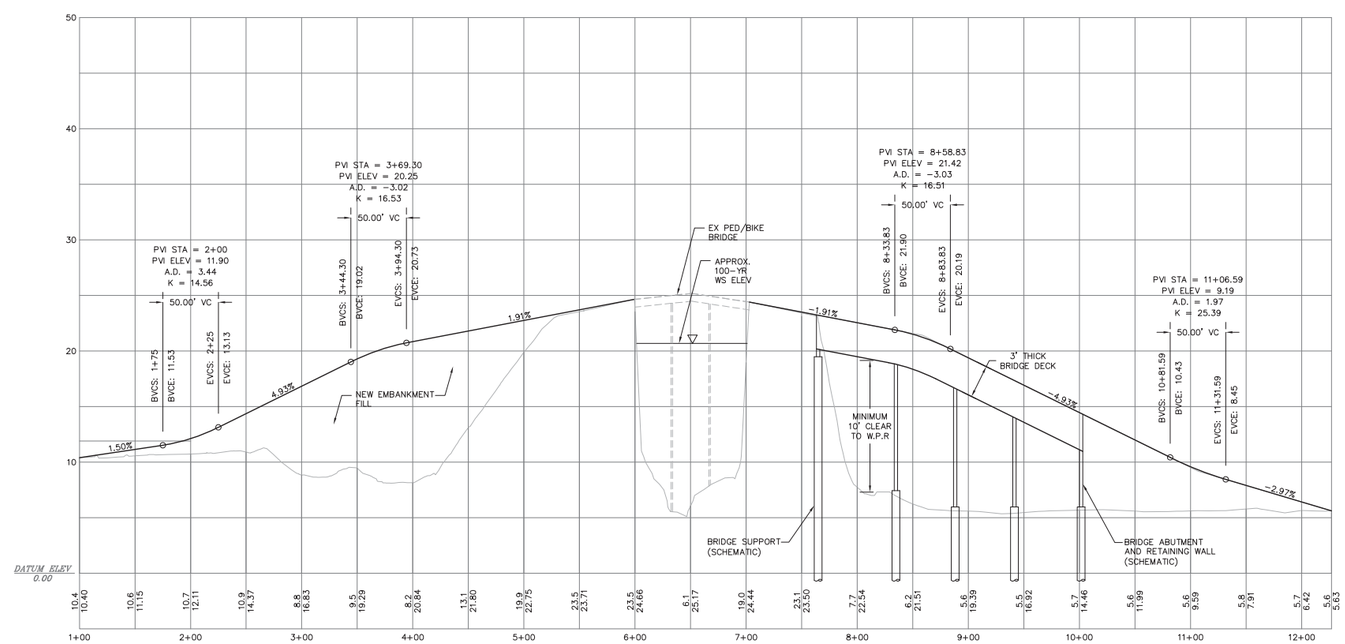

CONCEPTUAL CRITTENDEN LANE PEDESTRIAN/BICYCLE PROFILE

H: 1"=50'
V: 1"=5'

PRELIMINARY - NOT FOR CONSTRUCTION
EXHIBIT 9

BKF
255 SHORELINE DRIVE, STE 200
REDWOOD CITY, CA 94065
650/482-6300
650/482-6399 (FAX)
ENGINEERS/SURVEYORS/PLANNERS

STEVENS CREEK CROSSINGS PROJECT
CHARLESTON ROAD & CRITTENDEN LANE BRIDGES
CRITTENDEN LANE PEDESTRIAN/BICYCLE BRIDGE SCHEMATIC PLAN AND PROFILE

CITY OF MOUNTAIN VIEW
SANTA CLARA COUNTY
CALIFORNIA

SARES REGIS
Sares Regis Group of Northern California, L.P.
1100 Valley Vista Blvd, 6th Floor
San Mateo, CA 94402
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Date	01/18/2012
Scale	AS SHOWN
Design	MO
Drawn	MO
Approved	CJH
Job No	20110020

Drawing Number:

2 OF 6

DRAWING NAME: K:\Eng11\11020\DWG\3-BridgeCrossings\PLOTTED SHEETS\01-02 CRITTENDEN PP.dwg
PLOT DATE: 01-23-12 PLOTTED BY: OCON

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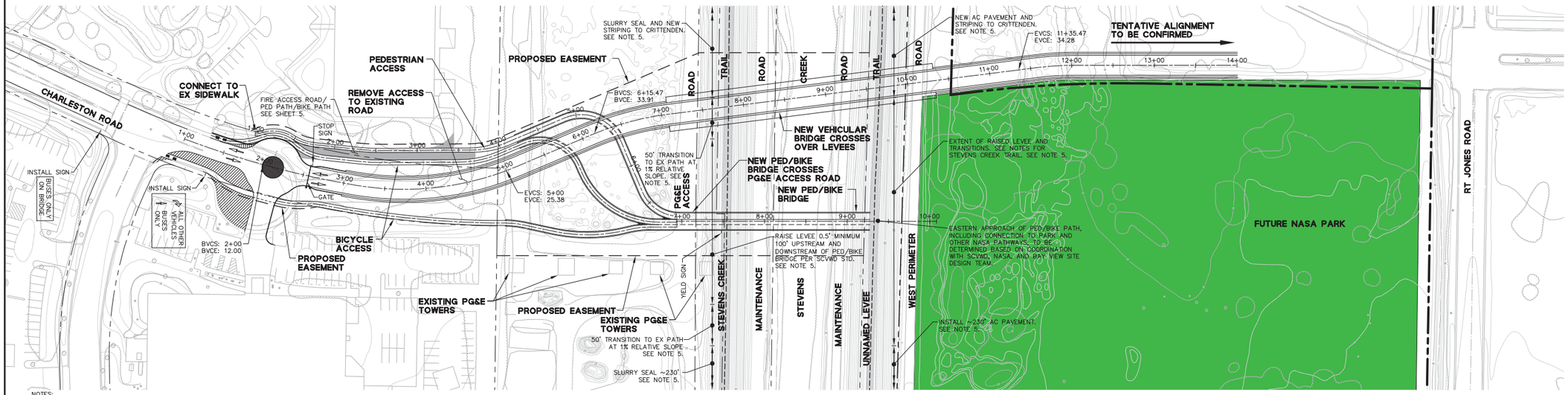

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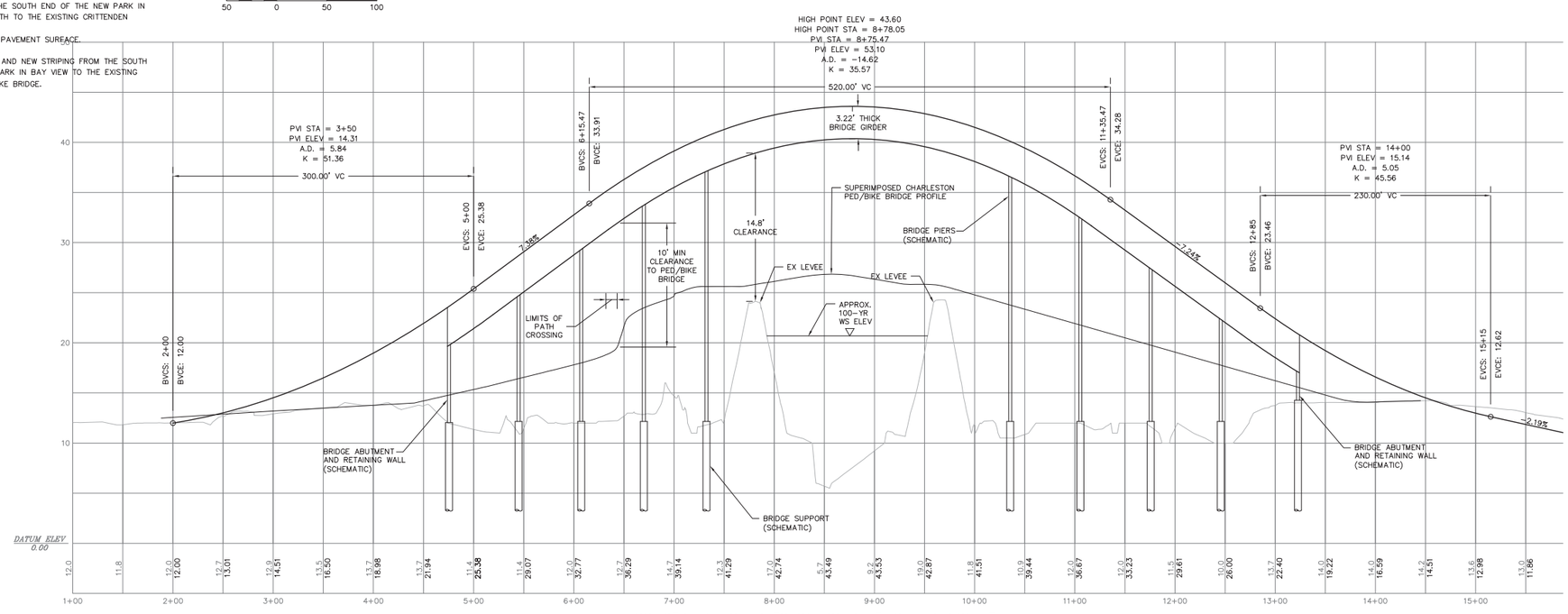
CONCEPTUAL CHARLESTON ROAD ALIGNMENT

1"=50'

GRAPHIC SCALE
50 0 50 100



CONCEPTUAL CHARLESTON ROAD VEHICULAR PROFILE

H: 1"=50'
V: 1"=5'

PRELIMINARY – NOT FOR CONSTRUCTION
EXHIBIT 10

BKF
255 SHORELINE DRIVE, STE 200
REDWOOD CITY, CA 94065
650/482-6300
650/482-6399 (FAX)
ENGINEERS/SURVEYORS/PLANNERS

STEVENS CREEK CROSSINGS PROJECT
CHARLESTON ROAD & CRITTENDEN LANE BRIDGES
CHARLESTON ROAD VEHICULAR BRIDGE SCHEMATIC PLAN AND PROFILE

CITY OF MOUNTAIN VIEW
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CALIFORNIA

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1010 Wisconsin Boulevard, 7th Floor
San Mateo, CA 94404
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Date 01/18/2012	
Scale AS SHOWN	
Design MO	
Drawn MO	
Approved CJH	
Job No 20110020	

Drawing Number:

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PLOT DATE: 01-23-12 PLOTTED BY: OCON

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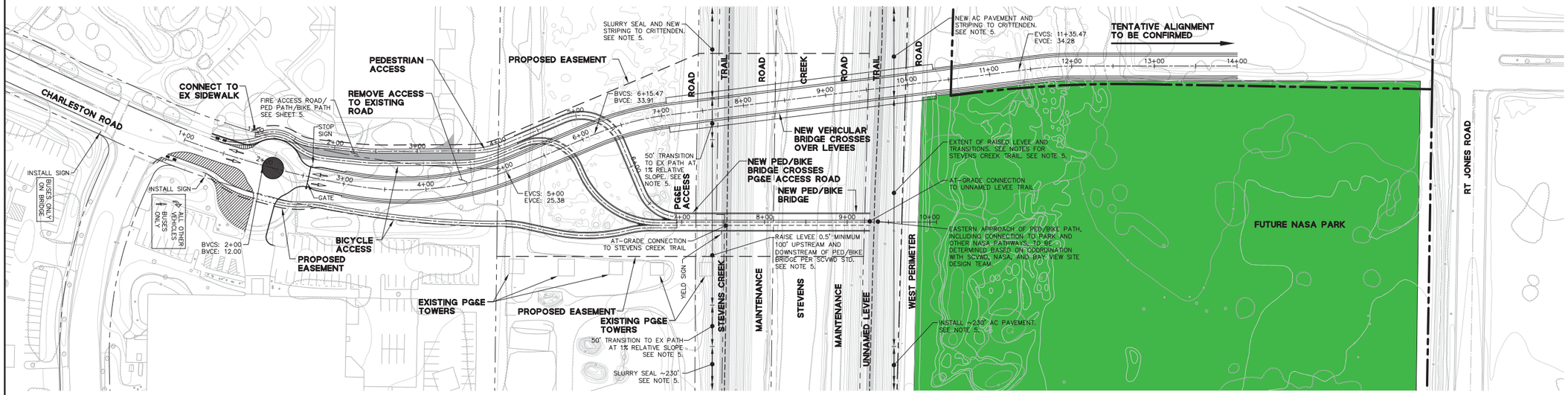

CONCEPTUAL CHARLESTON ROAD ALIGNMENT (SOUTHERN OPTION)

1"=50'

GRAPHIC SCALE
50 0 50 100

NOTES:

1. ELEVATIONS BASED ON AERIAL SURVEY THAT WAS COMPLETED BY AEROGEODETIC IN DECEMBER OF 2012. THE ELEVATIONS ARE BASED ON THE NASA-NAVD88 DATUM. TO OBTAIN ELEVATIONS ON THE MOUNTAIN VIEW NAVD88 DATUM ADD 0.41 FEET TO THE ELEVATIONS SHOWN. MOUNTAIN VIEW BENCHMARKS II-23 AND II-24 WERE LOCATED AS PART OF THE SURVEY.
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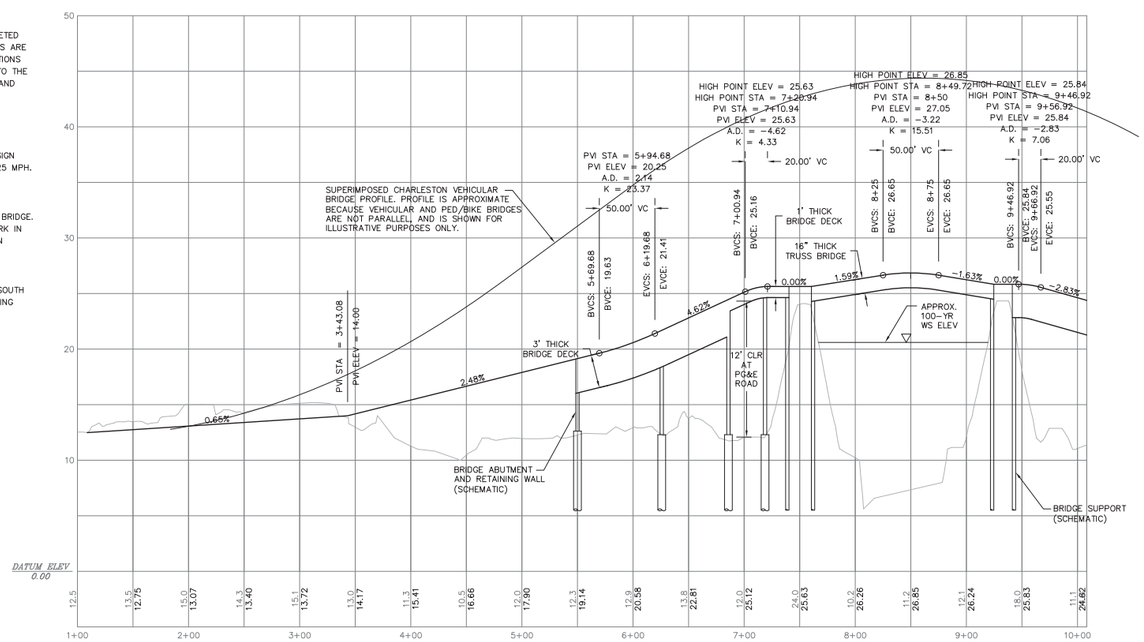
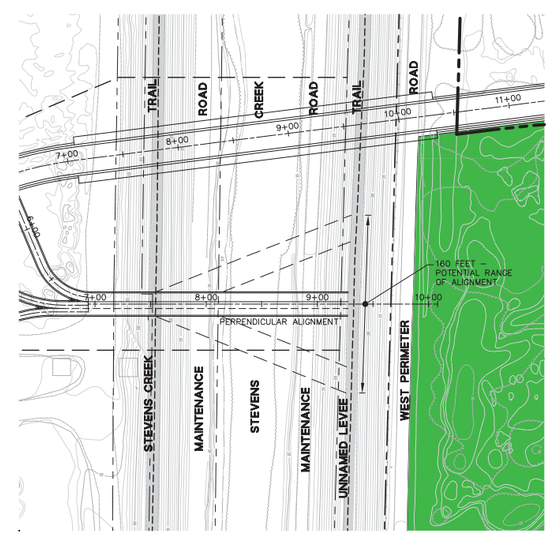


CONCEPTUAL CHARLESTON ROAD PEDESTRIAN/BICYCLE PROFILE

H: 1"=50'
V: 1"=5'



PED/BIKE BRIDGE POTENTIAL RANGE OF ALIGNMENT

1"=50'

PRELIMINARY - NOT FOR CONSTRUCTION
EXHIBIT 11

BKF
255 SHORELINE DRIVE, STE 200
REDWOOD CITY, CA 94065
650/482-6300
650/482-6399 (FAX)
ENGINEERS/SURVEYORS/PLANNERS

STEVENS CREEK CROSSINGS PROJECT
CHARLESTON ROAD & CRITTENDEN LANE BRIDGES
CHARLESTON ROAD PEDESTRIAN/BICYCLE BRIDGE SCHEMATIC PLAN AND PROFILE

CITY OF MOUNTAIN VIEW — SANTA CLARA COUNTY — CALIFORNIA

SARES REGIS
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500 Westridge Drive, Ste. 750
San Mateo, CA 94404
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Date	01/18/2012
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Design	MO
Drawn	MO
Approved	CJH
Job No	20110020

Drawing Number:

DRAWING NAME: K:\Eng11\110020\DWG\3-Bridge Crossings\PLOTTED SHEETS\03-04 CHARLESTON PP SOUTH.dwg
PLOT DATE: 01-23-12 PLOTTED BY: OCON

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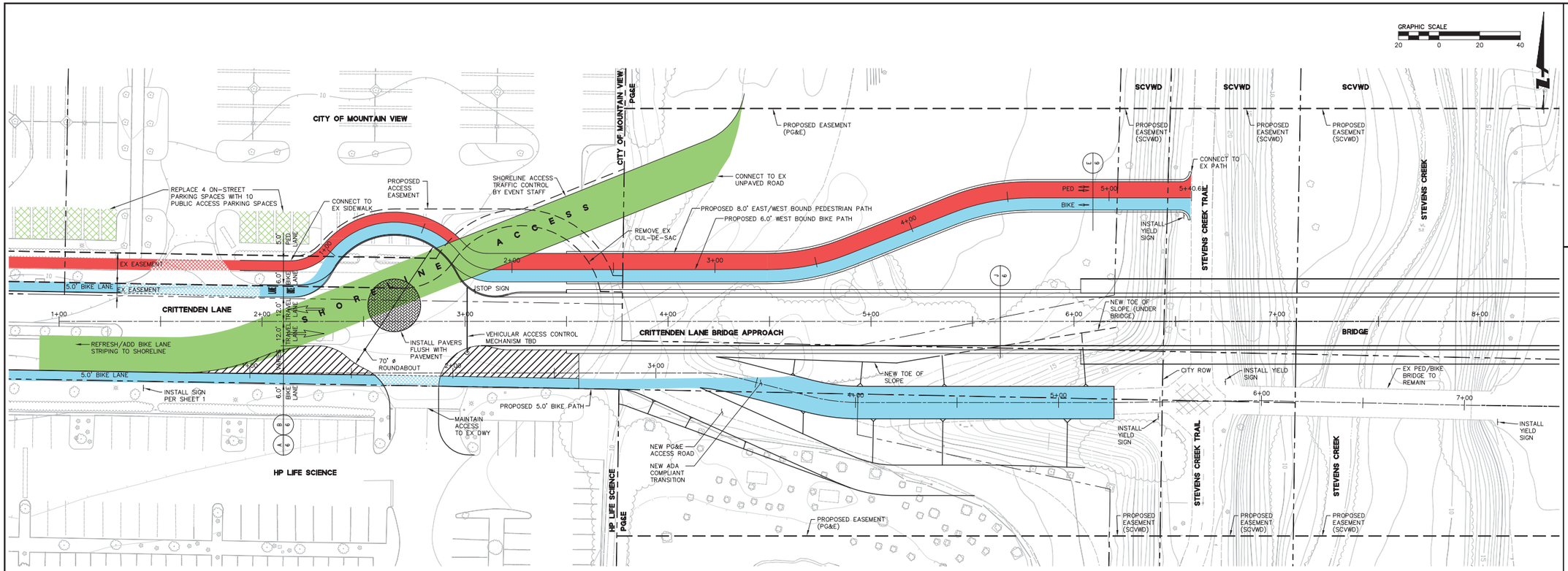


CONNECTION TO CRITTENDEN LANE

1"=20'

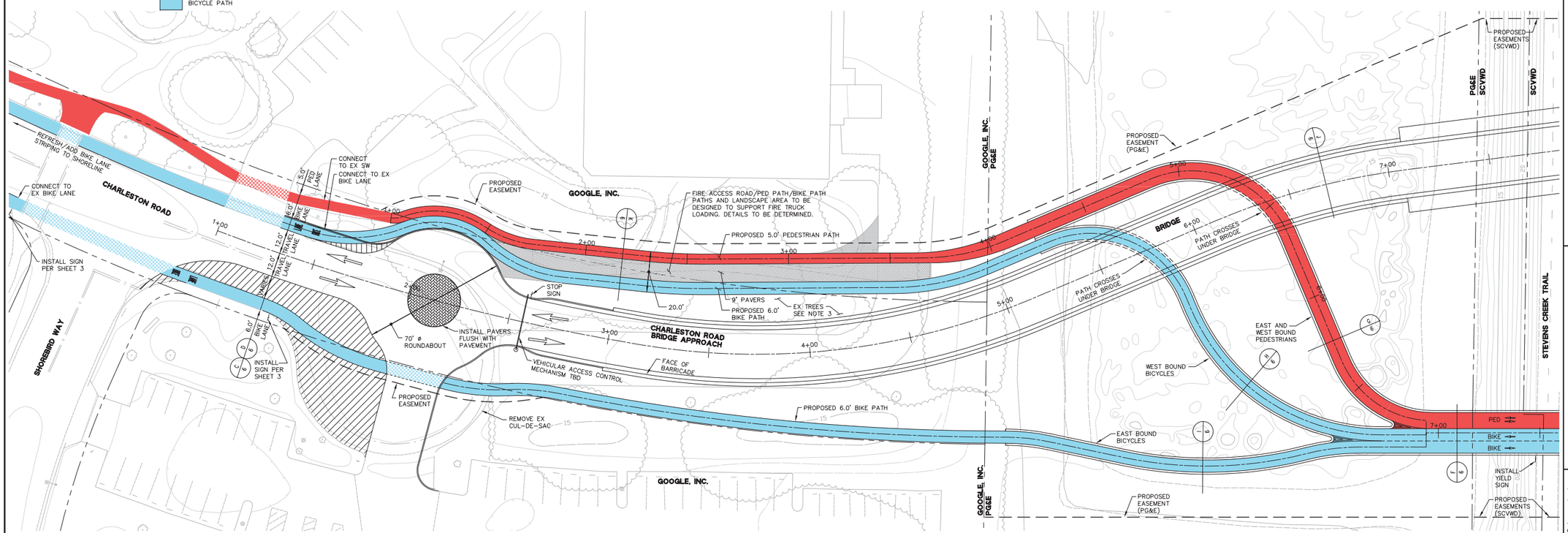
LEGEND:

PEDESTRIAN PATH

BICYCLE PATH

NOTES:

1. ELEVATIONS BASED ON AERIAL SURVEY THAT WAS COMPLETED BY AERIAL MAPPING SERVICES.
2. SEE SHEET 6 FOR CRITTENDEN LANE PARKING EXHIBIT.
3. APPLICANT WILL COMPLETE A TREE SURVEY AND ARBORIST REPORT TO MITIGATE TREES TO BE REMOVED.



CONNECTION TO CHARLESTON ROAD

1"=20'

PRELIMINARY - NOT FOR CONSTRUCTION
EXHIBIT 12A

BKF
255 SHORELINE DRIVE, STE 200
REDWOOD CITY, CA 94065
650/482-6300
650/482-6399 (FAX)
ENGINEERS/SURVEYORS/PLANNERS

STEVENS CREEK CROSSINGS PROJECT
CHARLESTON ROAD & CRITTENDEN LANE BRIDGES
SCHEMATIC ROADWAY CONNECTION DETAILS

SANTA CLARA COUNTY, CALIFORNIA

CITY OF MOUNTAIN VIEW

SARES REGIS
Sares Regis Group of Northern California, L.P.
2000 Alameda de las Pulgas, Suite 180 First
San Mateo, CA 94404
T: 650-378-2800 F: 650-570-2233

Date	01/18/2012
Scale	AS SHOWN
Design	MO
Drawn	MO
Approved	CJH
Job No	20110020

Drawing Number:

5 OF 6

DRAWING NAME: K:\Engin1\110020\DWG\3-BridgeCrossings\PLOTTED SHEETS\05 CONNECTIONS.dwg
PLOT DATE: 01-18-12 PLOTTED BY: OCON

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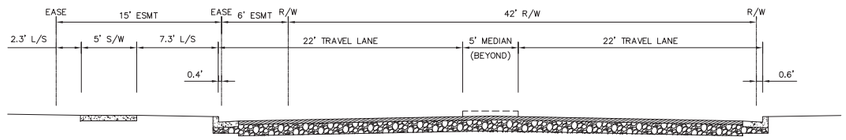
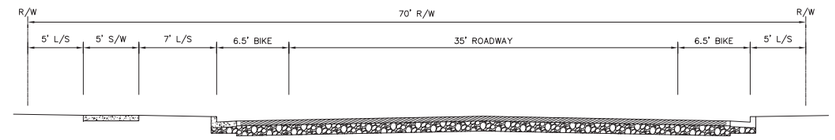
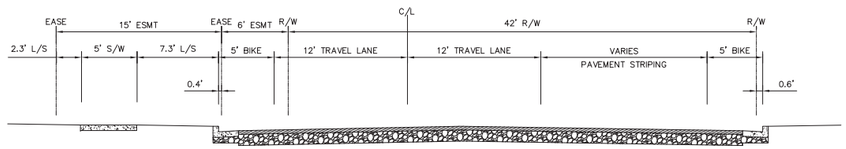


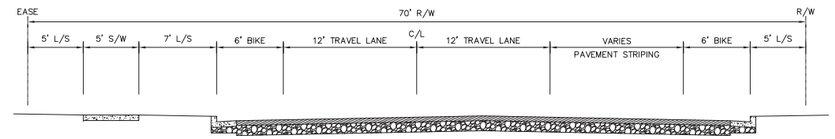
A CRITTENDEN LANE – EXISTING
1"=5'



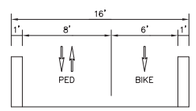
C CHARLESTON ROAD – EXISTING
1"=5'



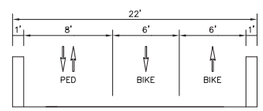
B CRITTENDEN LANE – PROPOSED
1"=5'



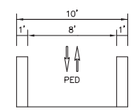
D CHARLESTON ROAD – PROPOSED
1"=5'



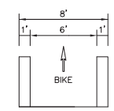
E PED/BIKE APPROACH STRUCTURE
CRITTENDEN



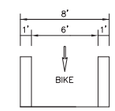
F PED/BIKE BRIDGE
CHARLESTON



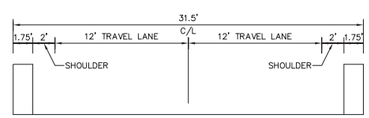
G PEDESTRIAN STRUCTURE
CHARLESTON



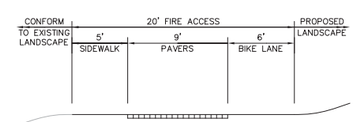
H WESTBOUND BIKE BRIDGE
CHARLESTON



I EASTBOUND BIKE BRIDGE
CHARLESTON



J VEHICULAR APPROACH STRUCTURE



K FIRE ACCESS
CHARLESTON

PRELIMINARY – NOT FOR CONSTRUCTION
EXHIBIT 12B

BKF
255 SHORELINE DRIVE, STE 200
REDWOOD CITY, CA 94065
650/482-6300
650/482-6399 (FAX)
ENGINEERS/SURVEYORS/PLANNERS

STEVENS CREEK CROSSINGS PROJECT
CHARLESTON ROAD & CRITTENDEN LANE BRIDGES
SCHEMATIC ROADWAY CONNECTION DETAILS

SANTA CLARA COUNTY, CALIFORNIA

CITY OF MOUNTAIN VIEW

SARES REGIS
Sares-Regis Group of Northern California, L.P.
2000 Alameda de las Pulgas, Suite 250
San Mateo, CA 94404
T: 650-378-2800 F: 650-570-2233

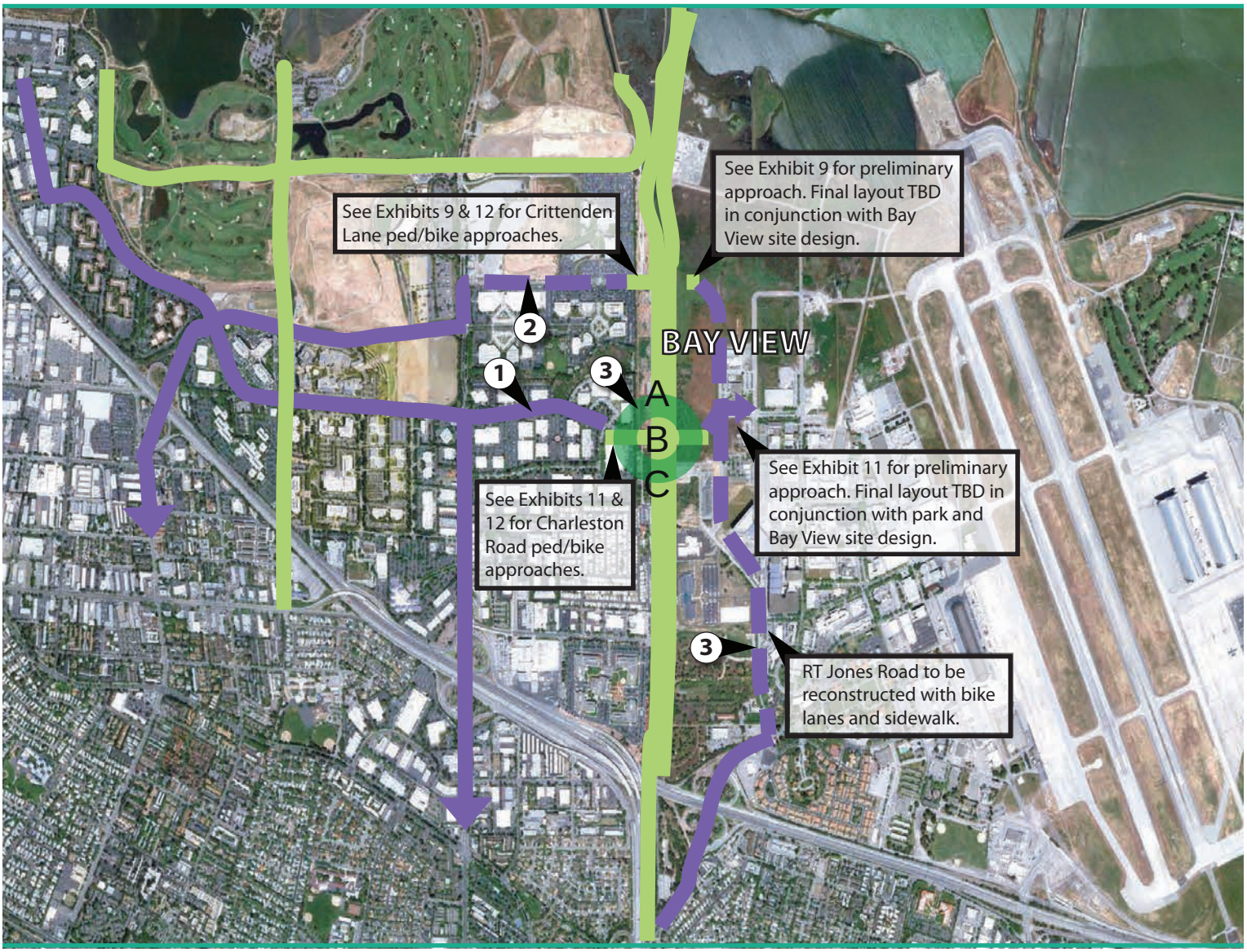
Date 01/18/2012
Scale AS SHOWN
Design MO
Drawn EM
Approved CJH
Job No 20110020

Drawing Number:

DRAWING NAME: K:\Eng11\110020\DWG\3-BridgeCrossings\PLOTTED SHEETS\06 SECTIONS.dwg
PLOT DATE: 01-18-12 PLOTTED BY: OCON

Stevens Creek Crossings Project

Trails & Bike Paths



Legend

A = Across
B = Barrier
C = Connection

Trail and Bike Path Improvements

1 Existing / Enhanced
2 New (Striping Added)
3 New Facilities

Existing class I bikeways; off street trails
Existing class II bikeways; lanes on streets
New Bike Path

STEVENS CREEK CROSSINGS PROJECT
TRAILS & BIKE PATHS

SARES|REGIS

EXHIBIT 16

Appendix D

Road Construction Emissions Model

Road Construction Emissions Model, Version 6.3.2

Emission Estimates for -> Charleston Bridges Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	2.5	10.6	19.9	5.8	0.8	5.0	1.8	0.8	1.0	2,293.7
Grading/Excavation	3.6	17.9	27.7	6.3	1.3	5.0	2.2	1.2	1.0	3,585.4
Drainage/Utilities/Sub-Grade	2.5	10.5	18.1	5.9	0.9	5.0	1.9	0.9	1.0	2,135.3
Paving	1.6	6.3	8.5	0.7	0.7	-	0.7	0.7	-	911.8
Maximum (pounds/day)	3.6	17.9	27.7	6.3	1.3	5.0	2.2	1.2	1.0	3,585.4
Total (tons/construction project)	0.4	1.7	2.8	0.7	0.1	0.6	0.2	0.1	0.1	342.8

Notes:

Project Start Year ->	2013
Project Length (months) ->	12
Total Project Area (acres) ->	3
Maximum Area Disturbed/Day (acres) ->	1
Total Soil Imported/Exported (yd^3/day)->	59

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> Charleston Bridges Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total PM10 (kgs/day)	Exhaust PM10 (kgs/day)	Fugitive Dust PM10 (kgs/day)	Total PM2.5 (kgs/day)	Exhaust PM2.5 (kgs/day)	Fugitive Dust PM2.5 (kgs/day)	CO2 (kgs/day)
Grubbing/Land Clearing	1.1	4.8	9.0	2.7	0.4	2.3	0.8	0.3	0.5	1,042.6
Grading/Excavation	1.6	8.1	12.6	2.9	0.6	2.3	1.0	0.5	0.5	1,629.7
Drainage/Utilities/Sub-Grade	1.1	4.8	8.2	2.7	0.4	2.3	0.9	0.4	0.5	970.6
Paving	0.7	2.9	3.9	0.3	0.3	-	0.3	0.3	-	414.5
Maximum (kilograms/day)	1.6	8.1	12.6	2.9	0.6	2.3	1.0	0.5	0.5	1,629.7
Total (megagrams/construction project)	0.3	1.6	2.5	0.6	0.1	0.5	0.2	0.1	0.1	311.0

Notes:

Project Start Year ->	2013
Project Length (months) ->	12
Total Project Area (hectares) ->	1
Maximum Area Disturbed/Day (hectares) ->	0
Total Soil Imported/Exported ($meters^3$/day)->	45

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sume of exhaust and fugitive dust emissions shown in columns K and L.

Reference:
Sacramento Metropolitan Air Quality Management District. 2009. Road Construction Emission Model, Version 6.3.2. July.
California Air Resources Board. 2011. The Carl Moyer Program Guidelines. Release Date: June 6, 2011.

Road Construction Emissions Model
Data Entry Worksheet

Version 6.3.2

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells C10 through C25.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Input Type

Project Name	Charleston Bridges	
Construction Start Year	2013	Enter a Year between 2005 and 2025 (inclusive)
Project Type	3	1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction
Project Construction Time	12.0	months
Predominant Soil/Site Type: Enter 1, 2, or 3	1	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
Project Length	0.3	miles
Total Project Area	3.3	acres
Maximum Area Disturbed/Day	0.5	acres
Water Trucks Used?	1	1. Yes 2. No
Soil Imported	46.9	yd^3/day
Soil Exported	11.7	yd^3/day
Average Truck Capacity	20.0	yd^3 (assume 20 if unknown)

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C34 through C37.

Construction Periods	User Override of Construction Months	Program Calculated Months	2005	%	2006	%	2007	%
Grubbing/Land Clearing		1.20	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation		4.80	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade		4.20	0.00	0.00	0.00	0.00	0.00	0.00
Paving		1.80	0.00	0.00	0.00	0.00	0.00	0.00
Totals	0.00	12.00						

Hauling emission default values can be overridden in cells C45 through C46.

Soil Hauling Emissions	User Override of Soil Hauling Defaults	Default Values
User Input		
Miles/round trip		30
Round trips/day		3
Vehicle miles traveled/day (calculated)		88

Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate (grams/mile)	0.84	10.25	5.45	0.40	0.33	1874.76
Emission rate (grams/trip)	10.32	7.57	172.85	0.01	0.01	199.87
Pounds per day	0.3	2.1	3.3	0.1	0.1	366.0
Tons per contruction period	0.02	0.11	0.17	0.00	0.00	19.32

Worker commute default values can be overridden in cells C60 through C65.

Worker Commute Emissions	User Override of Worker Commute Default Values	Default Values
Miles/ one-way trip		20
One-way trips/day		2
No. of employees: Grubbing/Land Clearing		3
No. of employees: Grading/Excavation		7
No. of employees: Drainage/Utilities/Sub-Grade		6
No. of employees: Paving		5

	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate - Grubbing/Land Clearing (grams/mile)	0.118	0.211	2.201	0.033	0.018	426.660
Emission rate - Grading/Excavation (grams/mile)	0.118	0.211	2.201	0.033	0.018	426.660
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.118	0.211	2.201	0.033	0.018	426.660
Emission rate - Paving (grams/mile)	0.118	0.211	2.201	0.033	0.018	426.660
Emission rate - Grubbing/Land Clearing (grams/trip)	0.746	0.316	7.305	0.130	0.013	192.690
Emission rate - Grading/Excavation (grams/trip)	0.746	0.316	7.305	0.130	0.013	192.690
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.746	0.316	7.305	0.130	0.013	192.690
Emission rate - Paving (grams/trip)	0.746	0.316	7.305	0.130	0.013	192.690
Pounds per day - Grubbing/Land Clearing	0.055	0.069	0.839	0.013	0.006	127.689
Tons per const. Period - Grub/Land Clear	0.001	0.001	0.011	0.000	0.000	1.685
Pounds per day - Grading/Excavation	0.119	0.069	0.839	0.013	0.006	127.689
Tons per const. Period - Grading/Excavation	0.006	0.004	0.044	0.001	0.000	6.742
Pounds per day - Drainage/Utilities/Sub-Grade	0.098	0.069	0.839	0.013	0.006	127.689
Tons per const. Period - Drain/Util/Sub-Grade	0.005	0.003	0.039	0.001	0.000	5.899
Pounds per day - Paving	0.076	0.069	0.839	0.013	0.006	174.678
Tons per const. Period - Paving	0.002	0.001	0.017	0.000	0.000	3.459
tons per construction period	0.013	0.009	0.111	0.002	0.001	17.785

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.

Water Truck Emissions

	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Miles Traveled/Day	Default Values Miles Traveled/Day
Grubbing/Land Clearing - Exhaust		1		40
Grading/Excavation - Exhaust	2.00	1		40
Drainage/Utilities/Subgrade		1		40

	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate - Grubbing/Land Clearing (grams/mile)	0.84	10.25	5.45	0.40	0.33	1874.76
Emission rate - Grading/Excavation (grams/mile)	0.84	10.25	5.45	0.40	0.33	1874.76
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.84	10.25	5.45	0.40	0.33	1874.76
Pounds per day - Grubbing/Land Clearing	0.07	0.90	0.48	0.04	0.03	165.18
Tons per const. Period - Grub/Land Clear	0.00	0.05	0.03	0.00	0.00	8.72
Pound per day - Grading/Excavation	0.15	1.81	0.96	0.07	0.06	330.35
Tons per const. Period - Grading/Excavation	0.01	0.10	0.05	0.00	0.00	17.44
Pound per day - Drainage/Utilities/Subgrade	0.07	0.90	0.48	0.04	0.03	165.18
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.04	0.02	0.00	0.00	7.63

Fugitive dust default values can be overridden in cells C110 through C112.

Fugitive Dust

	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing		0.5	5.0	0.1	1.0	0.0
Fugitive Dust - Grading/Excavation		0.5	5.0	0.3	1.0	0.1
Fugitive Dust - Drainage/Utilities/Subgrade		0.5	5.0	0.2	1.0	0.0

Off-Road Equipment Emissions

Grubbing/Land Clearing Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	CO2 pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
		Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
	1	Rubber Tired Dozers	1.02	4.52	8.70	0.36	0.33	844.60
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
	1	Scrapers	1.07	4.07	9.53	0.37	0.34	1082.50
	1	Signal Boards	0.24	0.70	0.70	0.06	0.06	73.75
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Grubbing/Land Clearing	pounds per day	2.3	9.3	18.9	0.8	0.7	2000.9
	Grubbing/Land Clearing	tons per phase	0.0	0.1	0.2	0.0	0.0	26.4

Grading/Excavation Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	CO2 pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
	1	Cranes	0.43	1.46	3.94	0.14	0.13	498.83
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	1	Excavators	0.39	2.17	2.91	0.17	0.15	364.91
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
	1	Graders	0.52	2.58	3.94	0.22	0.20	435.45
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00

		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Rubber Tired Loaders	0.36	1.81	2.74	0.15	0.14	305.91
	1	Scrapers	1.07	4.07	9.53	0.37	0.34	1082.50
	1	Signal Boards	0.24	0.70	0.70	0.06	0.06	73.75
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation	pounds per day	3.0	12.8	23.8	1.1	1.0	2761.3
	Grading	tons per phase	0.2	0.7	1.3	0.1	0.1	145.8

Drainage/Utilities/Subgrade	Default Number of Vehicles		ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	*Program-estimate*		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
	1	Graders	0.52	2.58	3.94	0.22	0.20	435.45
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	1	Plate Compactors	0.02	0.09	0.11	0.00	0.00	14.83
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
	1	Scrapers	1.07	4.07	9.53	0.37	0.34	1082.50
	1	Signal Boards	0.24	0.70	0.70	0.06	0.06	73.75
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
	1	Trenchers	0.47	1.70	2.86	0.24	0.22	235.89
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Drainage	pounds per day	2.3	9.2	17.1	0.9	0.8	1842.4
	Drainage	tons per phase	0.1	0.4	0.8	0.0	0.0	85.1

Paving	Default Number of Vehicles		ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	*Program-estimate*	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
		Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	1	Pavers	0.53	1.91	3.16	0.28	0.25	261.61
	1	Paving Equipment	0.40	1.44	2.39	0.21	0.19	198.31
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
	1	Rollers	0.34	1.40	2.16	0.18	0.17	203.48
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Signal Boards	0.24	0.70	0.70	0.06	0.06	73.75
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00

		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Paving	pounds per day	1.5	5.5	8.4	0.7	0.7	737.1
	Paving	tons per phase	0.0	0.1	0.2	0.0	0.0	14.6
Total Emissions all Phases (tons per construction period) =>			0.3	1.3	2.5	0.1	0.1	271.9

Equipment default values for horsepower, load factor, and hours/day can be overridden in cells C285 through C317, E285 through E317, and G285 through G317.

The load factors are updated to reflect the values presented the 2011 Carl Moyer Guidelines, which are based on ARB's most recently released load factor data (California Air Resources Board 2011).

Equipment		Default Values Horsepower	2011 Carl Moyer Guidelines Load Factor	Default Values Load Factor		Default Values Hours/day
Aerial Lifts		60	0.41	0.46		8
Air Compressors		106	0.43	0.48		8
Bore/Drill Rigs		291	0.50	0.75		8
Cement and Mortar Mixers		10	0.43	0.56		8
Concrete/Industrial Saws		19	0.43	0.73		8
Cranes		399	0.29	0.43		8
Crushing/Proc. Equipment		142	0.78	0.78		8
Excavators		168	0.38	0.57		8
Forklifts		145	0.20	0.30		8
Generator Sets		549	0.43	0.74		8
Graders		174	0.41	0.61		8
Off-Highway Tractors		267	0.44	0.65		8
Off-Highway Trucks		479	0.38	0.57		8
Other Construction Equipment		75	0.42	0.62		8
Other General Industrial Equipment		238	0.34	0.51		8
Other Material Handling Equipment		191	0.40	0.59		8
Pavers		100	0.42	0.62		8
Paving Equipment		104	0.36	0.53		8
Plate Compactors		8	0.43	0.43		8
Pressure Washers		1	0.43	0.60		8
Pumps		53	0.43	0.74		8
Rollers		95	0.38	0.56		8
Rough Terrain Forklifts		93	0.40	0.60		8
Rubber Tired Dozers		357	0.40	0.59		8
Rubber Tired Loaders		157	0.36	0.54		8
Scrapers		313	0.48	0.72		8
Signal Boards		20	0.78	0.78		8
Skid Steer Loaders		44	0.37	0.55		8
Surfacing Equipment		362	0.30	0.45		8
Sweepers/Scrubbers		91	0.46	0.68		8
Tractors/Loaders/Backhoes		108	0.43	0.55		8
Trenchers		63	0.50	0.75		8
Welders		45	0.43	0.45		8

Road Construction Emissions Model, Version 6.3.2

Emission Estimates for -> Crittenden Bridge Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	2.5	10.6	19.9	5.8	0.8	5.0	1.8	0.8	1.0	2,293.7
Grading/Excavation	3.7	19.5	28.8	6.3	1.3	5.0	2.2	1.2	1.0	3,768.3
Drainage/Utilities/Sub-Grade	2.5	10.5	18.1	5.9	0.9	5.0	1.9	0.9	1.0	2,135.3
Paving	1.6	6.3	8.5	0.7	0.7	-	0.7	0.7	-	911.8
Maximum (pounds/day)	3.7	19.5	28.8	6.3	1.3	5.0	2.2	1.2	1.0	3,768.3
Total (tons/construction project)	0.3	1.2	1.9	0.5	0.1	0.4	0.2	0.1	0.1	235.0

Notes:

Project Start Year ->	2013
Project Length (months) ->	8
Total Project Area (acres) ->	3
Maximum Area Disturbed/Day (acres) ->	1
Total Soil Imported/Exported (yd^3/day)->	88

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> Crittenden Bridge Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total PM10 (kgs/day)	Exhaust PM10 (kgs/day)	Fugitive Dust PM10 (kgs/day)	Total PM2.5 (kgs/day)	Exhaust PM2.5 (kgs/day)	Fugitive Dust PM2.5 (kgs/day)	CO2 (kgs/day)
Grubbing/Land Clearing	1.1	4.8	9.0	2.7	0.4	2.3	0.8	0.3	0.5	1,042.6
Grading/Excavation	1.7	8.9	13.1	2.9	0.6	2.3	1.0	0.5	0.5	1,712.9
Drainage/Utilities/Sub-Grade	1.1	4.8	8.2	2.7	0.4	2.3	0.9	0.4	0.5	970.6
Paving	0.7	2.9	3.9	0.3	0.3	-	0.3	0.3	-	414.5
Maximum (kilograms/day)	1.7	8.9	13.1	2.9	0.6	2.3	1.0	0.5	0.5	1,712.9
Total (megagrams/construction project)	0.2	1.1	1.7	0.4	0.1	0.3	0.1	0.1	0.1	213.1

Notes:

Project Start Year ->	2013
Project Length (months) ->	8
Total Project Area (hectares) ->	1
Maximum Area Disturbed/Day (hectares) ->	0
Total Soil Imported/Exported ($meters^3$/day)->	67

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sume of exhaust and fugitive dust emissions shown in columns K and L.

Reference:
Sacramento Metropolitan Air Quality Management District. 2009. Road Construction Emission Model, Version 6.3.2. July.
California Air Resources Board. 2011. The Carl Moyer Program Guidelines. Release Date: June 6, 2011.

Road Construction Emissions Model
Data Entry Worksheet

Version 6.3.2

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells C10 through C25.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

Input Type

Project Name	Crittenden Bridge	
Construction Start Year	2013	Enter a Year between 2005 and 2025 (inclusive)
Project Type	3	1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction
Project Construction Time	8.0	months
Predominant Soil/Site Type: Enter 1, 2, or 3	1	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
Project Length	0.3	miles
Total Project Area	3.3	acres
Maximum Area Disturbed/Day	0.5	acres
Water Trucks Used?	1	1. Yes 2. No
Soil Imported	70.4	yd^3/day
Soil Exported	17.6	yd^3/day
Average Truck Capacity	20.0	yd^3 (assume 20 if unknown)

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C34 through C37.

Construction Periods	User Override of Construction Months	Program Calculated Months	2005	%	2006	%	2007	%
Grubbing/Land Clearing		0.80	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation		3.20	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade		2.80	0.00	0.00	0.00	0.00	0.00	0.00
Paving		1.20	0.00	0.00	0.00	0.00	0.00	0.00
Totals	0.00	8.00						

Hauling emission default values can be overridden in cells C45 through C46.

Soil Hauling Emissions	User Override of Soil Hauling Defaults	Default Values
User Input		
Miles/round trip		30
Round trips/day		4
Vehicle miles traveled/day (calculated)		132

Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate (grams/mile)	0.84	10.25	5.45	0.40	0.33	1874.76
Emission rate (grams/trip)	10.32	7.57	172.85	0.01	0.01	199.87
Pounds per day	0.4	3.1	4.9	0.1	0.1	549.0
Tons per contruction period	0.02	0.11	0.17	0.00	0.00	19.32

Worker commute default values can be overridden in cells C60 through C65.

Worker Commute Emissions	User Override of Worker Commute Default Values	Default Values
Miles/ one-way trip		20
One-way trips/day		2
No. of employees: Grubbing/Land Clearing		3
No. of employees: Grading/Excavation		7
No. of employees: Drainage/Utilities/Sub-Grade		6
No. of employees: Paving		5

	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate - Grubbing/Land Clearing (grams/mile)	0.118	0.211	2.201	0.033	0.018	426.660
Emission rate - Grading/Excavation (grams/mile)	0.118	0.211	2.201	0.033	0.018	426.660
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.118	0.211	2.201	0.033	0.018	426.660
Emission rate - Paving (grams/mile)	0.118	0.211	2.201	0.033	0.018	426.660
Emission rate - Grubbing/Land Clearing (grams/trip)	0.746	0.316	7.305	0.130	0.013	192.690
Emission rate - Grading/Excavation (grams/trip)	0.746	0.316	7.305	0.130	0.013	192.690
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.746	0.316	7.305	0.130	0.013	192.690
Emission rate - Paving (grams/trip)	0.746	0.316	7.305	0.130	0.013	192.690
Pounds per day - Grubbing/Land Clearing	0.055	0.069	0.839	0.013	0.006	127.689
Tons per const. Period - Grub/Land Clear	0.000	0.001	0.007	0.000	0.000	1.124
Pounds per day - Grading/Excavation	0.119	0.069	0.839	0.013	0.006	127.689
Tons per const. Period - Grading/Excavation	0.004	0.002	0.030	0.000	0.000	4.495
Pounds per day - Drainage/Utilities/Sub-Grade	0.098	0.069	0.839	0.013	0.006	127.689
Tons per const. Period - Drain/Util/Sub-Grade	0.003	0.002	0.026	0.000	0.000	3.933
Pounds per day - Paving	0.076	0.069	0.839	0.013	0.006	174.678
Tons per const. Period - Paving	0.001	0.001	0.011	0.000	0.000	2.306
tons per construction period	0.009	0.006	0.074	0.001	0.000	11.857

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.

Water Truck Emissions

	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Miles Traveled/Day	Default Values Miles Traveled/Day
Grubbing/Land Clearing - Exhaust		1		40
Grading/Excavation - Exhaust	2.00	1		40
Drainage/Utilities/Subgrade		1		40

	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate - Grubbing/Land Clearing (grams/mile)	0.84	10.25	5.45	0.40	0.33	1874.76
Emission rate - Grading/Excavation (grams/mile)	0.84	10.25	5.45	0.40	0.33	1874.76
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.84	10.25	5.45	0.40	0.33	1874.76
Pounds per day - Grubbing/Land Clearing	0.07	0.90	0.48	0.04	0.03	165.18
Tons per const. Period - Grub/Land Clear	0.00	0.03	0.02	0.00	0.00	5.81
Pound per day - Grading/Excavation	0.15	1.81	0.96	0.07	0.06	330.35
Tons per const. Period - Grading/Excavation	0.01	0.06	0.03	0.00	0.00	11.63
Pound per day - Drainage/Utilities/Subgrade	0.07	0.90	0.48	0.04	0.03	165.18
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.03	0.01	0.00	0.00	5.09

Fugitive dust default values can be overridden in cells C110 through C112.

Fugitive Dust

	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing		0.5	5.0	0.0	1.0	0.0
Fugitive Dust - Grading/Excavation		0.5	5.0	0.2	1.0	0.0
Fugitive Dust - Drainage/Utilities/Subgrade		0.5	5.0	0.2	1.0	0.0

Off-Road Equipment Emissions

Grubbing/Land Clearing Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	CO2 pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
		Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
	1	Rubber Tired Dozers	1.02	4.52	8.70	0.36	0.33	844.60
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
	1	Scrapers	1.07	4.07	9.53	0.37	0.34	1082.50
	1	Signal Boards	0.24	0.70	0.70	0.06	0.06	73.75
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Grubbing/Land Clearing	pounds per day	2.3	9.3	18.9	0.8	0.7	2000.9
	Grubbing/Land Clearing	tons per phase	0.0	0.1	0.2	0.0	0.0	17.6

Grading/Excavation Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	CO2 pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
	1	Cranes	0.43	1.46	3.94	0.14	0.13	498.83
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	1	Excavators	0.39	2.17	2.91	0.17	0.15	364.91
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
	1	Graders	0.52	2.58	3.94	0.22	0.20	435.45
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00

		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Rubber Tired Loaders	0.36	1.81	2.74	0.15	0.14	305.91
	1	Scrapers	1.07	4.07	9.53	0.37	0.34	1082.50
	1	Signal Boards	0.24	0.70	0.70	0.06	0.06	73.75
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation	pounds per day	3.0	12.8	23.8	1.1	1.0	2761.3
	Grading	tons per phase	0.1	0.5	0.8	0.0	0.0	97.2

Drainage/Utilities/Subgrade	Default Number of Vehicles		ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	*Program-estimate*		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
	1	Graders	0.52	2.58	3.94	0.22	0.20	435.45
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	1	Plate Compactors	0.02	0.09	0.11	0.00	0.00	14.83
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
	1	Scrapers	1.07	4.07	9.53	0.37	0.34	1082.50
	1	Signal Boards	0.24	0.70	0.70	0.06	0.06	73.75
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
	1	Trenchers	0.47	1.70	2.86	0.24	0.22	235.89
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Drainage	pounds per day	2.3	9.2	17.1	0.9	0.8	1842.4
	Drainage	tons per phase	0.1	0.3	0.5	0.0	0.0	56.7

Paving	Default Number of Vehicles		ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	*Program-estimate*	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
		Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	1	Pavers	0.53	1.91	3.16	0.28	0.25	261.61
	1	Paving Equipment	0.40	1.44	2.39	0.21	0.19	198.31
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
	1	Rollers	0.34	1.40	2.16	0.18	0.17	203.48
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Signal Boards	0.24	0.70	0.70	0.06	0.06	73.75
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00

		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Paving	pounds per day	1.5	5.5	8.4	0.7	0.7	737.1
	Paving	tons per phase	0.0	0.1	0.1	0.0	0.0	9.7
Total Emissions all Phases (tons per construction period) =>			0.2	0.9	1.6	0.1	0.1	181.3

Equipment default values for horsepower, load factor, and hours/day can be overridden in cells C285 through C317, E285 through E317, and G285 through G317.

The load factors are updated to reflect the values presented the 2011 Carl Moyer Guidelines, which are based on ARB's most recently released load factor data (California Air Resources Board 2011).

Equipment		Default Values Horsepower	2011 Carl Moyer Guidelines Load Factor	Default Values Load Factor		Default Values Hours/day
Aerial Lifts		60	0.41	0.46		8
Air Compressors		106	0.43	0.48		8
Bore/Drill Rigs		291	0.50	0.75		8
Cement and Mortar Mixers		10	0.43	0.56		8
Concrete/Industrial Saws		19	0.43	0.73		8
Cranes		399	0.29	0.43		8
Crushing/Proc. Equipment		142	0.78	0.78		8
Excavators		168	0.38	0.57		8
Forklifts		145	0.20	0.30		8
Generator Sets		549	0.43	0.74		8
Graders		174	0.41	0.61		8
Off-Highway Tractors		267	0.44	0.65		8
Off-Highway Trucks		479	0.38	0.57		8
Other Construction Equipment		75	0.42	0.62		8
Other General Industrial Equipment		238	0.34	0.51		8
Other Material Handling Equipment		191	0.40	0.59		8
Pavers		100	0.42	0.62		8
Paving Equipment		104	0.36	0.53		8
Plate Compactors		8	0.43	0.43		8
Pressure Washers		1	0.43	0.60		8
Pumps		53	0.43	0.74		8
Rollers		95	0.38	0.56		8
Rough Terrain Forklifts		93	0.40	0.60		8
Rubber Tired Dozers		357	0.40	0.59		8
Rubber Tired Loaders		157	0.36	0.54		8
Scrapers		313	0.48	0.72		8
Signal Boards		20	0.78	0.78		8
Skid Steer Loaders		44	0.37	0.55		8
Surfacing Equipment		362	0.30	0.45		8
Sweepers/Scrubbers		91	0.46	0.68		8
Tractors/Loaders/Backhoes		108	0.43	0.55		8
Trenchers		63	0.50	0.75		8
Welders		45	0.43	0.45		8

Stevens Creek Crossings - GHG Emissions Estimate

CO2 Emissions from RCEM outputs

Tons per Year		
Phase	Diesel	Gasoline
	CO2	CO2
Charleston Bridges (Year 1)	325	18
Charleston Bridge (Year 2)	223	12

MT/Short Tons	0.90718			
MT/LBS	0.00045			
Diesel Fuel	**CO2**	**CH4**	**N2O**	**Percent other GHGs (on road)**
kg CO2/gal diesel	10.15	0.00058	0.00026	5.00%
g/gal diesel construction equip		0.58	0.26	
ratio	1	5.71E-05	2.56E-05	

GHG Emissions

MT CO2e						
Phase	Diesel Equipment			Gasoline		Total
	CO2	CH4	N2O	CO2	Other	GHGs
Charleston Bridges (Year 1)	295	0.02	0.008	16	0.85	315
Charleston Bridge (Year 2)	202	0.01	0.005	11	0.57	216
Project-wide Total	497	0.03	0.01	27	1.42	530

CH4 and N2O are calculated by scaling the estimated CO2 emissions according to the California Climate Action Registry (2009) and EPA (U.S. Environmental Protection Agency 2011).

California Climate Action Registry. 2009. Climate Action Registry General Reporting Protocol Version 3.1. January.
Available: <http://www.climateregistry.org/resources/docs/protocols/grp/GRP_3.1_January2009.pdf>. Accessed: April 19, 2010.
U.S. Environmental Protection Agency. 2011. Emission Facts: Greenhouse Gas Emissions from a Typical Passenger Vehicle.
Available: < http://www.epa.gov/oms/climate/420f05004.htm>. Accessed: August 2, 2011.

Stevens Creek Crossings - Charleston Road Bridges Health Risks

DPM Concentrations and Health Risks at Residential Receptor 800 feet from Charleston Road Bridges

				PM10 Exhaust		DPM Concentration and Health Risk at Resident 800 feet from Source							
Construction Phase	Equipment Operation (hours/day)	Construction Duration (days)	Disturbed Area	Maximum On-Site Daily Emissions (lbs/day)	Average Hourly Emissions (lbs/hour)	Maximum Hourly Concentration (ug/m3)	Hourly to Annual Conversion Factor	Average Annual Concentration (ug/m3)	Daily Breath Rate (L/kg)	Lifetime Exposure Adjustment	Average Age Sensitivity Factor (ASF)	Cancer Potency Factor	DPM Cancer Risk (per Million)
Grubbing/Land Clearing	8	26	60' x 300'	0.83	0.1033	9.66	0.1	0.023	302	0.014	1.7	1.1	0.188
Grading/Excavation	8	106		1.19	0.1485	13.9		0.134					1.081
Drainage	8	92		0.94	0.1170	10.92		0.092					0.743
Paving	8	40		0.73	0.0913	8.55		0.031					0.249

Project Level Analysis

Average Total Annual Concentration	0.28	Total DPM Cancer Risk per Million	2.26
Chronic Reference Exposure Level (REL) per OEHHA	5		
DPM Non-Cancer Hazard Index (HI)	**0.06**		
BAAQMD Threshold	**1**	**BAAQMD Threshold**	**10**

Cumulative Analysis

Maximum Project Level Non-Cancer HI	0.06	Maximum Project Level DPM Cancer Risk per Million	2.26
Background Non-Cancer HI	0.00	Background DPM Cancer Risk per Million	0.00
Cumulative Non-Cancer HI	**0.06**	**Cumulative DPM Cancer Risk per Million**	**2.3**
BAAQMD Threshold	**10**	**BAAQMD Threshold**	**100**

PM2.5 Concentrations at Residential Receptor 800 feet from Charleston Road Bridges

				PM2.5 Exhaust		PM2.5 Concentration at 800 feet from Source		
Construction Phase	Equipment Operation (hours/day)	Construction Duration (days)	Disturbed Area	Maximum On-Site Daily Emissions (lbs/day)	Average Hourly Emissions (lbs/hour)	Maximum Hourly Concentration (ug/m3)	Hourly to Annual Conversion Factor	Average Annual Concentration (ug/m3)
Grubbing/Land Clearing	8	26	60' x 300'	0.76	0.0946	8.84	0.1	0.021
Grading/Excavation	8	106		1.09	0.1358	12.71		0.123
Drainage	8	92		0.86	0.1072	10.03		0.085
Paving	8	40		0.67	0.0840	7.88		0.028

Project Level Analysis

Average Total Annual Concentration	0.26
BAAQMD Threshold	**0.3**

Cumulative Analysis

Maximum Project Level Non-Cancer HI	0.26
Background Non-Cancer HI	0.00
Cumulative Non-Cancer HI	**0.26**
BAAQMD Threshold	**0.8**

Background Sources

ID	Plant No	Plant
257	15452	Siemens Medical Solutions USA, Inc Ultra
265	4882	B & M Collision Repair

Appendix E

Special-Status Species Lists

Antrozous pallidus

pallid bat

Element Code: AMACC10010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5
State: S3

Other Lists
CDFG Status: SC

Habitat Associations
General: DESERTS, GRASSLANDS, SHRUBLANDS, WOODLANDS & FORESTS. MOST COMMON IN OPEN, DRY HABITATS WITH ROCKY AREAS FOR ROOSTING.
Micro: ROOSTS MUST PROTECT BATS FROM HIGH TEMPERATURES. VERY SENSITIVE TO DISTURBANCE OF ROOSTING SITES.

Occurrence No. 253 **Map Index:** 66583 **EO Index:** 66720
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1945-08-06
Site: 1945-08-06
Record Last Updated: 2006-10-04

Quad Summary: Cupertino (3712231/428D), Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.38503º / -122.09747º
UTM: Zone-10 N4137968 E579896
Radius: 1 mile
Elevation: 157 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT

Township: 06S
Range: 02W
Section: 29 **Qtr:** XX
Meridian: M

Location: LOS ALTOS AND MOUNTAIN VIEW.

Location Detail: EXACT LOCATION UNKNOWN. MAPPED IN THE GENERAL VICINITY OF LOS ALTOS AND MOUNTAIN VIEW.

General: 1 UNKNOWN SPECIMEN COLLECTED BY E.M. EHRHORN, CAS #17229. 1 MALE AND 1 UNKNOWN SPECIMEN COLLECTED BY K. CARNIE ON 6 AUG 1945, CAS #17230-17231.

Owner/Manager: UNKNOWN

Astragalus tener var. tener

alkali milk-vetch

Element Code: PDFAB0F8R1

Status
Federal: None
State: None

NDDB Element Ranks
Global: G2T2
State: S2

Other Lists
CNPS List: 1B.2

Habitat Associations
General: ALKALI PLAYA, VALLEY AND FOOTHILL GRASSLAND, VERNAL POOLS.
Micro: LOW GROUND, ALKALI FLATS, AND FLOODED LANDS; IN ANNUAL GRASSLAND OR IN PLAYAS OR VERNAL POOLS. 1-170M.

Occurrence No. 11 **Map Index:** 09518 **EO Index:** 8259

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Possibly Extirpated
Trend: Unknown

Dates Last Seen
Element: 1905-04-04
Site: 2002-03-07
Record Last Updated: 2008-01-02

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.44021º / -122.10496º
UTM: Zone-10 N4144084 E579176
Radius: 1 mile
Elevation: 5 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT

Township: 06S
Range: 02W
Section: 05 **Qtr:** XX
Meridian: M

Location: MAYFIELD.

Location Detail: THE TOWN OF MAYFIELD WAS INCORPOARTED INTO PALO ALTO IN THE EARLY 1900'S. BECAUSE THE COLLECTION WAS MADE NEAR THE SALT MARSH AND AN OLD CANNERY, THE SITE IS PRESUMED TO BE NEAR PALO ALTO. COLLECTION MAPPED NEAR MAYFIELD SLOUGH.

Ecological: GROWING ALONG THE BORDER OF SALT MARSH.

General: ONLY INFO FOR THIS SITE IS 1905 COLLECTION BY W. DUDLEY. WITHAM VISITED SITE IN 2002 AND FOUND SEMI-NATURAL HABITAT IN THE BAYLANDS NATURE PRESERVE, BUT PROBABLY TOO WET. MAYFIELD SLOUGH IS LINED WITH CONCRETE. NO PLANTS FOUND.

Owner/Manager: UNKNOWN

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G4
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.
Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 21 **Map Index:** 25862 **EO Index:** 17191
Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2008-01-29
Site: 2008-01-29
Record Last Updated: 2009-09-15

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.44892º / -122.10446º
UTM: Zone-10 N4145051 E579211
Area:
Elevation: 5 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 05S
Range: 02W
Section: 32 **Qtr:** XX
Meridian: M

Location: CITY OF PALO ALTO'S BYXBEE PARK, 1 MI E OF HWY 101 @ EMBARCADERO, JUST E OF CITY DUMP & W OF MAYFIELD SLOUGH, PALO ALTO.

Location Detail: PART OF CITY OF PALO ALTO BAYLANDS PRESERVE.

Ecological: NON-NATIVE ANNUAL GRASSLAND AND RUDERAL VEGETATION COVERING CAPPED LANDFILL SURROUNDED BY TIDAL MARSH, BUSSINESS PARKS, AND A SMALL AIRPORT. THE CITY IS PLANNING TO CLOSE THE LANDFILL AND RESTORE WILDLIFE HABITAT (2009, CITYOFPALOALTO.ORG).

Threat: THREATENED BY EXPANSION OF THE PALO ALTO LANDFILL (OLD), DEVELOPMENT NEAR SHORELINE PARK, & HUNTING ON LESLIE SALT LAND.

General: MVZ EGG SET #3248 FROM "NEAR PALO ALTO" 2 MAY 1911. SEVERAL OBS OF 1-3 PAIRS FROM 1978 TO 1982 BY O'HALLORAN & BLAKE; NONE OBS BY BLAKE IN 1983. 6 BURROW SITES OBS FROM 1998-2003. 1 WINTERING ADULT OBS AT BURROW ON 29 JAN 2008.

Owner/Manager: CITY OF PALO ALTO

Occurrence No. 22 **Map Index:** 09747 **EO Index:** 25486
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX
Record Last Updated: 1989-08-10

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.41188º / -122.01940º
UTM: Zone-10 N4141016 E586778
Radius: 1/5 mile
Elevation: 5 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT
Township: 06S
Range: 01W
Section: 18 **Qtr:** XX
Meridian: M

Location: 0.75 MI WEST ON FAIR OAKS AVE FROM JCT WITH ALVISO FWY, NORTHERN SUNNYVALE.

General: VERY URBANIZED AREA; SALT EVAPORATOR PONDS TO THE NORTH. ACTIVE COLONY IN 1983.

Owner/Manager: PVT

Occurrence No. 23 **Map Index:** 09749 **EO Index:** 25485
Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2004-XX-XX
Site: 2004-XX-XX
Record Last Updated: 2008-03-10

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.41945º / -122.01919º
UTM: Zone-10 N4141856 E586787
Area:
Elevation:
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 06S
Range: 01W
Section: 07 **Qtr:** XX
Meridian: M

Location: 1.5 MI N OF JCT HWY 101 AND MATHILDA AVE, N END OF SUNNYVALE.

General: VERY URBANIZED AREA; SALT EVAPORATOR PONDS TO THE NORTH. ACTIVE COLONY IN 1983. 9 BURROW SITES OBSERVED FROM 1999-2004.

Owner/Manager: PVT

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G4
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.
Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 24 **Map Index:** 09797 **EO Index:** 25484
Occ Rank: None
Origin: Natural/Native occurrence
Presence: Possibly Extirpated
Trend: Unknown

Dates Last Seen
Element: XXXX-XX-XX
Site: XXXX-XX-XX
Record Last Updated: 1999-09-24

Quad Summary: Mountain View (3712241/428A), Milpitas (3712148/427B)
County Summary: Santa Clara

Lat/Long: 37.45321º / -122.00923º
UTM: Zone-10 N4145611 E587629
Radius: 3/5 mile
Elevation:
Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT
Township: 05S
Range: 01W
Section: 31 **Qtr:** XX
Meridian: M

Location: SOUTHEAST OF JUNCTION OF COYOTE CREEK AND ALVISO SLOUGH, NORTH OF SUNNYVALE.

General: COLONY INACTIVE OR EXTIRPATED; DATE OWLS LAST OBSERVED UNKNOWN.

Owner/Manager: PVT

Occurrence No. 25 **Map Index:** 09536 **EO Index:** 25483
Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2008-05-28
Site: 2008-05-28
Record Last Updated: 2009-12-22

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.42725º / -122.09103º
UTM: Zone-10 N4142658 E580422
Area:
Elevation: 5 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 06S
Range: 02W
Section: 09 **Qtr:** NW
Meridian: M

Location: SHORELINE GOLF LINKS NEAR SHORELINE AT MOUNTAIN VIEW PARK, BOARDERED ON THE EAST BY MOUNTAIN VIEW SLOUGH, MOUNTAIN VIEW.

Location Detail: JUVENILE (RAISED IN CAPTIVITY) & 1 OWL CAPTURED NEAR GUADALUPE SLOUGH (OCC#491) BANDED & RELEASED AT THIS SITE ON 12 SEP 1991. ADULT OBS AGAIN BETWEEN 18 SEP & 17 OCT 1991 USING VARIOUS BURROWS. MANY UNBANDED OWLS ALSO OBS.

Ecological: AREA HAS BEEN ENHANCED FOR BURROWING OWLS THROUGH PLACEMENT OF ARTIFICIAL BURROWS AT RELOCATION SITE (1991). NATURAL BURROWS ALSO OCCUR IN AREA. GROUND SQUIRRELS PRESENT AT SITE IN 2008.

Threat: THREATENED BY FERAL CATS; MAINTENANCE VEHICLES & HUMAN FOOT TRAFFIC NEAR BURROW SITES.

General: 4 ADULTS & 2 JUVS IN APR 1982. 2 ADS IN FEB 1983. ABOUT 3 OWLS OBS IN RELOCATION AREA (NW PART OF FEATURE), OCT - JAN 1992. 7 NEST BURROWS MONITORED FROM 2002-2004 ON GOLF COURSE. 1 ADULT PAIR & 1 JUV OBS ON 3 AUG 2007 & ON 28 MAY 2008.

Owner/Manager: CITY OF MOUNTAIN VIEW

Occurrence No. 26 **Map Index:** 09663 **EO Index:** 25481
Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2009-07-30
Site: 2009-07-30
Record Last Updated: 2009-09-22

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.42016º / -122.04245º
UTM: Zone-10 N4141913 E584728
Area:
Elevation: 10 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 06S
Range: 02W
Section: 11 **Qtr:** XX
Meridian: M

Location: NORTH END & EAST SIDE OF THE FLIGHT LINE AT MOFFETT FIELD NAVAL AIR STATION. INCLUDES THE GOLF COURSE AT MOFFETT FIELD.

Location Detail: BLAKE & EILERS OBSERVED 3 PAIRS ON 1 & 8 MAY 1983 WITH LIMITED ACCESS TO THE BASE (EIL83 & JOH88). DETAILED COORDINATES FOR NEST BURROWS PROVIDED FROM 1998 - 2009.

Ecological: GENERALLY, URBAN ENVIRONMENT W/ FRAGMENTED GRASSLAND. NESTS ON AIRFIELD, GOLF COURSE, ROADSIDE EMBANKMENTS, GRAZED FIELDS, AND AT ROAD & CONCRETE PAD EDGES. PLANTS: NATURALIZED NON-NATIVE GRASSES W/ RUDERAL VEGETATION & URBAN LANDSCAPING.

Threat: HEAVILY DEVELOPED AREA; SALT EVAPORATION PONDS TO THE NORTH.

General: YEAR: # OF NESTS (CHR06); 1998: 19. 1999: 24. 2000: 14. 2001: 13. 2002: 16. 2003: 13. 2004: 18. 2005: 15. 4 PAIRS, 8 SINGLES, 19-23 DEC 2005. 2 TRAPPED, NOV 2007. 7 TRAPPED AT 5 BURROWS, 2008. 43 OWLS TRAPPED AT 14 NESTS IN JUN-JUL 2009.

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G4
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.
Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Owner/Manager: NASA-AMES RESEARCH CENTER

Occurrence No. 27 **Map Index:** 09505 **EO Index:** 25482
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1983-01-XX
Site: 1983-01-XX
Record Last Updated: 1989-08-10

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.46215º / -122.11496º
UTM: Zone-10 N4146510 E578269
Radius: 1/5 mile
Elevation:
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 05S
Range: 02W
Section: 32 **Qtr:** XX
Meridian: M

Location: PALO ALTO MUNICIPAL AIRPORT, ON LEVEE PARALLEL, TO AND NE OFRUNWAY, OPPOSITE CONTROL TOWER
General: ONE INDIVIDUAL OBSERVED AT BURROW ENTRANCE.
Owner/Manager: CITY OF PALO ALTO

Occurrence No. 215 **Map Index:** 25863 **EO Index:** 16741
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1993-06-22
Site: 1993-06-22
Record Last Updated: 1996-01-02

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.44618º / -122.07164º
UTM: Zone-10 N4144774 E582117
Radius: 2/5 mile
Elevation: 3 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 05S
Range: 02W
Section: 03 **Qtr:** NW
Meridian: M

Location: LONG POINT, JUST NORTH OF SHORELINE AT MOUNTAIN VIEW PARK, NORTH OF MOFFETT NAVAL AIR STATION, MOUNTAIN VIEW.
Location Detail: MANY OF THE BURROW SITES WERE ON OR NEAR STEEP EMBANKMENTS.
Ecological: OWLS WERE UTILIZING GROUND SQUIRREL BURROWS FOR NESTING AND PERCHED NEAR THE TOP OF THE EMBANKMENTS.
General: 8 ADULTS (4 PAIRS) AND AN UNKNOWN NUMBER OF JUVENILES WERE OBSERVED.
Owner/Manager: USFWS-DON EDWARDS NWR

Occurrence No. 340 **Map Index:** 42062 **EO Index:** 42062
Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2002-XX-XX
Site: 2002-XX-XX
Record Last Updated: 2008-03-11

Quad Summary: Mountain View (3712241/428A), Milpitas (3712148/427B)
County Summary: Santa Clara

Lat/Long: 37.41385º / -121.99710º
UTM: Zone-10 N4141256 E588749
Area:
Elevation: 0 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 06S
Range: 01W
Section: 17 **Qtr:** XX
Meridian: M

Location: TWIN CREEKS BASEBALL FIELD COMPLEX, OFF CARIBEAN DR, ABOUT 0.5 MI NORTH OF JUNCTION LAWRENCE EXPY & HWY 237, SUNNYVALE
Location Detail: 1999 SITES ARE ON THE OUTSIDE EDGE AROUND THE BALL FIELDS. 1998-2002 SITES ARE SCATTERED AROUND THE PARK.
Ecological: NON-NATIVE GRASSLAND.
Threat: THREAT CONSISTS OF POSSIBLE CONSTRUCTION ACTIVITY. EXPANSION OF SPORTS FIELD COMPLEX.
General: 1 PAIR & 4 ACTIVE BURROWS OBS IN 1991. 1 BURROW WAS ELIMINATED ON 10 AUG 1991. 10 JUN 1999: 2 PAIR OBS, 1 PAIR BANDED & 1 PAIR, NOT BANDED. 10 BURROW SITES OBS FROM 1998-2002.
Owner/Manager: PVT

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4	**CDFG Status:** SC
State: None	**State:** S2	

Habitat Associations

General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 784 **Map Index:** 64446 **EO Index:** 64525

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2009-07-28
Site: 2009-07-28
Record Last Updated: 2009-09-22

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.40777º / -122.05063º
UTM: Zone-10 N4140532 E584018
Area:
Elevation: 10 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 06S
Range: 02W
Section: 14 **Qtr:** S
Meridian: M

Location: SW END OF MOFFETT FIELD NAVAL AIR STATION / NASA AMES RESEARCH CENTER, N OF HWY 101 NEAR ELLIS ST, MOUNTAIN VIEW.

Ecological: GENERALLY, URBAN ENVIRONMENT W/ FRAGMENTED GRASSLAND. NESTS ON AIRFIELD, ROADSIDE EMBANKMENTS, GRAZED FIELDS, AND AT ROAD & CONCRETE PAD EDGES. PLANTS: NATURALIZED NON-NATIVE GRASSES W/ RUDERAL VEGETATION & URBAN LANDSCAPING.

Threat: LOSS & FRAGMENTATION OF HABITAT BY DEVELOPMENT.

General: YEAR: # OF NESTS (CHR06); 1998:5. 1999:5. 2000:5. 2001:3. 2002:3. 2003:2. 2004:3. 2005:3. 3 SINGLES OBS AT 3 BURROWS, 19-23 DEC 2005. 7 (2, 2, 2, & 1) TRAPPED AT 4 NESTS, 28 MAY-23 JUN 2008. 5 (4 & 1) TRAPPED AT 2 NESTS, 1 JUN-28 JUL 2009.

Owner/Manager: NASA-AMES RESEARCH CENTER

Occurrence No. 1031 **Map Index:** 71005 **EO Index:** 71923

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2003-XX-XX
Site: 2003-XX-XX
Record Last Updated: 2008-03-10

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.43182º / -122.08338º
UTM: Zone-10 N4143172 E581093
Area: 12.0 acres
Elevation: 5 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 06S
Range: 02W
Section: 09 **Qtr:** NE
Meridian: M

Location: SHORELINE GOLF LINKS NEAR SHORELINE AT MOUNTAIN VIEW PARK, EAST OF MOUNTAIN VIEW SLOUGH.

General: 1 BURROW SITE OBSERVED IN 1998, 1999, 2001 & 2003. A SECOND BURROW SITE OBSERVED IN 2003.

Owner/Manager: CITY OF MOUNTAIN VIEW

Occurrence No. 1032 **Map Index:** 71006 **EO Index:** 71924

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2004-XX-XX
Site: 2004-XX-XX
Record Last Updated: 2009-09-23

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.43172º / -122.07358º
UTM: Zone-10 N4143169 E581961
Area: 94.0 acres
Elevation: 5 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 06S
Range: 02W
Section: 10 **Qtr:** N
Meridian: M

Location: SHORELINE AT MOUNTAIN VIEW PARK, FIELD NORTHEAST OF THE AMPITHEATER.

Location Detail: EAST OF N SHORLINE BLVD AND WEST OF NORTHERN STEVENS CREEK AND SOUTH OF THE SALT EVAPORATORS. MAPPED TO PROVIDED COORDINATES. SW T06S-R02W SEC 3 AND NW T06S-R02W SEC 10.

General: YEAR: # OF NESTS (CHR06); 1998: 1. 1999: 5. 2000: 10. 2001: 8. 2002: 6. 2003: 6. 2004: 4.

Owner/Manager: CITY OF MOUNTAIN VIEW, UNKNOWN

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4	**CDFG Status:** SC
State: None	**State:** S2	

Habitat Associations

General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 1033 **Map Index:** 71007 **EO Index:** 71925

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2004-XX-XX
Site: 2004-XX-XX
Record Last Updated: 2008-03-10

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.42843º / -122.06783º
UTM: Zone-10 N4142809 E582473
Area: 9.0 acres
Elevation: 5 ft
Mapping PrecisionSPECIFIC
Symbol Type:POLYGON
Township: 06S
Range: 02W
Section: 10 **Qtr:** XX
Meridian: M

Location: EAST OF STEVENS CREEK, 0.42 MI NW OF THE JUNCTION OF PARSONS AVE & ARNOLD AVE, MOFFETT FIELD NAVAL AIR STATION.

General: 1 BURROW SITE OBSERVED IN 1999 & 2003. 1 BURROW SITE OBSERVED IN 2000. 1 BURROW SITE OBSERVED IN 2004.

Owner/Manager: NASA-AMES RESEARCH CENTER

Occurrence No. 1035 **Map Index:** 71015 **EO Index:** 71932

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1998-XX-XX
Site: 1998-XX-XX
Record Last Updated: 2008-03-12

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.41789º / -122.06454º
UTM: Zone-10 N4141643 E582775
Radius: 80 meters
Elevation: 5 ft
Mapping PrecisionSPECIFIC
Symbol Type:POINT
Township: 06S
Range: 02W
Section: 15 **Qtr:** XX
Meridian: M

Location: MOFFETT FIELD NAVAL AIR STATION, FIELD NW OF THE TOWER.

General: 1 BURROW SITE OBSERVED IN 1998.

Owner/Manager: NASA-AMES RESEARCH CENTER

Occurrence No. 1235 **Map Index:** 76658 **EO Index:** 77604

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2002-XX-XX
Site: 2002-XX-XX
Record Last Updated: 2009-09-23

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.43485º / -122.08069º
UTM: Zone-10 N4143510 E581329
Radius: 80 meters
Elevation: 1 ft
Mapping PrecisionSPECIFIC
Symbol Type:POINT
Township: 06S
Range: 02W
Section: 04 **Qtr:** SE
Meridian: M

Location: BETWEEN SALT EVAPORATOR LEVEE & THE NE GOLF COURSE AT SHORELINE AT MOUNTAIN VIEW PARK, 0.75 MI NNW OF BM01, MT VIEW.

Location Detail: 0.8 MI NORTH OF SHORLINE AMPHITHEATER ALONG THE NORTH SIDE OF N SHORELINE BLVD. MAPPED TO PROVIDED COORDINATES.

General: 1 ACTIVE NEST BURROW OBSERVED AT THIS LOCATION IN 2004 DURING 7 YEAR BUOW DEMOGRAPHY STUDY.

Owner/Manager: CITY OF MOUNTAIN VIEW

Centromadia parryi ssp. congdonii

Congdon's tarplant

Element Code: PDAST4R0P1

Status
Federal: None
State: None

NDDB Element Ranks
Global: G4T2
State: S2

Other Lists
CNPS List: 1B.2

Habitat Associations
General: VALLEY AND FOOTHILL GRASSLAND.
Micro: ALKALINE SOILS, SOMETIMES DESCRIBED AS HEAVY WHITE CLAY. 1-230M.

Occurrence No. 53 **Map Index:** 42359 **EO Index:** 42359
Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Decreasing

Dates Last Seen
Element: 2002-09-11
Site: 2002-09-11
Record Last Updated: 2011-09-02

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.43087º / -122.06802º
UTM: Zone-10 N4143079 E582454
Radius: 80 meters
Elevation: 10 ft

Mapping PrecisionSPECIFIC
Symbol Type:POINT

Township: 06S
Range: 02W
Section: 10 **Qtr:** NE
Meridian: M

Location: ON EAST SIDE OF STEVENS CREEK IN MOUNTAIN VIEW, NEAR MOUTH OF CREEK.

Location Detail: IN 2002 PLANT FOUND ON EASTERN EDGE OF LEVEE JUST BEYOND SECOND PEDESTRIAN BRIDGE NORTH OF THE END OF CRITTENDEN ROAD. WEED CONTROL MEASURES AND LEVEE MAINTENANCE COULD ALSO POSE THREATS TO THIS SITE.

Ecological: IN HARD PACKED GRAVEL ROAD ATOP LEVEE, ADJACENT TO TIDAL CHANNEL. ASSOCIATES INCLUDE DISTICHLIS SPICATA AND DITTRICHIA GRAVEOLENS, A NEW INVASIVE EXOTIC.

Threat: MUCH OF THE NATURAL HABITAT IN AREA CONVERTED TO SALT EVAPORATORS. RAPIDLY SPREADING POPULATION OF INVASIVE DITTRICHIA.

General: SITE BASED ON 1935 SINDEL COLLECTION FROM "GUTH LANDING". AREA SEARCHED IN 1998, NO PLANTS WERE FOUND; PRESTON MENTIONS THERE IS POTENTIAL HABITAT IN VICINITY AT AMES RESEARCH CENTER (NASA). ONE PLANT SEEN IN 2002 BY MAYALL AT MAPPED SITE.

Owner/Manager: PVT-SANTA CLARA VALLEY WD

Charadrius alexandrinus nivosus

western snowy plover

Element Code: ABNNB03031

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G4T3
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: SANDY BEACHES, SALT POND LEVEES & SHORES OF LARGE ALKALI LAKES.
Micro: NEEDS SANDY, GRAVELLY OR FRIABLE SOILS FOR NESTING.

Occurrence No. 128 **Map Index:** 51529 **EO Index:** 51529
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2002-01-09
Site: 2002-01-09
Record Last Updated: 2003-06-12

Quad Summary: Mountain View (3712241/428A)
County Summary: San Mateo, Santa Clara

Lat/Long: 37.46210º / -122.12190º
UTM: Zone-10 N4146498 E577655
Area: 59.3 acres
Elevation: 0 ft

Mapping PrecisionSPECIFIC
Symbol Type:POLYGON

Township: 05S
Range: 02W
Section: 31 **Qtr:** XX
Meridian: M

Location: SAN FRANCISQUITO CREEK EAST OF HWY 101 BETWEEN PALO ALTO AND SAN FRANCISCO BAY
Ecological: BRACKISH TIDAL MARSH WITH PICKLEWEED.
General: 35 OBSERVED DURING A SURVEY ON 9 JAN 2002.
Owner/Manager: PVT-SANTA CLARA VALLEY WD

Chloropyron maritimum ssp. palustre

Point Reyes bird's-beak

Element Code: PDSCR0J0C3

Status
Federal: None
State: None

NDDB Element Ranks
Global: G4?T2
State: S2.2

Other Lists
CNPS List: 1B.2

Habitat Associations
General: COASTAL SALT MARSH.
Micro: USUALLY IN COASTAL SALT MARSH WITH SALICORNIA, DISTICHLIS, JAUMEA, SPARTINA, ETC. 0-15M.

Occurrence No. 17 **Map Index:** 09496 **EO Index:** 17541

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Possibly Extirpated
Trend: Unknown

Dates Last Seen
Element: 1914-07-16
Site: 1914-07-16
Record Last Updated: 2007-08-15

Quad Summary: Mountain View (3712241/428A)
County Summary: San Mateo

Lat/Long: 37.47715º / -122.12247º
UTM: Zone-10 N4148167 E577589
Radius: 1/5 mile
Elevation:
Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT
Township: 05S
Range: 02W
Section: 19 **Qtr:** XX
Meridian: M

Location: COOLEY'S LANDING, NEAR PALO ALTO.

General: OCCURRENCE KNOWN FROM FOUR COLLECTIONS FROM BETWEEN 1895 AND 1914. OCCURRENCE EXTIRPATED ACCORDING TO D. SMITH (1996).

Owner/Manager: PVT

Occurrence No. 19 **Map Index:** 23820 **EO Index:** 7474

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Possibly Extirpated
Trend: Unknown

Dates Last Seen
Element: 1915-10-25
Site: 1987-05-29
Record Last Updated: 2007-08-15

Quad Summary: Mountain View (3712241/428A)
County Summary: San Mateo, Santa Clara

Lat/Long: 37.45521º / -122.10717º
UTM: Zone-10 N4145746 E578965
Radius: 1 mile
Elevation: 1 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT
Township: 05S
Range: 02W
Section: 32 **Qtr:** XX
Meridian: M

Location: PALO ALTO, SANTA CLARA COUNTY.

Threat: SITE CONDITIONS HAVE CHANGED DRAMATICALLY SINCE 1915 SIGHTING. CURRENT THREAT INCLUDES SEWAGE OUTFALL.

General: COLLECTION IN 1915 LAST SIGHTING FOR THIS OCCURRENCE. ALTHOUGH SEWAGE OUTFALL HAS CONVERTED SALT WATER MARSH TO FRESHWATER MARSH, CORDYLANTHUS MARITIMUS SSP. PALUSTRUS MIGHT STILL OCCUR AT THIS SITE; EXTIRPATED ACCORDING TO D. SMITH (1996).

Owner/Manager: CITY OF PALO ALTO

Circus cyaneus

northern harrier

Element Code: ABNKC11010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5
State: S3

Other Lists
CDFG Status: SC

Habitat Associations
General: COASTAL SALT & FRESH-WATER MARSH. NEST & FORAGE IN GRASSLANDS, FROM SALT GRASS IN DESERT SINK TO MOUNTAIN CIENAGAS.
Micro: NESTS ON GROUND IN SHRUBBY VEGETATION, USUALLY AT MARSH EDGE; NEST BUILT OF A LARGE MOUND OF STICKS IN WET AREAS.

Occurrence No. 2 **Map Index:** 09604 **EO Index:** 27022
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1971-05-07
Site: 1971-05-07
Record Last Updated: 2005-08-10

Quad Summary: Newark (3712251/447D), Mountain View (3712241/428A)
County Summary: Alameda

Lat/Long: 37.50254º / -122.07419º
UTM: Zone-10 N4151026 E581829
Area:
Elevation: 10 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 05S
Range: 02W
Section: 15 **Qtr:** XX
Meridian: M

Location: APPROXIMATELY 0.4 MI EAST OF MOUTH OF PLUMMER CREEK, E SIDE OF SAN FRANCISCO BAY.
Location Detail: 2 NESTS LOCATED; ONE WAS 0.3 MI EAST AND THE SECOND WAS 0.5 MI EAST OF PLUMMER CREEK MOUTH.
Ecological: SALT MARSH HABITAT, CONSISTING OF SPARTINA & SALICORNIA.
General: FEMALES WERE INCUBATING AT THE TIME OF OBSERVATION. EACH NEST CONTAINED 6 EGGS, IN ONE NEST 5 EGGS HATCHED & 4 YOUNG FLEDGED; IN THE OTHER NEST 4 EGGS HATCHED & 4 YOUNG FLEDGED.
Owner/Manager: UNKNOWN

Occurrence No. 4 **Map Index:** 09682 **EO Index:** 27019
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1971-06-01
Site: 1971-06-01
Record Last Updated: 2005-08-10

Quad Summary: Mountain View (3712241/428A)
County Summary: Alameda

Lat/Long: 37.46921º / -122.04159º
UTM: Zone-10 N4147357 E584749
Area:
Elevation: 10 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 05S
Range: 02W
Section: 25 **Qtr:** XX
Meridian: M

Location: IMMEDIATELY NORTH OF COYOTE CREEK MOUTH, EAST OF CALAVERAS POINT.
Ecological: SALT MARSH HABITAT. VEGETATION INCLUDES SALICORNIA & SPARTINA.
General: 4 EGGS OBSERVED IN GROUND NEST 06/01/71.
Owner/Manager: UNKNOWN

Occurrence No. 33 **Map Index:** 61109 **EO Index:** 61145
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2004-04-17
Site: 2004-04-17
Record Last Updated: 2005-04-25

Quad Summary: Mountain View (3712241/428A)
County Summary: San Mateo

Lat/Long: 37.46643º / -122.12271º
UTM: Zone-10 N4146978 E577578
Radius: 80 meters
Elevation: 5 ft
Mapping PrecisionSPECIFIC
Symbol Type:POINT
Township: 05S
Range: 02W
Section: 30 **Qtr:** NE
Meridian: M

Location: JUST NORTH OF PALO ALTO OF SANTA CLARA COUNTY AIRPORT, NORTH OF THE SAN MATEO COUNTY LINE, EAST PALO ALTO
Ecological: HABITAT CONSISTS OF COASTAL SALT MARSH, DOMINATED BY SCIRPUS MARITIMUS, GRINDELIA STRICTA, SALICORNIA VIRGINICA, AND SPARTINA SPP.
General: PAIR OBSERVED CARRYING MATERIAL TO LOCATION FOR NEST-BUILDING, 17 APR 2004.
Owner/Manager: UNKNOWN

Egretta thula

snowy egret

Element Code: ABNGA06030

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5
State: S4

Other Lists
CDFG Status:

Habitat Associations
General: COLONIAL NESTER, WITH NEST SITES SITUATED IN PROTECTED BEDS OF DENSE TULES.
Micro: ROOKERY SITES SITUATED CLOSE TO FORAGING AREAS: MARSHES, TIDAL-FLATS, STREAMS, WET MEADOWS, AND BORDERS OF LAKES.

Occurrence No. 13 **Map Index:** 69408 **EO Index:** 70184

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2005-XX-XX
Site: 2005-XX-XX
Record Last Updated: 2007-05-29

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.45808º / -122.10896º
UTM: Zone-10 N4146063 E578803
Area:
Elevation: 10 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON

Township: 05S
Range: 02W
Section: 32 **Qtr:** NW
Meridian: M

Location: PALO ALTO BAYLANDS NATURE PRESERVE, EAST OF PALO ALTO AIRPORT, NEAR DUCK POND.

Location Detail: ARTICLE GIVES LOCALITY AS "PALM TREE GROVE AT PALO ALTO BAYLANDS NATURE PRESERVE." BAYLANDS BIRDING MAP FROM CITY OF PALO ALTO WEBSITE ALSO USED TO MAP THIS SITE.

Ecological: PALM TREE GROVE.

General: 5 OR 6 PAIRS NESTED IN 2003. ABOUT 50 BREEDING BIRDS OBSERVED IN 2004 AND 2005.

Owner/Manager: CITY OF PALO ALTO

Eryngium aristulatum var. hooveri

Hoover's button-celery

Element Code: PDAPI0Z043

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5T2
State: S2.1

Other Lists
CNPS List: 1B.1

Habitat Associations
General: VERNAL POOLS.
Micro: ALKALINE DEPRESSIONS, VERNAL POOLS, ROADSIDE DITCHES AND OTHER WET PLACES NEAR THE COAST. 5-45M.

Occurrence No. 5 **Map Index:** 09518 **EO Index:** 56044

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Possibly Extirpated
Trend: Unknown

Dates Last Seen
Element: 1909-06-24
Site: 1909-06-24
Record Last Updated: 2004-07-09

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.44021º / -122.10496º
UTM: Zone-10 N4144084 E579176
Radius: 1 mile
Elevation: 5 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT

Township: 06S
Range: 02W
Section: 05 **Qtr:** XX
Meridian: M

Location: NEAR MARSH TO RIGHT OF EMBARCADERO ROAD, PALO ALTO.

Location Detail: EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDB, IN THE VICINITY OF MAYFIELD AND CHARLESTON SLOUGHS, SE OF EMBARCADERO ROAD, N OF HWY 101.

Ecological: NEAR MARSH.

Threat: DEVELOPMENT.

General: 1899 COLL. BY WARD "ONE MILE E OF PALO ALTO", AND 1901 COLL. BY ABRAMS "SALT MARSH" ATTRIBUTED TO THIS SITE. UNKNOWN NUMBER OF PLANTS SEEN. POSSIBLY EXTIRPATED DUE TO DEVELOPMENT IN AREA SINCE DATE OF COLLECTION.

Owner/Manager: UNKNOWN

Geothlypis trichas sinuosa

saltmarsh common yellowthroat

Element Code: ABPBX1201A

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5T2
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: RESIDENT OF THE SAN FRANCISCO BAY REGION, IN FRESH AND SALT WATER MARSHES.
Micro: REQUIRES THICK, CONTINUOUS COVER DOWN TO WATER SURFACE FOR FORAGING; TALL GRASSES, TULE PATCHES, WILLOWS FOR NESTING.

Occurrence No. 8 **Map Index:** 09509 **EO Index:** 24852
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Increasing

Dates Last Seen
Element: 2004-05-16
Site: 2004-05-16
Record Last Updated: 2005-02-01

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.46113º / -122.10898º
UTM: Zone-10 N4146402 E578798
Area:
Elevation: 5 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 05S
Range: 02W
Section: 32 **Qtr:** N
Meridian: M

Location: JUST EAST OF THE PALO ALTO MUNICIPAL AIRPORT, PALO ALTO BAYLANDS.

Ecological: HABITAT CONSISTS OF COASTAL SALT MARSH. VEGETATION INCLUDES SALICORNIA VIRGINICA, GRINDELIA STRICTA AND SPARTINA SPP.

General: TWO NESTING PAIRS FOUND IN 1976. 3 NESTING PAIRS OBSERVED IN 1985 IN BAYLANDS AT THE SEWAGE EFFLUENT DISCHARGE SITE. 4 DETECTED BETWEEN 21 APR AND 16 MAY 2004.

Owner/Manager: CITY OF PALO ALTO, UNKNOWN

Occurrence No. 45 **Map Index:** 09857 **EO Index:** 24818
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1999-06-30
Site: 1999-06-30
Record Last Updated: 2005-02-01

Quad Summary: Milpitas (3712148/427B), Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.41851º / -121.99637º
UTM: Zone-10 N4141773 E588808
Area:
Elevation: 5 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 06S
Range: 01W
Section: 08 **Qtr:** XX
Meridian: M

Location: SALT PONDS, GUADALUPE SLOUGH, & CONFLUENCE OF SAN THOMAS AQUINAS & CALABAZAS CREEKS, N OF HIGHWAY 237.

Location Detail: ALVISO SALT PONDS A8 AND A4, CALABAZAS CREEK MARSH (OBS MADE FROM 11 POINTS ALONG CREEK, 1999)

Ecological: NESTS IN TIDAL, BRACKISH MARSH. VEGETATION TYPES: ALKALI BULRUSH(SCIRPUS ROBUSTUS), CALIFORNIA BULRUSH (S. CALIFORNICUS), PEPPERGRASS (LEPIDIUM LATIFOLIUM), TYPHA SP

General: 6 PAIRS OBSERVED ALONG GUADALUPE CREEK DURING MARCH TO JULY 1985 SURVEY. 7-12 INDIVIDUALS OBS JUN 1997. 1999: POND A4, 1-6 OBS EACH TIME FROM 3/10-6/30 (10 SAMPLE DAYS=SD); POND A8, 1-6 OBS FROM 5/13-6/30 (8 SD); MARSH, 15-32 OBS (8 SD).

Owner/Manager: PVT-SANTA CLARA VALLEY WD

Occurrence No. 46 **Map Index:** 09655 **EO Index:** 13460
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1985-XX-XX
Site: 1985-XX-XX
Record Last Updated: 2005-02-11

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.42525º / -122.05889º
UTM: Zone-10 N4142465 E583268
Radius: 1/10 mile
Elevation: 5 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT
Township: 06S
Range: 02W
Section: 11 **Qtr:** NW
Meridian: M

Location: NORTHWEST OF MOFFETT FIELD NAVAL AIR STATION, EAST OF PALO ALTO, NE OF AMES RESEARCH CENTER.

General: 3 BREEDING PAIRS OBSERVED IN 1985 AT A DIKED AREA IN FRESHWATER MARSH AND UPLAND VEGETATION.

Owner/Manager: NASA-AMES RESEARCH CENTER

Geothlypis trichas sinuosa

saltmarsh common yellowthroat

Element Code: ABPBX1201A

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5T2
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: RESIDENT OF THE SAN FRANCISCO BAY REGION, IN FRESH AND SALT WATER MARSHES.
Micro: REQUIRES THICK, CONTINUOUS COVER DOWN TO WATER SURFACE FOR FORAGING; TALL GRASSES, TULE PATCHES, WILLOWS FOR NESTING.

Occurrence No. 54 **Map Index:** 09514 **EO Index:** 24810
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1985-XX-XX
Site: 1985-XX-XX
Record Last Updated: 2005-02-11

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.44103º / -122.10912º
UTM: Zone-10 N4144172 E578807
Radius: 1/10 mile
Elevation: 7 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 06S
Range: 02W
Section: 05 **Qtr:** NW
Meridian: M

Location: END OF MAYFIELD SLOUGH, AT JUNCTION WITH MATADERO CREEK, NORTH EDGE OF PALO ALTO FLOOD BASIN.
Ecological: HABITAT CONSISTS OF WILLOWS AND UPLAND VEGETATION DOMINATED BY MUSTARD, DOCK AND HEMLOCK.
General: 5 BREEDING PAIRS DETECTED IN 1985.
Owner/Manager: UNKNOWN

Occurrence No. 55 **Map Index:** 09522 **EO Index:** 24809
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1985-XX-XX
Site: 1985-XX-XX
Record Last Updated: 2005-02-11

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.43455º / -122.10349º
UTM: Zone-10 N4143458 E579312
Area:
Elevation: 3 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 06S
Range: 02W
Section: 05 **Qtr:** SE
Meridian: M

Location: CHARLESTON SLOUGH JUST NORTH OF THE BAYSHORE FREEWAY JUNCTION, NE OF PALO ALTO.
Location Detail: NESTING OCCURRED IN CATTAILS.
General: 2 BREEDING PAIRS OBSERVED IN 1985.
Owner/Manager: UNKNOWN

Occurrence No. 77 **Map Index:** 59784 **EO Index:** 59820
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2004-05-15
Site: 2004-05-15
Record Last Updated: 2005-03-16

Quad Summary: Mountain View (3712241/428A), Palo Alto (3712242/428B)
County Summary: San Mateo

Lat/Long: 37.46821º / -122.12438º
UTM: Zone-10 N4147174 E577429
Area:
Elevation: 4 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 05S
Range: 02W
Section: 30 **Qtr:** XX
Meridian: M

Location: SW OF COOLEY LANDING, EAST OF PALO ALTO.
Ecological: HABITAT CONSISTS OF COASTAL SALT MARSH. VEGETATION INCLUDES SALICORNIA VIRGINICA, GRINDELIA STRICTA AND SPARTINA SPP..
General: 9 DETECTIONS OCCURRED BETWEEN 17 APR AND 15 MAY 2004.
Owner/Manager: UNKNOWN

Lasiurus cinereus

hoary bat

Element Code: AMACC05030

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G5	**CDFG Status:**
State: None	**State:** S4?	

Habitat Associations

General: PREFERS OPEN HABITATS OR HABITAT MOSAICS, WITH ACCESS TO TREES FOR COVER & OPEN AREAS OR HABITAT EDGES FOR FEEDING.

Micro: ROOSTS IN DENSE FOLIAGE OF MEDIUM TO LARGE TREES. FEEDS PRIMARILY ON MOTHS. REQUIRES WATER.

Occurrence No. 95 **Map Index:** 66583 **EO Index:** 68858

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-11-21
Site: 1990-11-21
Record Last Updated: 2007-03-19

Quad Summary: Cupertino (3712231/428D), Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.38503º / -122.09747º
UTM: Zone-10 N4137968 E579896
Radius: 1 mile
Elevation: 157 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT

Township: 06S
Range: 02W
Section: 29 **Qtr:** XX
Meridian: M

Location: LOS ALTOS AND MOUNTAIN VIEW.

Location Detail: EXACT LOCATION UNKNOWN. MAPPED TO INCLUDE LAT/LONG COORDINATES PROVIDED BY MANIS, WITH UNCERTAINTY OF 1609.344M.

General: 1 MALE SPECIMEN (CAS #1466) COLLECTED AT "MOUNTAIN VIEW" BY H.O. JENKINS ON 29 MAY 1905. 1 MALE SPECIMEN (MVZ #182426) COLLECTED AT "LOS ALTOS" BY WILLIAM E. RAINEY ON 21 NOV 1990.

Owner/Manager: UNKNOWN

Laterallus jamaicensis coturniculus

California black rail

Element Code: ABNME03041

Status
Federal: None
State: Threatened

NDDB Element Ranks
Global: G4T1
State: S1

Other Lists
CDFG Status:

Habitat Associations
General: INHABITS FRESHWATER MARTSHES, WET MEADOWS & SHALLOW MARGINS OF SALTWATER MARSHES BORDERING LARGER BAYS.
Micro: NEEDS WATER DEPTHS OF ABOUT 1 INCH THAT DOES NOT FLUCTUATE DURING THE YEAR & DENSE VEGETATION FOR NESTING HABITAT.

Occurrence No. 51 **Map Index:** 09530 **EO Index:** 25796
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2003-XX-XX
Site: 2003-XX-XX
Record Last Updated: 2007-12-13

Quad Summary: Mountain View (3712241/428A), Newark (3712251/447D)
County Summary: Alameda

Lat/Long: 37.50114º / -122.10360º
UTM: Zone-10 N4150845 E579232
Radius: 1/5 mile
Elevation: 7 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 05S
Range: 02W
Section: 17 **Qtr:** XX
Meridian: M

Location: DUMBARTON POINT.
Location Detail: 2004 LOCATION GIVEN AS "DUMBARTON MARSH".
General: 1OBSERVED IN NOV 1972. 1 DETECTED DURING A 2003 BREEDING SEASON SURVEY.
Owner/Manager: UNKNOWN

Occurrence No. 132 **Map Index:** 59784 **EO Index:** 63305
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2005-04-27
Site: 2005-04-27
Record Last Updated: 2009-09-28

Quad Summary: Mountain View (3712241/428A), Palo Alto (3712242/428B)
County Summary: San Mateo

Lat/Long: 37.46821º / -122.12438º
UTM: Zone-10 N4147174 E577429
Area:
Elevation: 4 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 05S
Range: 02W
Section: 30 **Qtr:** XX
Meridian: M

Location: SW OF COOLEY LANDING, EAST PALO ALTO.
Location Detail: 1980S: "PALO ALTO BAYLANDS" (ALSO SEE OCC#193). 2005: 11 SURVEY LOCATIONS AT SITE "EPA"; DETECTIONS WERE WITHIN 100 METERS OF THE SURVEY LOCATIONS. MAPPED TO 2005 SURVEY LOCATIONS.
Ecological: HABITAT IS COASTAL SALT MARSH. VEGETATION INCLUDES SALICORNIA VIRGINICA, GRINDELIA STRICTA AND SPARTINA SPP..
General: RECORD OF A RAIL EATEN BY A GREAT EGRET ON 12 DEC 1981 & ONE EATEN BY A GREAT BLUE HERON ON 9 JAN 1982, AT PALO ALTO BAYLANDS (ALSO SEE OCC#193). 2 DETECTIONS ON 27 APR 2005.
Owner/Manager: CITY OF PALO ALTO

Occurrence No. 193 **Map Index:** 76239 **EO Index:** 71499
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2004-04-21
Site: 2004-04-21
Record Last Updated: 2009-09-28

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.46178º / -122.11006º
UTM: Zone-10 N4146473 E578702
Area: 10.0 acres
Elevation: 4 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 05S
Range: 02W
Section: 32 **Qtr:** NW
Meridian: M

Location: PALO ALTO BAYLANDS PRESERVE, JUST EAST OF THE PALO ALTO MUNICIPAL AIRPORT & WSW OF SAND POINT.
Location Detail: 1908: "PALO ALTO." 1980S: "PALO ALTO BAYLANDS" (ALSO SEE OCC#132). 2004: SPECIFIC DETECTION LOCATIONS PROVIDED ON A MAP; CITED IN HER AS "PALO ALTO BAYLANDS." MAPPED TO 2004 POINTS.
Ecological: COASTAL SALT MARSH WITH SALICIRNIA VIRGINICA, GRINDELIA STRICTA, SCIRPUS SPP. BORDERED BY MULITI-USE TRAIL AND AIRPORT. SITE QUALITY MARKED AS "GOOD" IN 2004.
General: MVZ #7004 COLL BY J. ROWLEY IN 1908. RECORD OF A RAIL EATEN BY A GREAT EGRET ON 12 DEC 1981 & ONE EATEN BY A GREAT BLUE HERON ON 9 JAN 1982, AT PALO ALTO BAYLANDS (ALSO SEE OCC#132). 2 ADULTS HEARD ON 21 APR 2004; ALSO CITED IN HER04R0001.
Owner/Manager: CITY OF PALO ALTO

Melospiza melodia pusillula

Alameda song sparrow

Element Code: ABPBXA301S

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5T2?
State: S2?

Other Lists
CDFG Status: SC

Habitat Associations
General: RESIDENT OF SALT MARSHES BORDERING SOUTH ARM OF SAN FRANCISCO BAY.
Micro: INHABITS SALICORNIA MARSHES; NESTS LOW IN GRINDELIA BUSHES (HIGH ENOUGH TO ESCAPE HIGH TIDES) AND IN SALICORNIA.

Occurrence No. 6 **Map Index:** 59784 **EO Index:** 60617
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2004-05-15
Site: 2004-05-15
Record Last Updated: 2005-03-16

Quad Summary: Mountain View (3712241/428A), Palo Alto (3712242/428B)
County Summary: San Mateo

Lat/Long: 37.46821º / -122.12438º
UTM: Zone-10 N4147174 E577429
Area:
Elevation: 4 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 05S
Range: 02W
Section: 30 **Qtr:** XX
Meridian: M

Location: SW OF COOLEY LANDING, EAST OF PALO ALTO.

Location Detail: MVZ: LOCATION GIVEN AS "MOUTH SAN FRANCISQUITO CREEK, PALO ALTO". CAS: LOCATION GIVEN AS "SAN FRANCISCO BAY; NEAR PALO ALTO". AREA MAPPED ACCORDING TO UTM COORDINATES PROVIDED BY LIU (2004).

Ecological: HABITAT CONSISTS OF COASTAL SALT MARSH. VEGETATION INCLUDES SALICORNIA VIRGINICA, GRINDELIA STRICTA AND SCIRPUS SPP. SURROUNDING LAND: MULTI-USE TRAIL, AIRPORT.

General: MANY RECORDS FROM MVZ DURING 1897, 1900, 1901, 1908, AND 6 FROM CAS DURING 1896 (DATA ALSO ATTRIBUTED TO OCC# 7). 1-10 DETECTED AT EACH OF 11 DIFFERENT POINTS ON 17 APR AND 15 MAY 2004. 6 POINTS SAMPLED 2X, 5 POINTS SAMPLED 1X.

Owner/Manager: UNKNOWN

Occurrence No. 7 **Map Index:** 09509 **EO Index:** 60622
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2004-05-15
Site: 2004-05-15
Record Last Updated: 2005-03-16

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.46113º / -122.10898º
UTM: Zone-10 N4146402 E578798
Area:
Elevation: 5 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 05S
Range: 02W
Section: 32 **Qtr:** N
Meridian: M

Location: JUST EAST OF THE PALO ALTO MUNICIPAL AIRPORT, PALO ALTO BAYLANDS.

Location Detail: MVZ: LOCATION GIVEN AS "MOUTH SAN FRANCISQUITO CREEK, PALO ALTO". CAS: LOCATION GIVEN AS "SAN FRANCISCO BAY; NEAR PALO ALTO". AREA MAPPED ACCORDING TO UTM COORDINATES PROVIDED BY LIU (2004).

Ecological: HABITAT CONSISTS OF COASTAL SALT MARSH. VEGETATION INCLUDES SALICORNIA VIRGINICA, GRINDELIA STRICTA AND SCIRPUS SPP. SURROUNDING LAND: MULTI-USE TRAIL, AIRPORT.

General: MANY RECORDS FROM MVZ DURING 1897, 1900, 1901, 1908, AND 6 FROM CAS DURING 1896 (DATA ALSO ATTRIBUTED TO OCC# 6). 4-20 DETECTED AT EACH OF 9 DIFFERENT POINTS ON 21 APR AND 16 MAY 2004. ALL POINTS SAMPLED 2X.

Owner/Manager: CITY OF PALO ALTO, UNKNOWN

Melospiza melodia pusillula

Alameda song sparrow

Element Code: ABPBXA301S

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5T2?
State: S2?

Other Lists
CDFG Status: SC

Habitat Associations
General: RESIDENT OF SALT MARSHES BORDERING SOUTH ARM OF SAN FRANCISCO BAY.
Micro: INHABITS SALICORNIA MARSHES; NESTS LOW IN GRINDELIA BUSHES (HIGH ENOUGH TO ESCAPE HIGH TIDES) AND IN SALICORNIA.

Occurrence No. 17 **Map Index:** 60752 **EO Index:** 60788
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1984-04-06
Site: 1984-04-06
Record Last Updated: 2005-03-30

Quad Summary: Mountain View (3712241/428A)
County Summary: Alameda

Lat/Long: 37.47977º / -122.03885º
UTM: Zone-10 N4148531 E584979
Radius: 1 mile
Elevation: 4 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT
Township: 05S
Range: 02W
Section: 24 **Qtr:** XX
Meridian: M

Location: AREA NE OF CALAVERAS POINT, SAN FRANCISCO BAY NATIONAL WILDLIFE REFUGE.
General: UNKNOWN NUMBER OF PAIRS OBSERVED BY DICK MEWALDT ON 6 APR 1984.
Owner/Manager: USFWS-SAN FRANCISCO BAY NWR

Occurrence No. 24 **Map Index:** 36915 **EO Index:** 60974
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1947-10-03
Site: 1947-10-03
Record Last Updated: 2005-04-12

Quad Summary: Mountain View (3712241/428A), Milpitas (3712148/427B)
County Summary: Santa Clara

Lat/Long: 37.44579º / -122.01375º
UTM: Zone-10 N4144783 E587239
Area:
Elevation: 0 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 06S
Range: 01W
Section: 06 **Qtr:** XX
Meridian: M

Location: ALVISO SLOUGH, NW OF ALVISO.
Location Detail: LOCATION GIVEN BY MVZ AS "ALVISO SLOUGH" AND "BAYSHORE, MOUTH OF ALVISO SLOUGH" (1947). 2 MILE (APPROX) STRETCH OF SLOUGH MAPPED.
General: 22 COLLECTED (MVZ# 97459-97480) DURING SEP AND OCT OF 1947.
Owner/Manager: UNKNOWN

Occurrence No. 26 **Map Index:** 60942 **EO Index:** 60978
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1908-09-19
Site: 1908-09-19
Record Last Updated: 2005-04-12

Quad Summary: Palo Alto (3712242/428B), Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.43568º / -122.13291º
UTM: Zone-10 N4143559 E576707
Radius: 1 mile
Elevation: 18 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT
Township: 06S
Range: 02W
Section: 06 **Qtr:** XX
Meridian: M

Location: PALO ALTO.
Location Detail: LOCATION GIVEN BY MVZ AND CAS AS "PALO ALTO". AREA MAPPED ACCORDING TO LAT/LONG PROVIDED BY MVZ (MAX ERROR DISTANCE 4 MILES). LOCATION MAPPED IN THE VICINITY OF OREGON AVE, BETWEEN HWY 82 AND HWY 101.
Ecological: MVZ# 36009 (MELOSPIZA MELODIA MAXILLARIS) COLLECTED FROM THIS LOCATION IN 1901. THIS BIRD WAS NOTED AS A "WANDERER FROM S SIDE SUISUN BAY".
General: 1 COLLECTED (MVZ# 77098), 1896. 1 COLL (MVZ# 106584), 1898. 7 COLL (MVZ#77107-77113), 1899. 4 COLL (MVZ# 35928-35931), 1901. 2 COLL (MVZ# 35952, 35953), 1902. 3 COLL (MVZ# 5064-5066, 57057, 57058), 1908. MANY CAS RECORDS,1891-1902.
Owner/Manager: UNKNOWN

Melospiza melodia pusillula

Alameda song sparrow

Element Code: ABPBXA301S

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5T2?
State: S2?

Other Lists
CDFG Status: SC

Habitat Associations
General: RESIDENT OF SALT MARSHES BORDERING SOUTH ARM OF SAN FRANCISCO BAY.
Micro: INHABITS SALICORNIA MARSHES; NESTS LOW IN GRINDELIA BUSHES (HIGH ENOUGH TO ESCAPE HIGH TIDES) AND IN SALICORNIA.

Occurrence No. 36 **Map Index:** 61001 **EO Index:** 61037
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1919-05-11
Site: 1919-05-11
Record Last Updated: 2005-04-18

Quad Summary: Newark (3712251/447D), Mountain View (3712241/428A), Niles (3712158/446C)
County Summary: Alameda

Lat/Long: 37.50605º / -122.01883º
UTM: Zone-10 N4151465 E586718
Radius: 1 mile
Elevation:
Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT
Township: 05S
Range: 01W
Section: 07 **Qtr:** XX
Meridian: M

Location: VICINITY OF MOWRY LANDING.
Location Detail: LOCATION STATED AS "MOWRY" AND MAPPED AT MOWRY LANDING.
General: 4 SPECIMENS COLLECTED (CAS# 19821-19824) DURING MAY 1919.
Owner/Manager: UNKNOWN

Northern Coastal Salt Marsh

Element Code: CTT52110CA

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S3.2

Other Lists

Habitat Associations
General:
Micro:

Occurrence No. 15 **Map Index:** 09495 **EO Index:** 16151

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1977-06-XX
Site: 1987-05-29
Record Last Updated: 2006-08-27

Quad Summary: Redwood Point (3712252/447C), Milpitas (3712148/427B), Mountain View (3712241/428A), Palo Alto (3712242/428B)
County Summary: San Mateo, Santa Clara

Lat/Long: 37.46717º / -122.12174º
UTM: Zone-10 N4147061 E577664
Area: 1,278.4 acres
Elevation: 10 ft
Mapping PrecisionSPECIFIC
Symbol Type:POLYGON
Township: 05S
Range: 02W
Section: 30 **Qtr:** XX
Meridian: M

Location: NE PALO ALTO SOUTH SAN FRANCISCO BAY.

Location Detail: FRINGE OF BAY.

Ecological: PARTS OF THE MARSH CONTAIN POCKETS OF FRESH WATER, BUT MAJORITY OF AREA IS SALT. DOMINANTS INCLUDE SALICORNIA VIRGINICA, SPARTINA FOLIOSA, DISTICHLIS SPICATA, AND FRANKENIA GRANDIFLORA.

Threat: NEXT TO SALT PONDS, GOLF COURSE, INDUSTRY AND HOUSING.

General: UNDISTURBED PORTIONS ARE IN EXCELLENT CONDITION. OTHER PARTS ARE OF VARIABLE QUALITY. SEE WWW.DFG.CA.GOV/BIOGEODATA/VEGCAMP/NATURAL_COMM_BACKGROUND.ASP TO INTERPRET AND ADDRESS THE PRESENCE OF RARE COMMUNITIES.

Owner/Manager: UNKNOWN

Occurrence No. 16 **Map Index:** 09551 **EO Index:** 16146

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1985-10-24
Site: 1985-11-XX
Record Last Updated: 1998-07-20

Quad Summary: Milpitas (3712148/427B), Newark (3712251/447D), Mountain View (3712241/428A)
County Summary: Santa Clara, Alameda

Lat/Long: 37.49333º / -122.02347º
UTM: Zone-10 N4150049 E586324
Area: 4,056.6 acres
Elevation: 15 ft
Mapping PrecisionSPECIFIC
Symbol Type:POLYGON
Township: 05S
Range: 02W
Section: 18 **Qtr:** XX
Meridian: M

Location: DUMBARTON POINT, SE SAN FRANCISCO BAY.

Location Detail: FRINGE OF ISLANDS. PORTION OF AREA IMMEDIATELY SOUTH OF THORNTON AVE DOMINATED BY SALICORNIA.

Ecological: 25% OF COVER IS SALICORNIA VIRGINICA, 20% IS DISTICHLIS SPICATA, 10% IS JAUMEA CARNOSA.

Threat: DEVELOPMENT A THREAT PER HOCH, SEEN 1985. NEXT TO SALT PONDS.

General: SEE WWW.DFG.CA.GOV/BIOGEODATA/VEGCAMP/NATURAL_COMM_BACKGROUND.ASP TO INTERPRET AND ADDRESS THE PRESENCE OF RARE COMMUNITIES.

Owner/Manager: PVT-LESLIE SALT CO

Rallus longirostris obsoletus

California clapper rail

Element Code: ABNME05016

Status
Federal: Endangered
State: Endangered

NDDB Element Ranks
Global: G5T1
State: S1

Other Lists
CDFG Status:

Habitat Associations
General: SALT-WATER & BRACKISH MARSHES TRAVERSED BY TIDAL SLOUGHS IN THE VICINITY OF SAN FRANCISCO BAY.
Micro: ASSOCIATED WITH ABUNDANT GROWTHS OF PICKLEWEED, BUT FEEDS AWAY FROM COVER ON INVERTEBRATES FROM MUD-BOTTOMED SLOUGHS.

Occurrence No. 20 **Map Index:** 36915 **EO Index:** 25861
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1975-XX-XX
Site: 1975-XX-XX
Record Last Updated: 1999-09-17

Quad Summary: Mountain View (3712241/428A), Milpitas (3712148/427B)
County Summary: Santa Clara

Lat/Long: 37.44579º / -122.01375º
UTM: Zone-10 N4144783 E587239
Area:
Elevation: 0 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 06S
Range: 01W
Section: 06 **Qtr:** XX
Meridian: M

Location: LARGER FRINGING MARSHES OF ALVISO SLOUGH.

Owner/Manager: UNKNOWN

Occurrence No. 35 **Map Index:** 09815 **EO Index:** 25850
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1975-XX-XX
Site: 1975-XX-XX
Record Last Updated: 2005-01-26

Quad Summary: Milpitas (3712148/427B), Mountain View (3712241/428A)
County Summary: Alameda, Santa Clara

Lat/Long: 37.46540º / -121.99786º
UTM: Zone-10 N4146975 E588621
Area:
Elevation: 5 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 05S
Range: 01W
Section: 29 **Qtr:** XX
Meridian: M

Location: MARSHES FRINGING COYOTE CREEK AND MUD SLOUGH FROM THE MOUTH OF ALVISO SLOUGH EAST TO DRAWBRIDGE.

General: INDIVIDUALS DETECTED FROM NEAR MOUTH OF ALVISO SLOUGH EAST TO THE ABANDONED TOWN OF DRAWBRIDGE. BREEDING NOT KNOWN FROM AREA EAST OF DRAWBRIDGE, BUT THERE HAVE BEEN WINTER SIGHTINGS FROM THIS AREA.

Owner/Manager: UNKNOWN

Occurrence No. 36 **Map Index:** 09562 **EO Index:** 25852
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2006-03-30
Site: 2006-03-30
Record Last Updated: 2006-11-09

Quad Summary: Newark (3712251/447D), Mountain View (3712241/428A)
County Summary: Alameda

Lat/Long: 37.51546º / -122.08587º
UTM: Zone-10 N4152449 E580784
Area: 957.3 acres
Elevation: 2 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 05S
Range: 02W
Section: 09 **Qtr:** XX
Meridian: M

Location: DUMBARTON POINT/NEWARK SLOUGH MARSHES ON THE SOUTH SIDE OF HWY 84, WEST OF NEWARK.

Location Detail: BIRDS NOTED AS OCCURING IN MARSHES FRINGING NEWARK SLOUGH TO THE DUMBARTON BRIDGE. 2006 SURVEY BY INVASIVE SPARTINA PROJECT ALONG NEWARK SLOUGH BETWEEN JARVIS LANDING AND HWY 84.

Ecological: HABITAT CONSISTS OF AN OLD PREDOMINATELY NATIVE COASTAL TIDAL MARSH. DOMINANT VEGETATION IS PICKLEWEED, CORDGRASS, & GUMPLANT.

General: UNKNOWN NUMBER OBS 1971-1975. JAN- APR 1979: 28 BIRDS OBS IN NEWARK SLOUGH AREA & 40 BIRDS OBS IN DUMBARTON PT AREA. 1 BREEDING BIRD DETECTED 14 APR 2004. BETWEEN 24 JAN & 30 MAR 2006 UP TO 2 BIRDS OBS AT EACH OF 15 SITES SURVEYED.

Owner/Manager: USFWS-SAN FRANCISCO BAY NWR

Rallus longirostris obsoletus

California clapper rail

Element Code: ABNME05016

Status
Federal: Endangered
State: Endangered

NDDB Element Ranks
Global: G5T1
State: S1

Other Lists
CDFG Status:

Habitat Associations
General: SALT-WATER & BRACKISH MARSHES TRAVERSED BY TIDAL SLOUGHS IN THE VICINITY OF SAN FRANCISCO BAY.
Micro: ASSOCIATED WITH ABUNDANT GROWTHS OF PICKLEWEED, BUT FEEDS AWAY FROM COVER ON INVERTEBRATES FROM MUD-BOTTOMED SLOUGHS.

Occurrence No. 37 **Map Index:** 37500 **EO Index:** 25855

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1997-10-16
Site: 1997-10-16
Record Last Updated: 1998-01-13

Quad Summary: Mountain View (3712241/428A)
County Summary: Alameda

Lat/Long: 37.49034º / -122.03645º
UTM: Zone-10 N4149705 E585180
Area:
Elevation: 1 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 05S
Range: 02W
Section: 13 **Qtr:** XX
Meridian: M

Location: MARSHES FRINGING MOWRY SLOUGH, NW OF NEWARK

Location Detail: IN 1997, BIRD OBSERVED FORAGING AT LOW TIDE, AT THE CHANNEL MOUTH, AT THE EDGE OF VEGETATION; SAME BIRD OBSERVED AT HIGH TIDE SEEKING REFUGE AMONG PICKLEWEED/GRINDELIA AT THE BASE OF THE LEVEE, NEAR DREDGE LOCK.

Ecological: HABITAT CONSISTS OF A TIDAL SLOUGH, BORDERED BY PICKLEWEED MARSH STRIPS WITH INCISED CHANNELS; HIGH TIDE REFUGIA PROVIDED BY LEVEES VEGETATED WITH PICKLEWEED AND GRINDELIA. SALT CRYSTALLIZATION PONDS FOUND ADJACENT TO SLOUGH CHANNEL.

General: RAILS DETECTED SOMETIME BETWEEN 1971 AND 1975. 1 INDIVIDUAL OBSERVED ON 16 OCTOBER 1997.

Owner/Manager: USFWS-SAN FRANCISCO BAY NWR

Occurrence No. 38 **Map Index:** 09571 **EO Index:** 25851

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1993-12-11
Site: 1993-12-11
Record Last Updated: 1999-06-24

Quad Summary: Newark (3712251/447D), Mountain View (3712241/428A)
County Summary: Alameda

Lat/Long: 37.50183º / -122.07220º
UTM: Zone-10 N4150948 E582007
Area:
Elevation: 1 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 05S
Range: 02W
Section: 15 **Qtr:** XX
Meridian: M

Location: SALT MARSH ALONG PLUMMER SLOUGH.

Location Detail: THIS AREA ALSO REFERRED TO AS MOWRY MARSH NORTH.

General: UNKNOWN NUMBER OBSERVED FEBRUARY 1971 TO DECEMBER 1975. 56 RAILS OBSERVED 11 DEC 1993 IN AIRBOAT SURVEY DURING 7.1 TIDE.

Owner/Manager: UNKNOWN

Occurrence No. 41 **Map Index:** 09745 **EO Index:** 25846

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1979-01-28
Site: 1979-01-28
Record Last Updated: 1999-07-30

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.43675º / -122.02766º
UTM: Zone-10 N4143767 E586019
Area:
Elevation: 4 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 06S
Range: 02W
Section: 01 **Qtr:** XX
Meridian: M

Location: ALONG LARGER FRINGING MARSHES OF GUADALUPE SLOUGH.

Ecological: MARSH VEGETATION CONSISTS OF SALICORNIA, SPARTINA FOLIOSA, & SCIRPUS.

General: 1975: MAJOR POPULATION REPORTED. 1979: 6 BIRDS OBSERVED 28 JANUARY.

Owner/Manager: UNKNOWN

Rallus longirostris obsoletus

California clapper rail

Element Code: ABNME05016

Status
Federal: Endangered
State: Endangered

NDDB Element Ranks
Global: G5T1
State: S1

Other Lists
CDFG Status:

Habitat Associations
General: SALT-WATER & BRACKISH MARSHES TRAVERSED BY TIDAL SLOUGHS IN THE VICINITY OF SAN FRANCISCO BAY.
Micro: ASSOCIATED WITH ABUNDANT GROWTHS OF PICKLEWEED, BUT FEEDS AWAY FROM COVER ON INVERTEBRATES FROM MUD-BOTTOMED SLOUGHS.

Occurrence No. 42 **Map Index:** 09547 **EO Index:** 25848
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1975-XX-XX
Site: 1975-XX-XX
Record Last Updated: 1989-08-10

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.45215º / -122.09108º
UTM: Zone-10 N4145420 E580391
Radius: 1/5 mile
Elevation:
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 05S
Range: 02W
Section: 33 **Qtr:** XX
Meridian: M

Location: MOUTH OF CHARLESTON SLOUGH.
General: MAJOR POPULATION.
Owner/Manager: UNKNOWN

Occurrence No. 45 **Map Index:** 09498 **EO Index:** 25845
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2006-02-02
Site: 2006-02-02
Record Last Updated: 2006-04-06

Quad Summary: Palo Alto (3712242/428B), Mountain View (3712241/428A)
County Summary: San Mateo, Santa Clara

Lat/Long: 37.46737º / -122.12298º
UTM: Zone-10 N4147083 E577553
Area:
Elevation: 1 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 05S
Range: 02W
Section: 30 **Qtr:** XX
Meridian: M

Location: LAUMEISTER TRACT AND FABER TRACT, SOUTH OF COOLEY LANDING AND NORTH OF SAN FRANCISQUITO CREEK, PALO ALTO
Location Detail: 2004: AREA IMMEDIATELY NORTH OF SAN FRANCISQUITO CREEK. 2006: MARSHES SURROUNDING THE MOUTH OF SAN FRANCISQUITO
Ecological: HABITAT CONSISTS NORTHERN COASTAL SALTMARSH, DOMINATED BY SALICORNIA SP. WITH GRINDELIA STRICTA AND SPARTINA SPP.; SURROUNDED BY AN AIRPORT AND A GOLF COURSE TO THE SOUTH AND URBAN RESIDENTIAL TO THE WEST.
Threat: THREATENED BY RECREATIONAL USE ALONG LEVEES, FLOOD CONTROL MAINTENANCE ALONG CREEK, AND AIRPORT MAINTENANCE/ACTIVITIES.
General: AREA REPORTED TO SUPPORT BREEDING POP SOMETIME 1971-1975. 1993:60-67 RAILS OBS IN AIRBOAT SURVEY (TIDE=7.1). JAN 2001:1-7 RAILS HEARD AT POINTS PASSIVELY SURVEYED ALONG SAN FRANCISQUITO CR. 2004:5 ADULTS DETECTED. 2006: 15 ADULTS OBS.
Owner/Manager: USFWS-SAN FRANCISCO BAY NWR

Occurrence No. 60 **Map Index:** 09529 **EO Index:** 25837
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2006-02-01
Site: 2006-02-01
Record Last Updated: 2006-02-01

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.45814º / -122.10313º
UTM: Zone-10 N4146075 E579319
Area:
Elevation: 5 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 05S
Range: 02W
Section: 32 **Qtr:** XX
Meridian: M

Location: MARSHES OF PALO ALTO BAYLANDS, PALO ALTO HARBOR, BIXBY PARK, AND HOOKS ISLAND.
Location Detail: MAJOR POP REPORTED SOMETIME 1971-75. 1978 AND 1979 :PALO ALTO BAYLANDS. 1993: HOOKS ISLAND, PALO ALTO HARBOR, PALO ALTO BAYLANDS.
Ecological: MARSH VEGETATION CONSISTS OF SPARTINA FOLIOSA, SALICORNIA, & GRINDELIA STRICTA.
Threat: THREATENED BY DOGS OFF LEASH.
General: 49 OBS 29 DEC 1978. 20 OBS 25 JAN 1979. NOV 1993: 52 OBS IN AN AIRBOAT SURVEY. DEC 1993: 26 OBS IN CANOE SURVEY. APR/MAY 2004: 11 DETECTIONS. 15-17 DEC 2004: 1 ADULT. 5 DETECTIONS ON 1 FEB 2006.
Owner/Manager: USFWS-SAN FRANCISCO BAY NWR

Rallus longirostris obsoletus

California clapper rail

Element Code: ABNME05016

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G5T1	**CDFG Status:**
State: Endangered	**State:** S1	

Habitat Associations

General: SALT-WATER & BRACKISH MARSHES TRAVERSED BY TIDAL SLOUGHS IN THE VICINITY OF SAN FRANCISCO BAY.

Micro: ASSOCIATED WITH ABUNDANT GROWTHS OF PICKLEWEED, BUT FEEDS AWAY FROM COVER ON INVERTEBRATES FROM MUD-BOTTOMED SLOUGHS.

Occurrence No. 84 **Map Index:** 47069 **EO Index:** 47069

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2001-02-06
Site: 2001-02-06
Record Last Updated: 2002-01-24

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.43358º / -122.08461º
UTM: Zone-10 N4143365 E580983
Area:
Elevation: 1 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON

Township: 06S
Range: 02W
Section: 04 **Qtr:** XX
Meridian: M

Location: PERMANENTE CREEK AT SHORELINE PARK, SUNNYVALE

Ecological: HABITAT CONSISTS OF SALINE EMERGENT WETLAND, DOMINATED BY SALICORNIA SP; SURROUNDED BY SALT EVAPORATOR PONDS, A CITY PARK, AND FLOOD CONTROL CHANNELS.

Threat: THREATENED BY RECREATIONAL AND FLOOD CONTROL ACTIVITIES.

General: 3 ADULTS OBSERVED ON 6 FEB 2001.

Owner/Manager: CITY OF SUNNYVALE, OTHERS

Reithrodontomys raviventris

salt-marsh harvest mouse

Element Code: AMAFF02040

Status
Federal: Endangered
State: Endangered

NDDB Element Ranks
Global: G1G2
State: S1S2

Other Lists
CDFG Status:

Habitat Associations
General: ONLY IN THE SALINE EMERGENT WETLANDS OF SAN FRANCISCO BAY AND ITS TRIBUTARIES.
Micro: PICKLEWEED IS PRIMARY HABITAT. DO NOT BURROW, BUILD LOOSELY ORGANIZED NESTS. REQUIRE HIGHER AREAS FOR FLOOD ESCAPE.

Occurrence No. 7 **Map Index:** 09521 **EO Index:** 23880
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1985-12-XX
Site: 1985-12-XX
Record Last Updated: 1989-08-10

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.45938º / -122.10413º
UTM: Zone-10 N4146211 E579229
Radius: 1/5 mile
Elevation: 5 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 05S
Range: 02W
Section: 26 **Qtr:** XX
Meridian: M

Location: EAST PALO ALTO MARSH, E OF PALO ALTO & W OF SAND POINT. NEAR INTERPRETIVE CENTER.
Location Detail: ONE MOUSE CAPTURED DURING 50 TRAPNIGHTS IN 1971. POPULATION ESTIMATE OF 250 SMHM MADE IN 1972. IN 1985, TRAPPING SURVEY OF 13 AREAS FROM OCTOBER THROUGH DECEMBER YIELDED ONE SMHM CAPTURE DURING 300 TRAPNIGHTS AT THIS LOCATION.

Owner/Manager: CITY OF PALO ALTO

Occurrence No. 26 **Map Index:** 34139 **EO Index:** 13265
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1975-XX-XX
Site: 1975-XX-XX
Record Last Updated: 1997-12-31

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.45043º / -122.09974º
UTM: Zone-10 N4145222 E579627
Area:
Elevation: 2 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 05S
Range: 02W
Section: 32 **Qtr:** XX
Meridian: M

Location: MAYFIELD SLOUGH, NE CORNER OF PALO ALTO FLOOD BASIN.
Location Detail: 1 MOUSE CAPTURED IN 1975.
Ecological: HABITAT CONSISTS OF SEVERAL INTERMITTENT PATCHES OF SALICORNIA.
Threat: AREA IS UTILIZED AS A FLOOD CONTROL BASIN FOR THE CITY OF PALO ALTO.
Owner/Manager: UNKNOWN

Occurrence No. 76 **Map Index:** 37500 **EO Index:** 23858
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1985-12-XX
Site: 1985-12-XX
Record Last Updated: 1998-01-13

Quad Summary: Mountain View (3712241/428A)
County Summary: Alameda

Lat/Long: 37.49034º / -122.03645º
UTM: Zone-10 N4149705 E585180
Area:
Elevation: 1 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 05S
Range: 02W
Section: 13 **Qtr:** XX
Meridian: M

Location: MOWRY SLOUGH, 2.5 MI S OF NEWARK.
Location Detail: IN 1971, 2 SMHM CAPTURED DURING 50 TRAPNIGHTS; TWO SMHM CAPTURED IN 300 TRAPNIGHTS IN 12/85.
Ecological: HABITAT CONSISTS OF TIDAL SALICORNIA, ADJACENT TO SALT EVEPORATORS.
Owner/Manager: USFWS-SAN FRANCISCO BAY NWR

Reithrodontomys raviventris

salt-marsh harvest mouse

Element Code: AMAFF02040

Status
Federal: Endangered
State: Endangered

NDDB Element Ranks
Global: G1G2
State: S1S2

Other Lists
CDFG Status:

Habitat Associations
General: ONLY IN THE SALINE EMERGENT WETLANDS OF SAN FRANCISCO BAY AND ITS TRIBUTARIES.
Micro: PICKLEWEED IS PRIMARY HABITAT. DO NOT BURROW, BUILD LOOSELY ORGANIZED NESTS. REQUIRE HIGHER AREAS FOR FLOOD ESCAPE.

Occurrence No. 78 **Map Index:** 09562 **EO Index:** 14552
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2001-07-XX
Site: 2001-07-XX
Record Last Updated: 2005-02-01

Quad Summary: Newark (3712251/447D), Mountain View (3712241/428A)
County Summary: Alameda

Lat/Long: 37.51546º / -122.08587º
UTM: Zone-10 N4152449 E580784
Area: 957.3 acres
Elevation: 2 ft
Mapping PrecisionSPECIFIC
Symbol Type:POLYGON
Township: 05S
Range: 02W
Section: 09 **Qtr:** XX
Meridian: M

Location: SAN FRANCISCO BAY NATIONAL WILDLIFE REFUGE, DUMBARTON POINT/ NEWARK SLOUGH MARSHES, ON SOUTH SIDE OF HIGHWAY 84, NEWARK

Location Detail: 12/85: CAPTURES AT DUMBARTON PT. SUMMER 1984: 3 TRAP SITES ALONG NEWARK SLOUGH.

Ecological: HABITAT CONSISTS OF NORTHERN COASTAL SALT MARSH, DOMINATED BY PICKLEWEED (SALICORNIA VIRGINICA). 2001: JARVIS LANDING AREA SOUTH OF HWY 84 IS A PICKLEWEED DOMINATED RESTORATION AREA WITH CORD GRASS & BULRUSHES.

General: 36 CAPTURES (W OF DUMBARTON BRIDGE TOLL PLAZA), 1982. 1 CAPTURE (JARVIS LANDING), 28 OCT 1985. 6 CAPTURED, 1990. 12 CAPTURED, 17 JAN 1991. 6 CAPTURED (JARVIS LANDING), 17-22 JUN 2001. 4 CAPTURED (LA RIVIERE MARSH), JUL 2001.

Owner/Manager: USFWS-SAN FRANCISCO BAY NWR

Occurrence No. 81 **Map Index:** 09811 **EO Index:** 14551
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1984-XX-XX
Site: 1984-XX-XX
Record Last Updated: 1989-08-10

Quad Summary: Mountain View (3712241/428A), Milpitas (3712148/427B)
County Summary: Alameda

Lat/Long: 37.47758º / -122.00492º
UTM: Zone-10 N4148319 E587982
Area: 130.7 acres
Elevation: 3 ft
Mapping PrecisionSPECIFIC
Symbol Type:POLYGON
Township: 05S
Range: 01W
Section: 20 **Qtr:** XX
Meridian: M

Location: ALBRAE SLOUGH, TRIB TO COYOTE CRK, JUST W OF MUD SLOUGH, FREMONT.

Location Detail: SMHM CAPTURE(S) BTWN 3 JULY AND 9 SEPT. ALSO TRAPPED AUGUST 22 AND 25, 2 CAPTURES IN 200 TRAPNIGHTS.

Ecological: PICLKLEWEED COMMUNITY AT UPPER END OF LONG, NARROW SLOUGH.

Owner/Manager: UNKNOWN

Occurrence No. 92 **Map Index:** 09810 **EO Index:** 14548
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1986-08-XX
Site: 1986-08-XX
Record Last Updated: 1989-08-10

Quad Summary: Mountain View (3712241/428A), Milpitas (3712148/427B)
County Summary: Santa Clara

Lat/Long: 37.46239º / -121.99972º
UTM: Zone-10 N4146638 E588460
Area: 53.3 acres
Elevation: 3 ft
Mapping PrecisionSPECIFIC
Symbol Type:POLYGON
Township: 05S
Range: 01W
Section: 32 **Qtr:** XX
Meridian: M

Location: COYOTE CREEK MARSH, 2.3 MI NNW OF ALVISO.

Location Detail: THIS SITE WAS TRAPPED IN 1981 WITH NO CAPTURES; IN 1986, 2 SMHM WERE CAPTURED DURING 300 TRAPNIGHTS.

Owner/Manager: UNKNOWN

Reithrodontomys raviventris

salt-marsh harvest mouse

Element Code: AMAFF02040

Status
Federal: Endangered
State: Endangered

NDDB Element Ranks
Global: G1G2
State: S1S2

Other Lists
CDFG Status:

Habitat Associations
General: ONLY IN THE SALINE EMERGENT WETLANDS OF SAN FRANCISCO BAY AND ITS TRIBUTARIES.
Micro: PICKLEWEED IS PRIMARY HABITAT. DO NOT BURROW, BUILD LOOSELY ORGANIZED NESTS. REQUIRE HIGHER AREAS FOR FLOOD ESCAPE.

Occurrence No. 129 **Map Index:** 22643 **EO Index:** 8484
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1991-07-22
Site: 1991-07-26
Record Last Updated: 1996-01-03

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.43111º / -122.05948º
UTM: Zone-10 N4143113 E583210
Area:
Elevation: 0 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 06S
Range: 02W
Section: 11 **Qtr:** XX
Meridian: M

Location: EAST OF STEVENS CREEK, 1.5 MILES NORTH OF THE JUNCTION OF HWY 101 AND HWY 85, MOFFETT FIELD NAVAL AIR STATION.
Ecological: TRAPLINES WERE SET SELECTIVELY IN AREAS DOMINATED BY SALICORNIA VIRGINICA (PICKLEWEED).
Threat: THREATENED BY NON-NATIVE PREDATORS - FERAL CATS AND RED FOXES.
General: 3 TRAPPING GRIDS WERE SET, 2 ON MIDPENINSULA PARK OPEN SPACE PROPERTY AND 1 ON NASA/AMES PROPERTY. TRAP LINES WERE RUN ALONG GUADALUPE SLOUGH AND THE TACAN LEVEE; 1 MOUSE WAS CAPTURED IN THE VICINITY OF THE TACAN LEVEE ON 22 JULY 1991.
Owner/Manager: NASA-AMES RESEARCH CENTER

Occurrence No. 130 **Map Index:** 37523 **EO Index:** 32525
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-10-26
Site: 1990-10-26
Record Last Updated: 1997-11-04

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.46092º / -122.11228º
UTM: Zone-10 N4146375 E578507
Area:
Elevation: 0 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 05S
Range: 02W
Section: 32 **Qtr:** XX
Meridian: M

Location: PALO ALTO BAYLANDS NATURE PRESERVE, NEXT TO (NE) PALO ALTO AIRPORT RUNWAYS, PALO ALTO.
Location Detail: SALICORNIA/SCIRPUS MARSH.
Ecological: SALICORNIA MARSH, SCIRPUS MARSH. LAND USE: OPEN SPACE. DISTURBANCES: FRESH WASTEWATER DISCHARGE.
Threat: VEGETATIVE CONVERSION TO FRESHWATER MARSH.
General: 17 ADULTS OBSERVED 1-4 JUN 1990, NONE FOUND 7-12 SEP 1990, AND 2 ADULTS AND 1 JUVENILE FOUND 21-26 OCT 1990.
Owner/Manager: CITY OF PALO ALTO

Occurrence No. 131 **Map Index:** 37524 **EO Index:** 32526
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1991-01-17
Site: 1991-01-17
Record Last Updated: 1997-11-04

Quad Summary: Palo Alto (3712242/428B), Mountain View (3712241/428A)
County Summary: San Mateo

Lat/Long: 37.47177º / -122.12375º
UTM: Zone-10 N4147570 E577481
Area:
Elevation: 0 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 05S
Range: 02W
Section: 30 **Qtr:** XX
Meridian: M

Location: SOUTH OF COOLEY LANDING, SOUTH OF BAY ROAD AND NORTH OF SAN MATEO COUNTY LINE, EAST PALO ALTO.
Location Detail: MARSH AREA.
Ecological: SALICORNIA MARSH. LAND USE: OPEN SPACE.
Threat: POTENTIAL CHEMICAL CONTAMINATION FROM NEARBY CHEMICAL AND INDUSTRIAL FACILITIES.
General: 12 ADULTS OBSERVED 17 JAN 1991, 8 ADULTS OBSERVED 15-20 OCT 1990.
Owner/Manager: CITY OF EAST PALO ALTO

Reithrodontomys raviventris

salt-marsh harvest mouse

Element Code: AMAFF02040

Status
Federal: Endangered
State: Endangered

NDDB Element Ranks
Global: G1G2
State: S1S2

Other Lists
CDFG Status:

Habitat Associations
General: ONLY IN THE SALINE EMERGENT WETLANDS OF SAN FRANCISCO BAY AND ITS TRIBUTARIES.
Micro: PICKLEWEED IS PRIMARY HABITAT. DO NOT BURROW, BUILD LOOSELY ORGANIZED NESTS. REQUIRE HIGHER AREAS FOR FLOOD ESCAPE.

Occurrence No. 132 **Map Index:** 37525 **EO Index:** 32527
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-10-12
Site: 1990-10-12
Record Last Updated: 1997-11-04

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.44300º / -122.03723º
UTM: Zone-10 N4144452 E585164
Area:
Elevation: 0 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 06S
Range: 02W
Section: 01 **Qtr:** XX
Meridian: M

Location: GUADALUPE SLOUGH TIDAL MARSH DIKE, 3 MILES N OF HIGHWAY 237 & 101 INTERSECTION ABOUT 3.5 MILES WNW OF ALVISO.
Location Detail: TRAP LINE BY DIKE AT REAR OF TIDAL MARSH.
Ecological: PERIPHERAL HALOPHYTES AND PEPPERGRASS AND FIVE HOOK BASSIA.
General: 3 OBSERVED 1990.
Owner/Manager: UNKNOWN

Occurrence No. 133 **Map Index:** 37526 **EO Index:** 32528
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-11-30
Site: 1990-11-30
Record Last Updated: 1997-11-04

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.43182º / -122.01446º
UTM: Zone-10 N4143233 E587192
Area:
Elevation: 0 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 06S
Range: 01W
Section: 07 **Qtr:** XX
Meridian: M

Location: GUADALUPE SLOUGH TIDAL MARSH PLAIN, 2.5 MILES NE OF HIGHWAY 237 & 101 INTERSECTION ~2.5 MILES WNW OF ALVISO.
Location Detail: TIDAL MARSH PLAIN.
Ecological: PICKLEWEED TIDAL MARSH.
General: 1 CAPTURED 26-30 NOV 1990.
Owner/Manager: UNKNOWN

Occurrence No. 148 **Map Index:** 37657 **EO Index:** 32659
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-08-30
Site: 1990-08-30
Record Last Updated: 1997-12-09

Quad Summary: Mountain View (3712241/428A)
County Summary: Alameda

Lat/Long: 37.47086º / -122.03713º
UTM: Zone-10 N4147543 E585142
Area:
Elevation: 0 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 05S
Range: 02W
Section: 25 **Qtr:** XX
Meridian: M

Location: CALAVERAS POINT MARSH, CALAVERAS POINT, 3 MILES NORTH OF MOFFETT FIELD NAVAL AIR STATION, SOUTH SAN FRANCISCO BAY.
Location Detail: MAPPED AT THE SOUTH DIKE ON CALAVERAS POINT MARSH AS PER MAP GIVEN. SAN FRANCISCO BAY NATIONAL WILDLIFE REFUGE.
Ecological: PERIPHERAL HALOPHYTES ON THE DIKE; LUSH, DEEP TIDAL PICKLEWEED ON MARSH PLAIN. SITE EXCELLENT ON THE PLAIN, GOOD ON THE DIKE.
General: 45 CAPTURED ON THE DIKE & 59 ON THE PLAIN 18-29 APRIL 1990; 22 CAPTURED ON THE PLAIN 27-30 AUGUST 1990.
Owner/Manager: USFWS-SAN FRANCISCO BAY NWR

Reithrodontomys raviventris

salt-marsh harvest mouse

Element Code: AMAFF02040

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G1G2	**CDFG Status:**
State: Endangered	**State:** S1S2	

Habitat Associations

General: ONLY IN THE SALINE EMERGENT WETLANDS OF SAN FRANCISCO BAY AND ITS TRIBUTARIES.

Micro: PICKLEWEED IS PRIMARY HABITAT. DO NOT BURROW, BUILD LOOSELY ORGANIZED NESTS. REQUIRE HIGHER AREAS FOR FLOOD ESCAPE.

Occurrence No. 151 **Map Index:** 37793 **EO Index:** 32800

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1988-XX-XX
Site: 1988-XX-XX
Record Last Updated: 1997-12-31

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.44214º / -122.11058º
UTM: Zone-10 N4144293 E578677
Area: 4.7 acres
Elevation: 1 ft

Mapping PrecisionSPECIFIC
Symbol Type:POLYGON

Township: 06S
Range: 02W
Section: 05 **Qtr:** XX
Meridian: M

Location: ITT MARSH, E OF HIGHWAY 101 AND 0.6 MILE S OF PALO ALTO REGIONAL WATER QUALITY CONTROL PLANT, PALO ALTO.

Location Detail: SE CORNER OF THE ITT MARSH PROPERTY NEXT TO MATADERO CREEK.

Ecological: SALTMARSH HABITAT, PRERDOMINANT SPECIES IS PICKLEWEED. ALSO, RUDERAL/UPLAND HABITAT NEAR THE SE CORNER.

General: 54 CAPTURED IN THE MAPPED AREA.

Owner/Manager: CITY OF PALO ALTO

Sorex vagrans halicoetes

salt-marsh wandering shrew

Element Code: AMABA01071

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5T1
State: S1

Other Lists
CDFG Status: SC

Habitat Associations
General: SALT MARSHES OF THE SOUTH ARM OF SAN FRANCISCO BAY.
Micro: MEDIUM HIGH MARSH 6-8 FT ABOVE SEA LEVEL WHERE ABUNDANT DRIFTWOOD IS SCATTERED AMONG SALICORNIA.

Occurrence No. 6 **Map Index:** 09710 **EO Index:** 24361
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1985-12-XX
Site: 1985-12-XX
Record Last Updated: 1989-08-10

Quad Summary: Mountain View (3712241/428A)
County Summary: Alameda

Lat/Long: 37.49298º / -122.03634º
UTM: Zone-10 N4149998 E585187
Radius: 1/5 mile
Elevation: 1 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 05S
Range: 02W
Section: 13 **Qtr:** XX
Meridian: M

Location: MOWRY SLOUGH, APPROX 1 MI E OF SLOUGH MOUTH.
Ecological: TIDAL SALICORNIA HABITAT.
General: 300 TRAP-NIGHTS: NO CAPTURES, 5 OBSERVED UNDER COVER ADJACENT TO TRAPLINE.
Owner/Manager: USFWS-SAN FRANCISCO BAY NWR

Occurrence No. 7 **Map Index:** 09562 **EO Index:** 12953
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1985-12-XX
Site: 1985-12-XX
Record Last Updated: 2003-06-09

Quad Summary: Newark (3712251/447D), Mountain View (3712241/428A)
County Summary: Alameda

Lat/Long: 37.51546º / -122.08587º
UTM: Zone-10 N4152449 E580784
Area: 957.3 acres
Elevation: 2 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 05S
Range: 02W
Section: 09 **Qtr:** XX
Meridian: M

Location: DUMBARTON POINT/NEWARK SLOUGH MARSHES, SOUTH OF HWY 84, WEST OF NEWARK.
Location Detail: CAPTURES IN BOTH THE DUMBARTON POINT AND NEWARK SLOUGH MARSHES.
Ecological: TIDAL SALICORNIA SALT MARSH AND DIKED SALT MARSH.
General: NEWARK SLOUGH AREA: 1950: MVZ #114162. 1980: 1 TRAPPED BY GILROY & SHELLHAMMER RECORDED ONLY AS SOREX VAGRANS; 1982: 2 TAKEN & RECORDED ONLY AS SOREX SP. DUMBARTON AREA: 1985: NO SHREWS IN 300 TRAP-NIGHTS, 3 OBS ADJACENT TO TRAPLINE.
Owner/Manager: USFWS-SAN FRANCISCO BAY NWR

Occurrence No. 10 **Map Index:** 09825 **EO Index:** 5638
Occ Rank: None
Origin: Natural/Native occurrence
Presence: Extirpated
Trend: Unknown

Dates Last Seen
Element: 1951-08-05
Site: 1951-08-05
Record Last Updated: 1994-05-09

Quad Summary: Mountain View (3712241/428A), Milpitas (3712148/427B)
County Summary: Santa Clara

Lat/Long: 37.41243º / -121.99330º
UTM: Zone-10 N4141101 E589087
Radius: 1 mile
Elevation: 5 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 06S
Range: 01W
Section: 17 **Qtr:** XX
Meridian: M

Location: ONE MILE SSW OF ALVISO.
Ecological: NO SUITABLE HABITAT REMAINS DUE TO URBANIZATION.
General: MVZ SPECIMENS #115053-55 COLLECTED IN 1951.
Owner/Manager: UNKNOWN

Sternula antillarum browni

California least tern

Element Code: ABNNM08103

Status
Federal: Endangered
State: Endangered

NDDB Element Ranks
Global: G4T2T3Q
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: NESTS ALONG THE COAST FROM SAN FRANCISCO BAY SOUTH TO NORTHERN BAJA CALIFORNIA.
Micro: COLONIAL BREEDER ON BARE OR SPARSELY VEGETATED, FLAT SUBSTRATES: SAND BEACHES, ALKALI FLATS, LAND FILLS, OR PAVED AREAS.

Occurrence No. 67 **Map Index:** 09550 **EO Index:** 25652

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1987-07-27
Site: 1987-07-27
Record Last Updated: 1989-08-10

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.44437º / -122.08969º
UTM: Zone-10 N4144558 E580522
Radius: 1/5 mile
Elevation:

Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT

Township: 06S
Range: 02W
Section: 04 **Qtr:** XX
Meridian: M

Location: CHARLESTON SLOUGH.
Ecological: SITE SERVES AS A POST-BREEDING FORAGING AND STAGING AREA; DISCOVERED IN 1987.
General: 9 BIRDS USED THIS SITE IN 1987; MONITORING OF THIS SITE SHOULD CONTINUE.
Owner/Manager: UNKNOWN

Occurrence No. 68 **Map Index:** 09672 **EO Index:** 13020

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1987-07-31
Site: 1987-07-31
Record Last Updated: 1995-11-09

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.43882º / -122.04830º
UTM: Zone-10 N4143979 E584190
Radius: 1/5 mile
Elevation:

Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT

Township: 06S
Range: 02W
Section: 02 **Qtr:** XX
Meridian: M

Location: POND B2 OF LESLIE SALT CO.
Ecological: SITE SERVES AS A POST-BREEDING FORAGING AND STAGING AREA; DISCOVERED IN 1987.
General: 68 BIRDS USED THIS SITE IN 1987; REGULAR MONITORING OF THIS SITE SHOULD CONTINUE.
Owner/Manager: NASA-AMES RESEARCH CENTER

Suaeda californica

California seablite

Element Code: PDCHE0P020

Status
Federal: Endangered
State: None

NDDB Element Ranks
Global: G1
State: S1.1

Other Lists
CNPS List: 1B.1

Habitat Associations
General: MARSHES AND SWAMPS.
Micro: MARGINS OF COASTAL SALT MARSHES. 0-5M.

Occurrence No. 8 **Map Index:** 24835 **EO Index:** 6725

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1971-08-08
Site: 1971-08-08
Record Last Updated: 1993-12-08

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.45706º / -122.10517º
UTM: Zone-10 N4145953 E579140
Area:
Elevation: 5 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON

Township: 05S
Range: 02W
Section: 32 **Qtr:** XX
Meridian: M

Location: SALT FLATS OF PALO ALTO YACHT HARBOR.
Location Detail: MAPPED TO INCLUDE SALT MARSH AND UPPER LITTORAL HABITAT IN THE VICINITY OF THE YACHT HARBOR.
Ecological: SALT FLATS.
General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS COLLECTION BY WICKSTEN IN 1971. NEEDS FIELDWORK.
Owner/Manager: UNKNOWN

Tryonia imitator

mimic tryonia (=California brackishwater snail)

Element Code: IMGASJ7040

Status
Federal: None
State: None

NDDB Element Ranks
Global: G2G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: INHABITS COASTAL LAGOONS, ESTUARIES AND SALT MARSHES, FROM SONOMA COUNTY SOUTH TO SAN DIEGO COUNTY.
Micro: FOUND ONLY IN PERMANENTLY SUBMERGED AREAS IN A VARIETY OF SEDIMENT TYPES; ABLE TO WITHSTAND A WIDE RANGE OF SALINITIES.

Occurrence No. 32 **Map Index:** 09763 **EO Index:** 12933

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1986-XX-XX
Site: 1986-XX-XX
Record Last Updated: 1999-09-07

Quad Summary: Mountain View (3712241/428A)
County Summary: Santa Clara

Lat/Long: 37.45753º / -122.01003º
UTM: Zone-10 N4146089 E587553
Area: 358.7 acres
Elevation:

Mapping PrecisionSPECIFIC
Symbol Type:POLYGON

Township: 05S
Range: 01W
Section: 31 **Qtr:** XX
Meridian: M

Location: SALT EVAPORTATION POND A9, ON E-SIDE OF ALVISO SLOUGH MOUTH, ALVISO.
Location Detail: SEVERAL INDIVIDUALS FOUND ADHERING TO ALGAE (ENTEROMORPHA).
Ecological: HABITAT IS PONDED SALT POND, CONNECTED TO THE BAY BY A 4-FT FLAP GATE. HABITAT IS ALWAYS PONDED, MAKING WATER DEPTH VERY STABLE.
General: SALINITIES IN POND WERE 25 PPT, WITH A TEMP AS HIGH AS 25 DEGREES C. OBSERVED DURING FALL OF 1986.
Owner/Manager: USFWS, PVT-LESLIE SALT CO

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Scientific Name - Landscape
Steven's Crossing

	Scientific Name	Common Name	Element Code	Federal Status	State Status	Global Rank	State Rank	CNPS	CDFG
1	Antrozous pallidus	pallid bat	AMACC10010			G5	S3		SC
2	Astragalus tener var. tener	alkali milk-vetch	PDFAB0F8R1			G2T2	S2	1B.2	
3	Athene cunicularia	burrowing owl	ABNSB10010			G4	S2		SC
4	Centromadia parryi ssp. congdonii	Congdon's tarplant	PDAST4R0P1			G4T2	S2	1B.2	
5	Charadrius alexandrinus nivosus	western snowy plover	ABNNB03031	Threatened		G4T3	S2		SC
6	Chloropyron maritimum ssp. palustre	Point Reyes bird's-beak	PDSCR0J0C3			G4?T2	S2.2	1B.2	
7	Circus cyaneus	northern harrier	ABNKC11010			G5	S3		SC
8	Egretta thula	snowy egret	ABNGA06030			G5	S4		
9	Eryngium aristulatum var. hooveri	Hoover's button-celery	PDAPI0Z043			G5T2	S2.1	1B.1	
10	Geothlypis trichas sinuosa	saltmarsh common yellowthroat	ABPBX1201A			G5T2	S2		SC
11	Lasiurus cinereus	hoary bat	AMACC05030			G5	S4?		
12	Laterallus jamaicensis coturniculus	California black rail	ABNME03041		Threatened	G4T1	S1		
13	Melospiza melodia pusillula	Alameda song sparrow	ABPBXA301S			G5T2?	S2?		SC
14	Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2		
15	Rallus longirostris obsoletus	California clapper rail	ABNME05016	Endangered	Endangered	G5T1	S1		
16	Reithrodontomys raviventris	salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S1S2		
17	Sorex vagrans halicoetes	salt-marsh wandering shrew	AMABA01071			G5T1	S1		SC
18	Sternula antillarum browni	California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2S3		
19	Suaeda californica	California seablite	PDCHE0P020	Endangered		G1	S1.1	1B.1	
20	Tryonia imitator	mimic tryonia (=California brackishwater snail)	IMGASJ7040			G2G3	S2S3		

CNPS Inventory of Rare and Endangered Plants

Status: Plant Press Manager window with 7 items - Fri, Sep. 23, 2011 18:13 c

Reformat list as: Standard List - with Plant Press controls

ECOLOGICAL REPORT

scientific	family	life form	blooming	communities	elevation	CNPS
Arctostaphylos andersonii	Ericaceae	perennial evergreen shrub	Nov-May	•Broadleafed upland forest (BUFrs) •Chaparral (Chprl) •North Coast coniferous forest (NCFrs)/openings, edges	60 - 760 meters	List 1B.2
Astragalus tener var. tener	Fabaceae	annual herb	Mar-Jun	•Playas (Plyas) •Valley and foothill grassland (VFGrs) (adobe clay) •Vernal pools (VnPls)/alkaline	1 - 60 meters	List 1B.2
Centromadia parryi ssp. congdonii	Asteraceae	annual herb	May-Oct (Nov), Months in parentheses are uncommon.	•Valley and foothill grassland (VFGrs) (alkaline)	0 - 230 meters	List 1B.2
Chloropyron maritimum ssp. palustre	Orobanchaceae	annual herb hemiparasitic	Jun-Oct	•Marshes and swamps (MshSw) (coastal salt)	0 - 10 meters	List 1B.2
Eryngium aristulatum var. hooveri	Apiaceae	annual/perennial herb	Jul	•Vernal pools (VnPls)	3 - 45 meters	List 1B.1
Stuckenia filiformis	Potamogetonaceae	perennial rhizomatous herb aquatic	May-Jul	•Marshes and swamps (MshSw) (assorted shallow freshwater)	300 - 2150 meters	List 2.2
Suaeda californica	Chenopodiaceae	perennial evergreen shrub	Jul-Oct	•Marshes and swamps (MshSw) (coastal salt)	0 - 15 meters	List 1B.1

Inventory of Rare and Endangered Plants

v7-11sep 9-18-11

Status: search results - Fri, Sep. 23, 2011 18:12 c

{QUADS_123} =~ m/428A/ Search

Tip: Want to search by county? Try the **county index**.[all tips and help.][search history]

Your Quad Selection: Mountain View (428A) 3712241

Hits 1 to 7 of 7

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	**Arctostaphylos andersonii**	Anderson's manzanita	Ericaceae	List 1B.2
		1	**Astragalus tener var. tener**	alkali milk-vetch	Fabaceae	List 1B.2
		1	**Centromadia parryi ssp. congdonii**	Congdon's tarplant	Asteraceae	List 1B.2
		1	**Chloropyron maritimum ssp. palustre**	Point Reyes bird's-beak	Orobanchaceae	List 1B.2
		1	**Eryngium aristulatum var. hooveri**	Hoover's button-celery	Apiaceae	List 1B.1
		1	**Stuckenia filiformis**	slender-leaved pondweed	Potamogetonaceae	List 2.2
		1	**Suaeda californica**	California seablite	Chenopodiaceae	List 1B.1

No more hits.

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

September 23, 2011

Document Number: 110923040919

Eric Christensen
ICF International
75 E. Santa Clara St., Suite 300
San Jose, CA 95113

Subject: Species List for Steven's Crossing

Dear: Mr. Christensen

We are sending this official species list in response to your September 23, 2011 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be December 22, 2011.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found at www.fws.gov/sacramento/es/branches.htm.

Endangered Species Division

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 110923040919

Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Invertebrates

Euphydryas editha bayensis
bay checkerspot butterfly (T)

Lepidurus packardi
vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus kisutch
coho salmon - central CA coast (E) (NMFS)

Oncorhynchus mykiss
Central California Coastal steelhead (T) (NMFS)
Central Valley steelhead (T) (NMFS)
Critical habitat, Central California coastal steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana draytonii
California red-legged frog (T)

Birds

Charadrius alexandrinus nivosus
western snowy plover (T)

Pelecanus occidentalis californicus
California brown pelican (E)

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Mammals

Reithrodontomys raviventris

salt marsh harvest mouse (E)

Plants

Suaeda californica

California sea blite (E)

Quads Containing Listed, Proposed or Candidate Species:

MOUNTAIN VIEW (428A)

County Lists

No county species lists requested.

Key:

(E) *Endangered* - Listed as being in danger of extinction.

(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.

(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.

(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.

Critical Habitat - Area essential to the conservation of a species.

(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.

(C) *Candidate* - Candidate to become a proposed species.

(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.

(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be December 22, 2011.