Draft

Initial Study/
Mitigated Negative Declaration

BART Slope Stabilization Project

San Francisco Bay Area Rapid Transit District

July 2022

DRAFT

Initial Study/
Mitigated Negative Declaration

BART Slope Stabilization Project

Prepared for

San Francisco Bay Area Rapid Transit District

2150 Webster Street

Oakland, CA 94612

Prepared by

AECOM

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July 2022

SAN FRANCISO BAY AREA RAPID TRANSIT DISTRICT

NOTICE OF INTENT TO ADOPT MITIGATED NEGATIVE DECLARATION for BART SLOPE STABILIZATION PROJECT

Date of Publication of Initial Study/Mitigated Negative Declaration: July 8, 2022

Project Title: BART Slope Stabilization Project

Sponsor and Lead Agency: San Francisco Bay Area Rapid Transit District

Contact Person and Phone Number: Donald Dean, 510-287-4844

Project Locations:

- Concord – BART Structure C3015 Kinne Boulevard.
- Castro Valley – BART Structure L5008 Five Canyons Parkway; BART Structure L5009 Fraga Road; BART Structure L5010 E Castro Valley Boulevard.

Project Description: The San Francisco Bay Area Rapid Transit District (BART) is proposing the BART Slope Stabilization Project (Project) along BART's right-of-way (ROW) to reduce long-term risk to passengers, employees, and property from damaged abutment joint seals, drainage problems, and slope failure and erosion at or below BART abutment structures. Abutments are concrete structures that support the two ends of a bridge where it passes over a roadway or body of water. The seals that are applied serve to prevent unwanted surface water and contaminants from entering into the abutment. BART has identified particular slopes as a priority for slope stabilization improvements and maintenance, as well as the overhead abutments that need repairs. Using Measure RR[1] funded programs and California Governor's Office of Emergency Service/Federal Emergency Management Agency funding, BART proposes to repair the drainage condition of the abutments, related wayside and track drainage, and the condition of embankment slopes at these identified sites. The slope repairs would vary in scope, depending on the extent of the repair required to stabilize the specific slope.

The purpose of the Project is to repair the abutment joints, clear any clogged drains, and armor and reinforce the slopes underneath BART bridge structures to prevent any further erosion damage. Typical armoring materials, which are placed on the slopes to protect them, are concrete, large diameter rock, and a strong reinforcing fabric that can be secured to the slope using an anchor in the soil. The five identified locations for evaluation in this Initial Study/Mitigated Negative Declaration (IS/MND) include two in Concord, California (at BART Structures C3015E and C3015W), and three in Castro Valley, California (at BART Structures L5008W, L5009W, and L5010W). Because the repair work includes the BART structures as well as portions of the track,

[1] Measure RR gave State authorization for BART to issue $3.5 billion in bonds to fund system renewal projects, backed by a tax on property within San Francisco, Alameda and Contra Costa counties.

drainage facilities, and the embankment slopes below the BART structures, the entire construction area at each structure is hereafter referred to as “project site.”

The Concord project site is within the former Concord Naval Weapons Station. Although cleanup activities are underway and the land was transferred from the U.S. Navy to the City of Concord on November 13, 2017, the site remains an “open” site and is on the state Cortese List, which is required to be maintained and updated by the California Environmental Protection Agency (CalEPA 2021), pursuant to Government Code Section 65962.5. The Cortese List is an annually updated planning document used to inform the public about the location of hazardous materials release sites.

This Project Would Not Have A Significant Effect on the Environment: This finding is based on the criteria of the Guidelines of the State Secretary for Natural Resources, Sections 15064 (Determining Significant Effect), 15065 (Mandatory Findings of Significance), and 15070 (Decision to Prepare a Negative Declaration), and the reasons documented in the Environmental Evaluation (Initial Study) for the Project. Mitigation measures would be implemented by the Project to reduce potentially significant effects to a less-than-significant level. These mitigation measures are identified in the Initial Study.

Copies of the Initial Study/Mitigated Negative Declaration: Copies of the IS/MND can be reviewed and downloaded from the BART website at www.bart.gov/sloperepair.

In addition, copies of the IS/MND are available at the following libraries in Concord and Castro Valley:

- Concord Library, 2900 Salvio Street, Concord
- Castro Valley Library, 3600 Norbridge Avenue, Castro Valley

Public Meeting: BART will hold two virtual public meetings to receive public comments on the Draft Initial Study/Mitigated Negative Declaration:

- **Castro Valley on August 3, 2022** from 6:30 to 7:30 p.m. Join us by either:
  - Clicking the link below to join the webinar
    https://us06web.zoom.us/j/81902723374?pwd=VUMvTmVXUWk0SEcvcDNrZXRGb2ZuQT09
    Passcode: 565355

    OR

  - Calling
    (669) 900-6833 or Toll Free: (877) 853-5257
    Webinar ID: 819 0272 3374
    Passcode: 565355

- **Concord on August 4, 2022** from 6:30 to 7:30 p.m. Join us by either:
  - Clicking the link below to join the webinar
    https://us06web.zoom.us/j/84960010989?pwd=enlMOTJNczlQWWxxSHZDcWVmZjJqQT09
    Passcode: 036342

    OR

  - Calling
    (669) 900-6833 or Toll Free: (877) 853-5257
    Webinar ID: 849 6001 0989
    Passcode: 036342

Comments on the Draft Initial Study/Mitigated Negative Declaration: The public review period for the Draft IS/MND will begin on July 8, 2022 and end on August 12, 2022 at 5 p.m.

Comments can be made:

- at the public meeting;
- emailed to the following email addresses:
  - khillis@bart.gov for Castro Valley
  - AMercad@bart.gov for Concord;

  OR
- sent to the following address: San Francisco Bay Area Rapid Transit District, Attn: Donald Dean, BART, 2150 Webster Street, 8th Floor, Oakland California, 94612.

Mitigation Measures Incorporated into the Project: The following mitigation measures would be implemented by the Project to reduce the potentially significant impacts identified in the Initial Study to a less-than-significant level.

Mitigation Measure BIO-1: Environmental Awareness Training for All Project Sites. Before the start of construction, a qualified biologist or other qualified resource specialist will develop environmental training for all project personnel, which will cover all pertinent conservation measures, permit conditions, and any other required environmental compliance measures. Training will be conducted by a qualified biologist or other qualified resource specialist, and may be provided via recording. All project personnel will attend the training before entering the project work area. On completion of the training, attendees will sign a form stating that they participated in the training and understand the material presented. This training may be combined with other environmental training for the Project, such as cultural resource training. In the event that non-English-speaking personnel are employed by the Project, an interpreter will be present during the environmental training, or training materials will be supplied in an appropriate language.

Mitigation Measure BIO-2: Preconstruction Surveys and Biological Monitoring for California red-legged frog and Alameda whipsnake at Castro Valley Project Sites. A preconstruction survey for California red-legged frog and Alameda whipsnake will be performed by a qualified biologist immediately before initial ground-disturbing activities or vegetation clearing at project sites L5008W, L5009W, and L5010W. A biological monitor also will be present on site during all initial ground-disturbing activities and vegetation removal. Through communication with the construction site supervisor, the qualified biologist may stop work if it is deemed necessary for any reason to protect listed species, and this biologist will advise the on-site Project Manager or designee on how to proceed appropriately.

Mitigation Measure BIO-3: Avoid Entrapment of Special-Status Wildlife at Castro Valley Project Sites. To prevent inadvertent entrapment of special-status wildlife during construction, all excavated, steep-walled holes or trenches more than 1 foot deep will be covered with plywood or similar materials at the close of each workday, or will be equipped with one or more escape ramps, constructed of earth fill or wooden planks. A construction site supervisor will inspect all holes and trenches at the beginning of each workday and before such holes or trenches are filled.

Mitigation Measure BIO-4: Avoid Contact with Listed Species at All Project Sites. If a special-status wildlife species is observed in the project vicinity, all construction activities will cease within 50 feet of the animal. The animal will be allowed to leave the work area of its own volition. If the animal does not or cannot leave the work area of its own volition, the construction site supervisor will contact BART, and BART will contact the appropriate resources agencies (CDFW and or USFWS) to coordinate relocation of the animal if necessary.

Mitigation Measure BIO-5: Western Burrowing Owl Survey at the Concord Project Sites. Preconstruction burrowing owl surveys will be conducted in accordance with the Burrowing Owl Survey Protocol and Mitigation Guidelines (California Burrowing Owl Consortium 1993) at project sites C3015W and C3015E. This guidance will include conducting a habitat assessment and burrow survey. If suitable habitat is observed, burrowing owl surveys will be completed during the nesting season (February 1 to August 31) or during the overwintering season (December 1 to January 31), if construction is scheduled to take place during these seasons. Guidelines for establishing and modifying exclusion buffers around active nests, monitoring active nests, and reporting the results of monitoring efforts also will be followed.

Mitigation Measure BIO-6: Avoid Impacts on Waters of the U.S. at the Concord Project Site. All waters of the U.S. will be avoided by the Project. If access to the slope repair work at project site C3015E via Kinne Boulevard cannot be accomplished using the box culvert south of the project site, and will require crossing the human-made, concrete-lined, open ditch, no construction equipment or materials will be allowed to enter the bed and banks of this feature. To avoid this feature, metal plates, a bridge structure, or other conventional construction methods will be used to span or cross it.

Mitigation Measure BIO-7: Nesting Bird Survey at All Project Sites. If any construction activities occur during the active nesting period (February 1 through August 31), a preconstruction survey for nesting birds will be conducted by a qualified biologist. Nesting bird surveys will be conducted within 1 week before the start of construction activities. If no active nests are found, no further surveys and no further mitigation will be required. However, if 2 weeks lapse during construction within the active nesting period (i.e., if no work takes place on site for 2 continuous weeks between February 1 and August 31), then the survey will be repeated to ensure that any nests have not been occupied or created during the work stoppage. This survey will be required each year before any project construction activities occurring during the active nesting period. This survey will not be required if construction occurs outside the active nesting period.

If active nests are found in any areas that may be directly affected by construction activities, a qualified biologist will assess the potential impacts of project construction noise levels to ensure an appropriate buffer is established to protect the active nests. The extent of these buffers will be determined by the biologist based on the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers.

Mitigation Measure CUL-1: Unanticipated Discoveries of Archaeological Resources. If construction workers unearth archaeological resources during project implementation, all project activities within 100 feet will halt until a professional archaeologist (who meets the Secretary of the Interior's Professional Qualifications Standards in archaeology) is retained and determines the significance of the discovery. If the resource potentially also is a Tribal cultural resource, the archaeologist will assess impacts, significance, and mitigation, in consultation with local Native American representatives.

Precontact archaeological materials may include obsidian and chert flaked-stone tools (e.g., projectile points, knives, or scrapers) or toolmaking debris; culturally darkened soil (midden) containing heat-affected rocks, artifacts, or shellfish remains; stone milling equipment (e.g., mortars, pestles, hand stones, or milling slabs); and/or battered stone tools, such as hammerstones. Historic period materials may include foundations or hollow-filled features, such a privies or wells.

Impacts on any significant resources may be mitigated through avoidance, data recovery, or other methods, as identified by a qualified archaeologist, local Native American representatives, and BART. Any mitigation plan developed by a qualified archaeologist will be approved by BART before implementation. Project-related ground-disturbing activities will not be continued in the vicinity of any discovered resource until the significance of the resource is resolved and mitigation action (if any) is completed.

Mitigation Measure CUL-2: Treatment of Human Remains. If human remains are encountered, all provisions of Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the California Public Resources Code will be followed. Work will stop within 100 feet of the discovery, and both a qualified archaeologist and BART project manager must be contacted within 24 hours. BART staff will contact the County Coroner. If human remains are of Native American origin, the County Coroner will notify the California Native American Heritage Commission within 24 hours of this determination, and a Most Likely Descendent will be identified. No work will proceed in the discovery area until consultation is completed and procedures to avoid or recover the remains have been implemented.

Mitigation Measure HAZ-1: Site Assessment and Conceptual Site Model to Characterize the Soil, Groundwater, and Soil Gas at the Concord Project Sites. BART will consult with the Selected Regulatory Agency to determine whether a Site Assessment (a Phase II Environmental Site Assessment [ESA]) and Conceptual Site Model is needed to ensure adequate characterization of the soil, groundwater, and soil gas at project sites. If so, the details for the Site Assessment and Conceptual Site Model will be confirmed and is expected to examine and discuss all potential exposure pathways, including the following:

- dermal—physical contact with contaminated soil and groundwater during construction;
- inhalation—dust generated by construction activities and contaminants that volatilize or produce vapors; and
- surface and groundwater—potential for overland flow from construction dewatering to enter surface waters, and to percolate into clean groundwater that is not part of the current contaminated groundwater plume.

The Site Assessment and Conceptual Site Model will evaluate potential hazards to both construction workers and the environment during the construction phase, and will make recommendations governing soil re-use or disposal, and dewatering requirements during construction.

BART will provide the results from the completed Site Assessment and Conceptual Site Model to the Selected Regulatory Agency for review and approval. After the Selected Regulatory Agency approves the completed Site Assessment and Conceptual Site Model, BART will prepare a Site Management Plan that describes its plan to manage all of the identified risks. The Conceptual Site Model and Site Management Plan will provide a thorough evaluation of the specific constituents and their concentrations in groundwater, soil, or soil-gas at the project sites, and will include recommendations for project construction to reduce environmental risks and human health hazards. The Site Management Plan will be submitted to the Selected Regulatory Agency for review and approval.

BART will incorporate all elements of the approved Site Management Plan into the construction contractor specifications, in accordance with Mitigation Measures HAZ-2 and HAZ-3.

Mitigation Measure HAZ-2: Obtain a Permit for Construction Dewatering of Impacted Groundwater (as necessary) for the Concord Project Sites and Implement Appropriate Treatment Measures before Discharge. If construction dewatering at the project sites is necessary, BART will obtain a permit for construction dewatering of potentially impacted groundwater from the San Francisco Bay RWQCB or Selected Regulatory Agency. BART will comply with all requirements of the permit and will include all of the permit requirements in the construction specifications. An appropriate method for treating the groundwater before discharge will be employed (as determined by a registered environmental engineer, retained specifically for the Project in coordination with the Selected Regulatory Agency).

Mitigation Measure HAZ-3: Incorporate Standards for HazMat Training and the Proper Handling and Disposal of Impacted Soils into the Construction Specifications for the Concord Project Sites. Based on the results of the Site Assessment and Conceptual Site Model that are completed pursuant to Mitigation Measure HAZ-1, BART will require specifications and procedures to be followed by the construction contractor for potential contact with impacted groundwater, and the safe handling, treatment, and disposal of excavated soils from the project site (if soils are found to be impacted), consistent with all applicable federal, State, and local requirements. The following provisions will be included in the project's construction specifications:

a. All construction workers who will be involved with ground disturbance will be trained in Hazardous Waste Operations and Emergency Response (HAZWOPER) as related to impacted groundwater, as well as related to impacted soil, if any is found to be present based on the results of the Site Assessment (Phase II ESA).

b. If the results of the Site Assessment (Phase II ESA) and Conceptual Site Model indicate that impacted soil is present, then BART will ensure that a licensed engineering contractor with a Class A license and hazardous substance removal certification is used to perform any soil removal from the project sites. A California-licensed engineer will provide field oversight on behalf of BART, to document the origin and destination of all removed materials. If necessary, removed materials will be stockpiled temporarily and covered with

plastic sheeting, pending relocation, segregation, or off-site hauling. To protect groundwater and surface water quality, contaminated soils will not be stored on site during the winter rainy season (i.e., November through April), to the extent practicable. All impacted materials will be disposed at an appropriately licensed landfill or facility.

BART will provide the Selected Regulatory Agency with documentation to verify that all of these requirements have been met.

Mitigation Measure HAZ-4: Prepare and Implement a Site-Specific Health and Safety Plan for the Concord Project Sites. To protect the health of construction workers and the environment, BART will prepare and implement a site-specific Health and Safety Plan (HASP). The HASP will be prepared in accordance with State and federal Occupational Safety and Health Administration (OSHA) regulations (29 CFR 1910.120) and will be approved by a certified industrial hygienist. Copies of the HASP will be made available to construction workers for review during their orientation training and/or during regular health and safety meetings. The HASP will identify potential hazards (including impacted groundwater, and the potential for stained or odiferous soils at any location where earth-moving activities are to occur), chemicals of concern, personal protective equipment and devices, decontamination procedures, the need for personal or area monitoring, and emergency response procedures. The HASP will be consistent with all applicable components of the Site Management Plan, as approved by the Selected Regulatory Agency pursuant to Mitigation Measure HAZ-1.

Initial Study

BART Slope Stabilization Project

San Francisco Bay Area Rapid Transit District

July 2022

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
ACFCWCD	Alameda County Flood Control and Water Conservation District
BAAQMD	Bay Area Air Quality Management District
BART	San Francisco Bay Area Rapid Transit District
Basin Plan	Water Quality Control Plan
BFS	BART Facilities Standards
BMP	best management practice
cal BP	calibrated years before present
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CASQA	California Storm Water Quality Association
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH_4	methane
CHABA	Committee of Hearing, Bio Acoustics, and Bio Mechanics
CHRIS	California Historical Resources Information System
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level (the CNEL is similar to the L_{dn} described below, but with an additional 4.77 dBA "penalty" for the noise-sensitive hours between 7:00 p.m. and 10:00 p.m., which are typically reserved for relaxation, conversation, reading, and television)
CNPS	California Native Plant Society
CNWS	Concord Naval Weapons Station
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2-equivalents
CRHR	California Register of Historical Resources
CRLF	California red-legged frog
CRP	Concord Reuse Project
CWA	Clean Water Act
dB	decibel(s)
dBA	A-weighted decibels
dBA/DD	dBA per doubling of distance

DBH	diameter at breast height
DOT	U.S. Department of Transportation
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESA	Environmental Site Assessment
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GHG	greenhouse gas
GWP	global warming potential
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HCP	Habitat Conservation Plan
Hz	Hertz
I-580	Interstate 580
in/sec	inch(es) per second
IPaC	Information for Planning and Conservation
IS/MND	Initial Study/Mitigated Negative Declaration
JUMA	Joint Use Maintenance Agreement
L_{den}	day-evening-night noise level (see CNEL)
LDL	Larson Davis Laboratories
L_{dn}	day-night noise level (the 24-hour L_{eq} with a 10 dBA “penalty” for the noise-sensitive hours between 10:00 p.m. and 6:00 a.m.)
L_{eq}	energy-equivalent noise level (the sound energy averaged over a continuous 15-minute to 1-hour period)
L_{max}	maximum sound level (the highest instantaneous sound level measured during a specified period)
L_{min}	minimum noise level
L_n	statistical descriptor
Lv	a measurement for vibration; the velocity level in decibels referenced to 1 micro inch per second and based on the root-mean-square velocity amplitude
LOS	Level of Service
MBTA	Migratory Bird Treaty Act
MMRP	Mitigation Monitoring and Reporting Plan
MRZ	mineral resource zone
MS4	Municipal Separate Storm Sewer System

NOx	nitrogen oxides
NAHC	California Native American Heritage Commission
NCCP	Natural Communities Conservation Plan
NPDES	National Pollutant Discharge Elimination System
NWIC	Northwest Information Center
OEHHA	Office of Environmental Health Hazard Assessment
OHP	Office of Historic Preservation
OSHA	Occupational Safety and Health Administration
PG&E	Pacific Gas and Electric Company
PGA	peak (horizontal) ground acceleration
PM	particulate matter
PM_{10}	particulate matter equal to or less than 10 micrometers in diameter
$PM_{2.5}$	particulate matter equal to or less than 2.5 micrometers in diameter
PPV	peak particle velocity
PRC	Public Resource Code
Project	BART Slope Stabilization Project
RCNM	Roadway Construction Noise Model
RCRA	Resource Conservation and Recovery Act
RMS	root mean square vibration velocity
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
Scoping Plan	2017 Climate Change Scoping Plan
SFBAAB	San Francisco Bay Area Air Basin
SGMA	Sustainable Groundwater Management Act
SMARA	Surface Mining and Reclamation Act
SOx	sulfur oxides
SR	State Route
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TCR	tribal cultural resources
TMDL	Total Maximum Daily Load
UGB	Urban Growth Boundary
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
VdB	vibration decibels
VOC	volatile organic compound

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1. INTRODUCTION

1.1 Purpose of Document

This Initial Study and Mitigated Negative Declaration (IS/MND) has been prepared by the San Francisco Bay Area Rapid Transit District (BART) to evaluate the potential environmental effects of implementation of the proposed BART Slope Stabilization Project (Project). This document evaluates activities associated with implementation of the Project.

This document was prepared in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations Section 15000 et seq.). An Initial Study (IS) is prepared by a Lead Agency to determine whether a project may have a significant effect on the environment (State CEQA Guidelines Section 15063[a]), and thus to identify the appropriate environmental document. In accordance with State CEQA Guidelines Section 15070, a "public agency shall prepare…a proposed negative declaration or mitigated negative declaration…when: (a) The Initial Study shows that there is no substantial evidence…that the project may have a significant impact on the environment, or (b) The Initial Study identifies potentially significant effects but revisions to the project plans or proposal are agreed to by the applicant and such revisions would reduce potentially significant effects to a less-than-significant level." In this circumstance, the Lead Agency prepares a written statement describing its reasons for concluding that the Project would not have a significant effect on the environment, and therefore does not require preparation of an Environmental Impact Report (EIR).

As described in this IS (see Section 3, Environmental Analysis), the Project would result in potentially significant environmental impacts, but those impacts would be reduced to a less-than-significant level by revisions to the Project or by BART's implementation of specific mitigation measures). Therefore, an IS/MND is the appropriate document for compliance with the requirements of CEQA. This IS/MND conforms to CEQA requirements and the content requirements of Section 15071 of the State CEQA Guidelines.

1.2 Proposed Project Objectives

The project objectives are to:

- repair the BART bridge abutment joints, to improve the drainage conditions of abutments. Abutments are concrete structures that support the two ends of a bridge where it passes over a roadway or body of water
- clear clogged storm drains; and
- armor and reinforce the embankment slopes underneath the BART bridge structures to prevent further erosion damage. Typical armoring materials, which are placed on the slope to protect it, are concrete, large diameter rock, and a strong reinforcing fabric that can be secured to the slope using an anchor in the soil.

1.3 Lead Agency/Project Applicant

The Lead Agency is the public agency with primary approval authority over the Project. According to Section 15051(a) of the State CEQA Guidelines, "If the project will be carried out by a public agency, that agency shall be the Lead Agency even if the project would be located within the jurisdiction of another public agency." The Lead Agency and applicant for the Project is BART.

After comments are received from the public and reviewing agencies, BART may: (1) adopt the MND and approve the Project; (2) revise the MND or undertake additional environmental studies; or (3) abandon the Project. If the Project is approved, BART could implement all or part of the Project.

1.4 Summary of Findings

This document contains an analysis and discussion of potential environmental impacts of the Project. BART has determined that the Project would have no impacts or less-than-significant impacts related to the following issue areas:

- aesthetics, agriculture and forestry resources, air quality, energy, geology and soils, greenhouse gas emissions, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation, tribal cultural resources, utilities and service systems, and wildfire.

Potential project impacts were determined to be less than significant with mitigation for the following issue areas:

- biological resources, cultural resources, and hazards and hazardous materials.

A Mitigation Monitoring and Reporting Plan (MMRP) would be prepared and would include the mitigation measures to reduce impacts to biological resources, cultural resources, and hazards and hazardous materials to less-than-significant levels. Impacts on the remaining resource areas listed above would not require mitigation measures and would not be included in the MMRP.

1.5 Document Organization

This IS/MND includes the following sections:

- **Introduction.** This section describes the purpose and organization of this document.
- **Project Description.** This section describes the project objectives and presents a detailed description of the Project.
- **Environmental Analysis.** This section presents an analysis of a range of environmental issues that are identified in Appendix G, Environmental Checklist of the State CEQA Guidelines, and determines whether project implementation would result in no impact, a less-than-significant impact, a less-than-significant impact with mitigation incorporated, or a potentially significant impact. If any impacts are determined to be potentially significant,

an EIR would be required. For this Project, mitigation measures would be implemented to reduce all potentially significant impacts to less-than-significant levels.

- **List of Preparers.** This section identifies the preparers of this IS/MND.

1.6 Environmental Factors Potentially Affected

Project impacts on each of the following environmental factors are evaluated in the IS. The proposed project could have significant effects on biological resources, cultural resources, and hazards & hazardous materials, as indicated by the checked boxes below. Mitigation measures have been identified in Section 3 of this Draft IS/MND for each of these environmental factors that would reduce significant impacts to less than significant. For the unchecked environmental factors, the proposed project would result in either no or less-than-significant impacts, as discussed in Section 3.

☐ Aesthetics	☐ Agriculture Resources	☐ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Energy
☐ Geology/Soils	☐ Greenhouse Gas Emissions	☒ Hazards & Hazardous Materials
☐ Hydrology/Water Quality	☐ Land Use/Planning	☐ Mineral Resources
☐ Noise	☐ Population/Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities/Services Systems	☐ Wildfire	☐ Mandatory Findings of Significance

1.7 Determination of Applicable CEQA Document

On the basis of this initial evaluation:

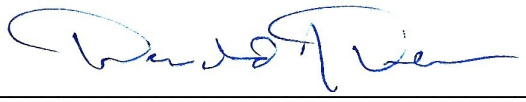
☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ 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 in the project have been made by or agreed to by the applicant. 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 a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, 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 EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR OR NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



Signature

7/1/2022

Date

Donald Dean
BART Manager of Environmental Review

2. PROJECT DESCRIPTION

2.1 BART System

BART has operated a rapid passenger rail system since 1972 and currently serves five Bay Area counties—San Francisco, Alameda, Contra Costa, San Mateo, and Santa Clara. It operates and maintains five routes with 131 miles of revenue track and 50 stations, serving an average of about 405,000 weekday exits (before the COVID-19 pandemic). The BART system is shown in Figure 1.

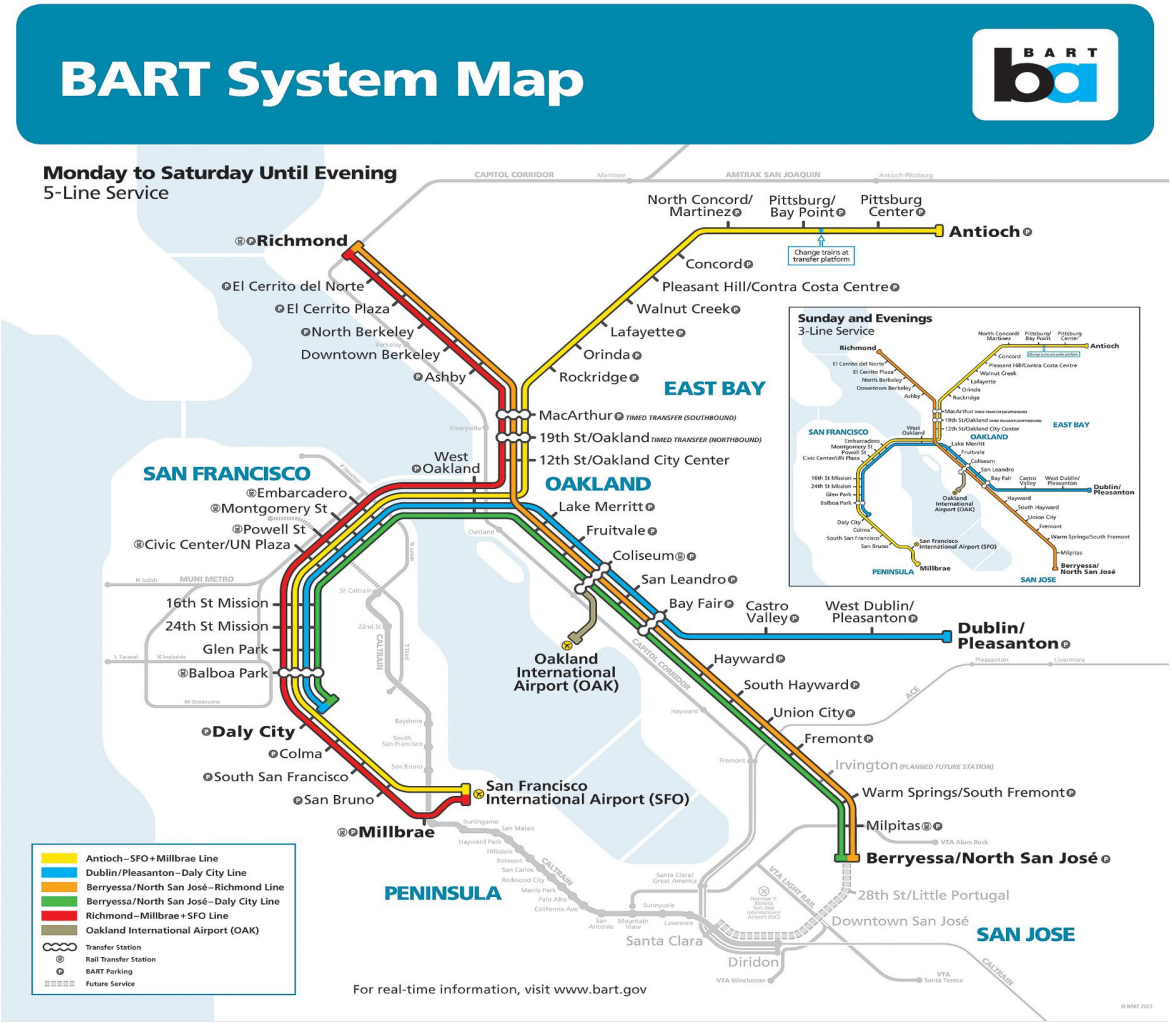


Figure 1. BART System Map

2.2 Project Background

BART is proposing the Project along its right-of-way (ROW) to reduce long-term risk to its passengers, employees, and property because of slope failure and erosion at the project sites. The Project is the outcome of a 2018 BART System-Wide Embankment Erosion Study, performed

to verify the presence and severity of reported erosion for support of capital improvement planning. A comprehensive desktop and field reconnaissance survey examined 26 slopes along the BART ROW and found a number of them to have moderately severe to severe erosional features, drainage conditions, or foundation undermining. Based on this survey, BART identified slopes with medium to high severity damage as a priority for slope stabilization improvements and maintenance. Using Measure RR-funded programs[2] and the California Governor's Office of Emergency Services and Federal Emergency Management Agency funded programs, the Project would repair the drainage condition of the abutments, related wayside and track drainage, and the condition of embankment slopes at these identified sites. The slope repairs would vary in scope, depending on the extent of the repair required to stabilize the specific site.

Repair and maintenance work as planned by BART normally is exempt from CEQA, pursuant to Section 15301 of the State CEQA Guidelines for existing facilities or Section 15304 for minor alterations to land. However, based on an initial desktop environmental review of conditions at particular slopes by BART, a more detailed examination to assess the potential for significant impacts and identify appropriate mitigation measures, if warranted, at five slopes was recommended. For these slopes, BART has prepared this IS, to enable the BART Board of Directors to decide whether to adopt an MND, as defined in Section 15073 of the State CEQA Guidelines. For the other slopes in BART's slope stabilization project, BART will make a determination that they are exempt from CEQA and file Notices of Exemptions.

2.3 Project Objectives

The damage to the project sites was caused by severe storm events that allowed stormwater intrusion through the deteriorated trackside abutment joints, causing erosion on the unprotected slopes below. The project objectives are to repair the abutment joints at each of the five project sites, clear any clogged drains, and armor and reinforce the slopes underneath the BART bridge structures to prevent any further erosion damage.

2.4 Proposed Improvements

BART five locations (referred to as project sites) evaluated in this IS are in Concord, California (at BART Structures C3015E/Slope #24 and C3015W/Slope #25 near State Route 4 [SR-4]), and in Castro Valley, California (at BART Structures L5008W/Slope #26, L5009W/Slope #27, and L5010W/Slope #28 along Interstate 580 [I-580]) (see for Figure 2 more specific project locations).

Based on an early reconnaissance survey conducted in March 2018, the primary types of erosion and related conditions found along the slopes at these project sites included:

- slope raveling or sloughing
- gullying

[2] Measure RR gave State authorization for BART to issue $3.5 billion in bonds to fund system renewal projects, backed by a tax on property within San Francisco, Alameda and Contra Costa counties.

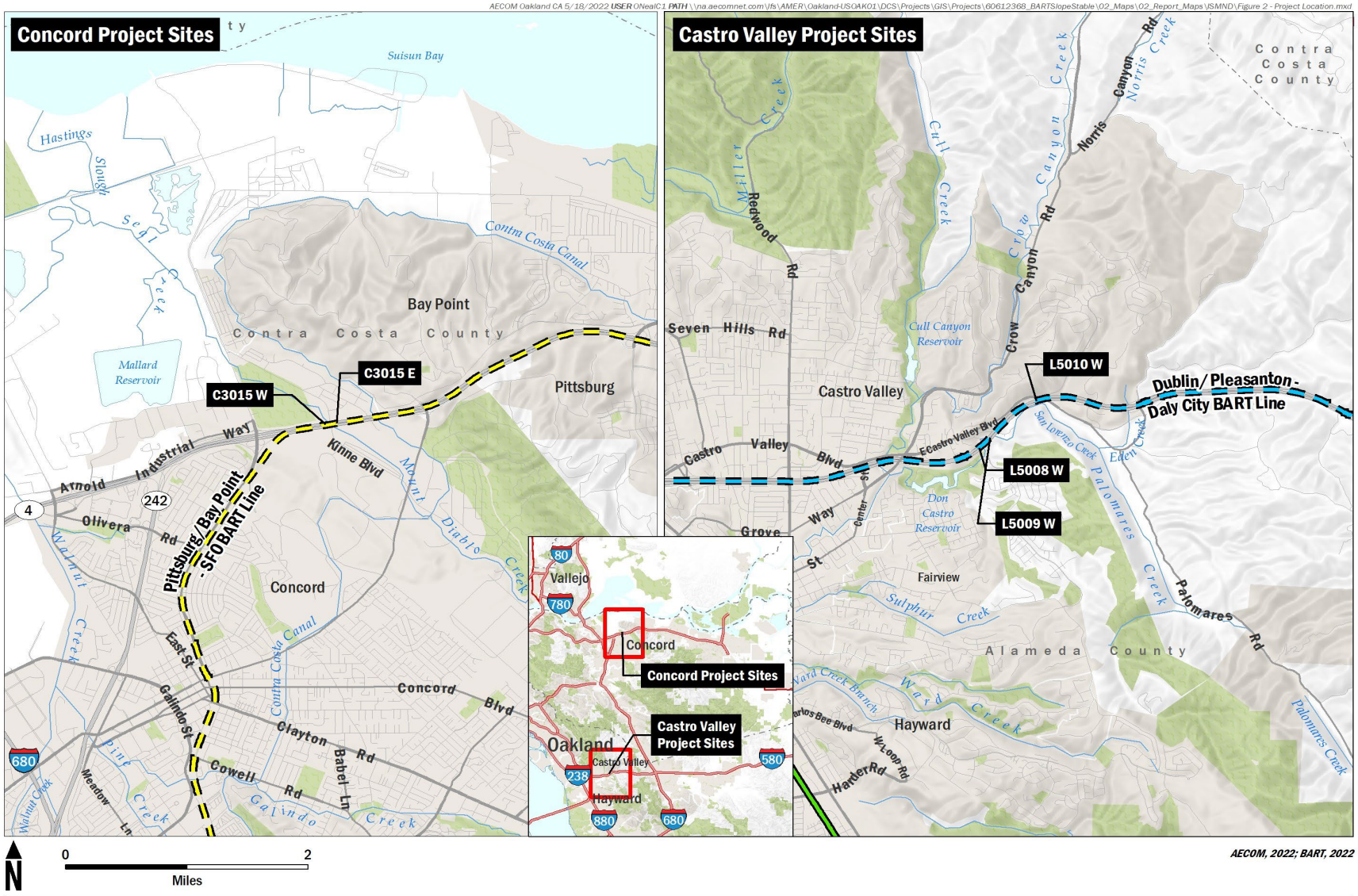


Figure 2. Project Location

- shallow sink holes, dips, and voids
- animal burrows
- soil creep

2.4.1 Concord Project Sites

Existing Problems. The two project sites in Concord are at BART structure sites C3015E and C3015W, where repairs are proposed on the slopes underneath the elevated BART line at Kinne Boulevard, as well as on the abutment joints on the trackside (Figure 3). These sites are in a Joint Use Maintenance Agreement (JUMA) area, between BART and the California Department of Transportation (Caltrans). These sites also are restricted from public access because Kinne Boulevard, from Port Chicago Highway to Willow Pass Road, is within the Concord Naval Weapons Station Inland Area, which is off-limits to the public.

The expansion joints on the BART bridge abutments have cracked in some locations, which has allowed stormwater to seep through the cracks, draining irregularly and causing erosion on the embankment slopes below (Figure 4).

Project site C3015E is the eastside bridge abutment that supports the BART bridge rails running between the eastbound and westbound lanes of SR 4 on the east side of Kinne Boulevard. The slope at C3015E is approximately 4,250 square feet and has loose earth and gullying with multiple holes, caused by animal burrows and erosion. The bridge abutment joint is cracked, and the erosion on the slope is exposing the fence post foundations, making the fence unstable.

Project site C3015W is the westside bridge abutment that supports the BART bridge rails running between the eastbound and westbound lanes of SR-4 on the west side of Kinne Boulevard. The slope at C3015W is approximately 6,015 square feet and has erosion rills up to 3 inches deep that become gullies if left untreated. A 3-foot-deep by 3-foot-wide erosion area is next to the column support of the abutment slope. The bridge abutment joint is cracked, and the erosional damage of the slope is causing the fence around the slope to fail.

Proposed Repairs. At project sites C3015E and C3015W, the existing drains at track level would be cleaned with a hydro-jet for approximately 100 feet, or to the nearest outfall, catch basin, or manhole. The deteriorated seal at the BART bridge abutment joints would be repaired and resealed by applying an epoxy adhesive to hold a waterproof tape directly over the damaged joint, then reinforced by bolting a steel plate over the adhesive.

The slopes underneath these structures would be cleared, grubbed, and regraded to provide an even surface, requiring two small trees (one on each slope) to be removed before grading. Two feet of excavation at the base of each bent (the supporting frame of the BART bridge) would occur for regrading and would be backfilled with Class II Aggregate base. The top, side, and bottom v-ditches that would be installed to direct water flow and correct drainage issues and would be lined with filter fabric and filled with 24 inches of un-grouted 12-inch riprap. Turf-reinforced mats would be placed on the rest of the slope. The chain-link fence around the abutment would be replaced.

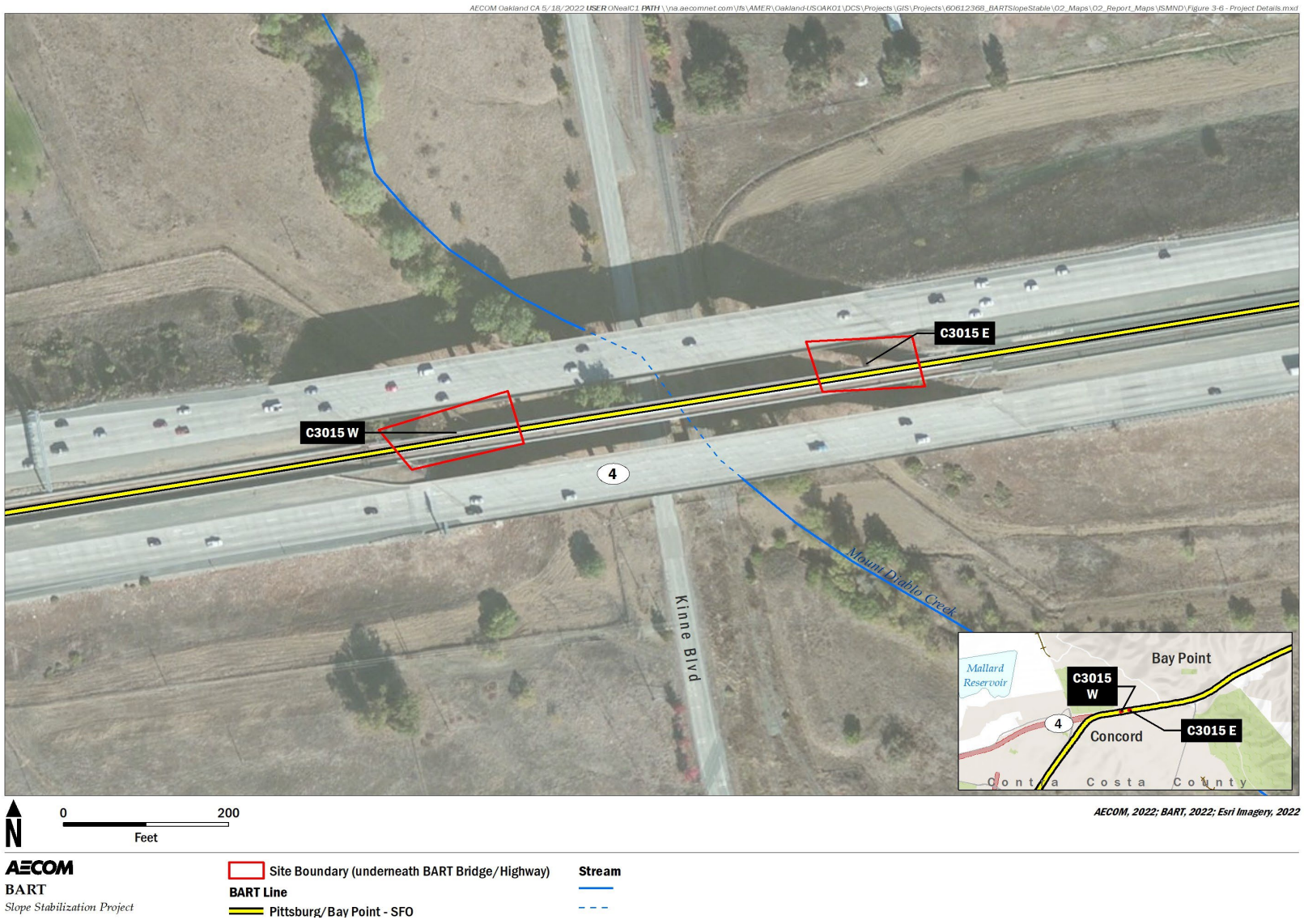


Figure 3. C3015W and C3015E—Kinne Boulevard, Concord

Figure 4. Views of Erosion and Drainage Problems at Concord Project Sites

2.4.2 Castro Valley Project Sites

Existing Problems. The three project sites in Castro Valley are slopes L5008W, L5009W, and L5010W underneath I-580. The structures and the embankment slopes underneath them are all within the BART ROW. Within this project area, I-580 crosses Fraga Road, Five Canyons Parkway, Old Dublin Road, East Castro Valley Boulevard, and the Chabot-to-Garin Regional Trail, which is part of the Bay Area Ridge Trail (see Figure 5 through Figure 7).

Figure 5. L5008 W—Five Canyons Parkway, Castro Valley

Figure 6. L5009 W—Old Dublin Rd., Castro Valley

Figure 7. L5010 W—East Castro Valley Blvd., Castro Valley

Project site L5008W is the westside bridge abutment that supports the BART bridge rails, running between the eastbound and westbound lanes of I-580 and over Fraga Road and Five Canyons Parkway. The slope at this site is approximately 2,450 square feet and has deep gullying from the track drainage above, approximately 2–3 feet deep, which runs down the slope and causes erosion underneath the fence. The drainage system also is in need of cleaning, and water intrusion is occurring in the exposed abutment joints.

Project site L5009W is the westside bridge abutment that supports the BART bridge rails, running between the eastbound and westbound lanes of I-580 and over Old Dublin Road. The slope at this site is approximately 3,180 square feet and has erosion damage from the track drainage above, which could spread to form a gully. Vegetation growth is occurring around the trench drains, and water intrusion is occurring in the exposed abutment joints.

Project site L5010W is the westside bridge abutment that supports the BART bridge rails, running between the eastbound and westbound lanes of I-580 and over East Castro Valley Boulevard. The slope at this site is approximately 3,240 square feet and has a gully approximately 3 feet deep and 4 feet wide that will cause exposure to abutment footing if untreated. The site also has signs of deterioration on the expansion joints.

Photographs of these sites are shown in Figure 8.

Proposed Repairs. At project sites L5008W, L5009W, and L5010W, the drains at track level would be cleared of excess sediment and cleaned with a hydro-jet for approximately 100 feet, or to the nearest outfall, catch basin, or manhole. The cracked BART bridge abutment joints would be repaired and resealed by applying an epoxy adhesive to hold a waterproof tape directly over the damaged joint, and then would be reinforced by bolting a steel plate over the adhesive.

The embankment slopes beneath each structure would be cleared, grubbed, and regraded to provide an even surface. The gullies would be filled with Class II Aggregate base. Filter fabric would be placed on the regraded slopes, and the top 6 inches of soil that would be removed from the slopes would be replaced with Class II Aggregate base. In addition, 24 inches of 12-inch riprap would be placed on top of the aggregate base. Portions of the chain-link fence would be replaced with a high-security fence and gate.

2.5 Construction

The repair work would vary for each site, from approximately 55 workdays for each of the two sites in Concord to approximately 40–50 workdays for each of the three sites in Castro Valley. An estimated 20 construction personnel would perform the repair work at each site. The majority of the effort would occur during the day shifts, when the slope stabilization work would be performed. Construction equipment for the slope repairs would include a backhoe, a skid loader, a grader, a small bulldozer, a triaxle delivery truck, pickup trucks, and water trucks for dust suppression. The night work would consist of abutment joint repair and would take place over 5 weekdays between approximately 1 a.m. and 4 p.m or over several weekends on Saturday mornings from approximately 1:30 a.m. to 5:30 a.m. and on Sunday mornings from approximately 1:30 a.m. to

View of L5008 off Five Canyons Parkway

View of L5009 off Old Dublin Road

View of L5010 off East Castro Valley Boulevard

Figure 8. Views of Erosion and Drainage Problems at Castro Valley Project Sites

7:00 a.m. This work consists of providing temporary lighting; removing ballast to gain access to the joint; installing epoxy adhesive and reinforcing steel plate held in place by bolt secured into the concrete; and cleaning the drains with high pressure hose.

After regrading the site and filling the gullies, minimal volumes of soil would need to be hauled off-site for disposal. Approximately two truckloads may be needed to remove soils from the Concord sites; no soil removal is expected for the Castro Valley sites.

2.7 BART Facilities Standards

BART maintains and updates specifications that govern the material, equipment, and methods used in its construction contracts. Known as the BART Facilities Standards (BFS), the most current version (BFS R3.2) was issued in December 2020. Section 01 57 00, Temporary Controls is particularly relevant for avoiding and minimizing impacts related to construction activities and addresses the following:

- Traffic plans and controls – Requirements to prepare a plan showing proposed traffic control devices, temporary signage, pavement markings, striping, and maintenance of access to adjacent properties. As part of this section, contractors also must obtain local jurisdiction approval of changes to travel lanes (e.g., temporary closures, shifting traffic lanes, or barricading traffic).
- Construction operations under traffic – Requirements regarding the operation of construction equipment to allow traffic on local streets to travel without unnecessary delays, to avoid hazardous conditions, and to move oversized loads only after first obtaining approval from the local jurisdiction.
- Pollution abatement – Requirements to minimize pollution of the environment surrounding the work area, including prohibiting waste or eroded materials from entering water or wastewater systems; prohibiting burning or burying of waste materials and debris; and maintaining flow of all sewers, drains, inlet connections, and water courses.
- Erosion and sediment control – Requirements to prepare a Water Pollution Control Plan (for projects that disturb less than 1 acre of land, such as the Project) that indicates how the contractor would prevent erosion and control runoff sedimentation; implement best management practices (BMPs) to prevent sediment and siltation of storm drainage systems; comply with applicable local, State, and federal laws, orders, and regulations to protect against water pollution, including BART's General Permit for Phase II Small Municipal Separate Storm Sewer System (MS4) General Permit 2013-0001-DWQ; and contain and properly dispose construction-generated spoils, solid waste, and wastewater.
- Dust control – Requirements to implement dust control measures to abate dust nuisance or fugitive wind-borne particulates generated by construction activities or stockpiles, including dampening exposed earth surfaces, dirt accessways and roads; street sweeping as necessary to remove off-site tracking of mud, dirt, and particulates; and applying approved methods to control erosion (e.g., using temporary hydraulic mulch and rolled erosion control products).

- Mud control – Requirements to prevent off-site skid loader of mud, dirt, or sediment, as outlined in the Water Pollution Control Plan described above under erosion and sediment control.
- Noise control – Requirements to minimize noise caused by construction equipment and operations, by restricting work hours to the greatest extent feasible, monitoring noise levels for compliance, and adhering to maximum allowable daytime and nighttime noise criteria, established in the BFS for different land uses.

Because these requirements, as well as others, apply typically to BART construction projects, they would be followed as part of the proposed abutment and slope repairs, and their implementation is acknowledged in Section 3, Environmental Analysis, in assessing the Project's environmental impacts. Specific references to the BFS are included in Section 3, as appropriate to the resource topic.

2.8 Required Permits and Coordination

The Project may involve or require consultations and permits from the following public agencies:

- Encroachment permits for work in roadways from Caltrans and Alameda County.
- License from the U.S. Department of the Navy to access and perform work on their property at the Concord Naval Weapons Station. This license will not cover slope work as the slope is not on Navy property, but rather work regarding potential laydown and the removal and replacement of fencing.
- Temporary Park Access Permit from East Bay Regional Parks District (EBRPD) to close and use portions of a public trail adjacent to slope repair work.
- Hazardous materials consultation and possible investigations with the regulatory agencies involved in remedial actions at the Concord Naval Weapons Station, including the U.S. Environmental Protection Agency, the U.S. Department of the Navy, the State Regional Water Quality Control Board, and the State Department of Toxic Substances Control.
- Native American consultation with interested Tribes, pursuant to Assembly Bill 52.

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3. ENVIRONMENTAL ANALYSIS

The Project's environmental effects on the resource topics in this section are determined by responding to specific questions that have been formulated to inform the decisionmakers and the public of how the resource would be affected with implementation of a proposed project; i.e., its impact. The questions are from the environmental checklist form in Appendix G of the State CEQA Guidelines. A discussion follows each question to provide the reasoning for the response to the question. There are four possible responses:

Potentially Significant: An impact that potentially could be significant, for which a mitigation measure must be identified, and the mitigation measure would not be sufficient to reduce the impact to a less-than-significant level.

Less than Significant with Mitigation: An impact that would require mitigation, and the mitigation would be effective enough to reduce the impact to a less-than-significant level.

Less than Significant: Any impact that would not be considered significant under CEQA, based on established significance thresholds.

No Impact: No project impact would occur.

Project-specific mitigation measures, where appropriate, which would be implemented to reduce potentially significant impacts to a less-than-significant level

3.1 Aesthetics

3.1.1 Setting

Concord Project Sites

The two project sites in the City of Concord include BART bridge abutment structures C3015E and C3015W, and the slopes underneath the abutments. These bridge abutment structures support the Antioch–SFO + Millbrae BART line, where it crosses over Kinne Boulevard. The BART line runs between eastbound and westbound lanes of SR-4. SR-4 is not eligible or designated as a state scenic highway by Caltrans at this location.

Kinne Boulevard, between Port Chicago Highway and Willow Pass Road, is a roadway within the Concord Naval Weapons Station (CNWS) Inland Area, which is restricted from public access. The City of Concord purchased the CNWS Inland Area in 2005 and started planning the Concord Re-use Project Specific Plan Area in 2006. The two project sites on either side of Kinne Boulevard would be within the planned Phase II development of the Concord Re-use Project, projected to start in 2030. Until then, Kinne Boulevard is to remain restricted to public access. The area surrounding the project sites is characterized by shaded, semi-vegetated roadside slopes. Figure 9 and Figure 10 show views of the sites from Kinne Boulevard.

Note: Project site is the middle structure and the slope below, as viewed from Kinne Blvd., looking east.

Figure 9. View of Concord Project Site C3015E

Note: Project site is the middle structure and the slope below, as viewed from Kinne Blvd., looking west.

Figure 10. View of Concord Project Site C3015W

Castro Valley Project Sites

The three project sites in Castro Valley include BART bridge abutment structures L5008W, L5009W, and L5010W, and the slopes underneath them. These bridge abutment structures support the Dublin/Pleasanton–Daly City line, where it crosses over Fraga Road, Five Canyons Road, Old Dublin Road, and East Castro Valley Road. This BART line is between the eastbound and westbound lanes of I-580, which is eligible to be designated as a state scenic highway by Caltrans (Caltrans 2019). As State and regional agencies, Caltrans and BART are not subject to local regulation, but their actions and policies affect visual character.

Scenic vistas generally may be described as panoramic views of a large geographic area for which a wide field of view extends into the distance. Scenic vistas are experienced from publicly accessible locations and may include urban skylines, valleys, mountain ranges, unusual rock outcroppings, or large bodies of water (including large waterfalls). The project sites are not areas that are considered to offer scenic vistas. The project sites are partially vegetated slopes underneath the concrete bridge abutments that support the BART rail lines.

The Scenic Route Element of the Alameda County General Plan (Alameda County 1966) has policies to preserve and enhance the scenic qualities and natural scenic areas adjacent to and visible from scenic routes in the county. The Scenic Highways Element designates Crow Canyon, Cull Canyon, and Lake Chabot roads as scenic routes in Castro Valley. The project sites are not visible from these scenic routes, and they are not visible from the eligible state scenic highway (I-580). The area surrounding the project sites in Castro Valley is semi-urban, with Castro Valley General Plan land use designations of residential and public facilities north of I-580 and open space and hillside residential on the south side of I-580 (Alameda County Community Development Agency 2012). The area surrounding the project sites is characterized by natural riparian vegetation, small trees, San Lorenzo Creek, as well as by the East Bay Regional Park District's Chabot-to-Garin Regional Trail that traverses near the project sites (East Bay Regional Park District 2019). The project sites are viewed by passersby as shaded vegetated roadside slopes. Figure 11 through Figure 13 show each project site from various publicly accessible viewpoints. They are not visible from vehicles traveling on I-580 or passengers traveling on BART.

Note: Left photo is view from Fraga Road looking northwest, and right photo is view from the Chabot-to-Garin Regional Trail looking southwest.

Figure 11. Views of Castro Valley Project Site L5008W

Note: View from Fraga Road looking southwest.

Figure 12. View of Castro Valley Project Site L5009W

Note: View from East Castro Valley Road looking southwest.

Figure 13. View of Castro Valley Project Site L5010W

3.1.2 Discussion

a. Have a substantial adverse effect on a scenic vista? – *No Impact*

No scenic vistas are visible from the project sites (City of Concord 2012; Alameda County Community Development Agency 2012). The project sites are within the BART ROW and underneath elevated BART guideways and Caltrans overcrossings of local roads. The Project would not alter views because the repairs the abutments, drainage facilities, and existing slopes would not alter the landform, introduce new visual elements, or obstruct existing views. The post-construction views of and from the project sites would be the same as existing conditions. No impact would occur.

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? – *No Impact*

Neither the Concord or Castro Valley project sites are along or visible from a state scenic highway. The Concord project sites are underneath SR-4 and not publicly accessible. SR-4 is not a state scenic highway or currently eligible to be designated as a state scenic highway. Therefore, no impact would occur.

The Castro Valley project sites are underneath I-580, which is eligible to be a state scenic highway but has not been designated yet. The eligibility of the designation coincides with the Alameda County General Plan Scenic Route Element, which ensures the preservation and enhancement of the scenic qualities and natural scenic areas adjacent to and visible from scenic routes in the county. Because the project sites in Castro Valley are not visible from the scenic route, no impact on the visual features that contribute to the eligibility of the scenic route designation would occur.

c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? – *Less than Significant*

The project sites in Concord on Kinne Boulevard are not publicly visible because Kinne Boulevard is restricted from public access. Even if the project sites were accessible, as explained in Item a, above, the project repairs would not alter views or conflict with regulations governing scenic quality, because the visual setting and views would be unchanged from existing conditions.

The existing public views of the project sites and the surrounding area in Castro Valley are limited to vehicles traveling along Fraga Road, Five Canyons Parkway, Old Dublin Road, and East Castro Valley Boulevard, passing underneath the BART and Caltrans bridges at project sites L5008W, L5009W, and L510W. The public view of project site L5010W also would be publicly visible from hikers/walkers along the Chabot-to-Garin Regional Trail. However, views of project construction activities would be temporary and would last for approximately 40–50 workdays. The visual setting would be altered for short stretches from vehicles traveling at speeds that would pass the

construction sites quickly. Views of slopes that are partially vegetated and partially bare soil and gullies would be replaced by construction equipment, materials, and workers, typical of small-scale construction sites. Because of the short-term, temporary nature of project construction activities, the impact would be less than significant.

The visual character of the existing project sites in Castro Valley consists of unmanaged vegetation and bare soil that shows signs of stormwater erosion. The Project would regrade the slopes and apply Class II Aggregate base and small riprap material to the slopes to prevent further erosion damage. The chain-link fence at the Castro Valley project sites would be removed and replaced with a high-security fence, to protect the BART ROW from potential encampments and property vandalism. Temporary construction activities associated with the Project would involve use of heavy equipment and construction fencing. After construction is completed, the project sites would consist of repaired and regraded slopes that would not substantially alter the existing visual character or quality of public views of the area and would appear essentially as they do under existing conditions. The repairs and the post-construction appearance of the stabilized slopes would not conflict with Castro Valley General Plan policies (development along designated scenic corridors must be sensitive to the area's biological and visual resources; open space included as part of a development project should be designed to preserve scenic values; manage creeks for their scenic quality; underground utilities in scenic open space areas), zoning, or other regulations (e.g., the Residential Design Standards and Guidelines for the Unincorporated Communities of West Alameda County) related to scenic quality. The impact would be less than significant.

d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? – ***Less than Significant***

The Project would not incorporate lighting or include any material that would create a glare during daytime or nighttime hours, after project construction is completed. During construction, the project temporarily would use nighttime lighting during BART's blanket hours (when BART trains are not operating) for the abutment joint repair work, as described in Section 2.4, Proposed Improvements. The joint repair work would need to be conducted during BART's blanket hours for safety reasons because of the proximity of the work to the BART tracks. The temporary construction lighting would be directed towards the BART abutment structures on the BART tracks and would be needed throughout the construction period to repair the damaged BART abutment joints.

Because no access or light-sensitive land uses are in the vicinity of the Concord project sites, light and glare impacts would not occur.

At the Castro Valley project sites, nighttime slope/abutment repair work would be localized at three small sites (from 2,450 to 3,240 square feet) that are surrounded by tall trees and shrubs. Work along the slopes would occur during the daylight hours. Any lighting generally would be shielded by dense vegetation in the area and by the overhead concrete decking for the BART tracks and I-580. Work on the abutments would occur during the blanket hours in a concentrated area along the tracks where the abutment joint seals would be replaced. The repair work is

expected to be completed over 5 workdays or over 3 to 4 weekends. Nighttime lighting would be confined to this segment, shielded, and directed downward to limit nighttime skyglow and spillover light onto adjacent properties. As a result, project-related construction work at the Castro Valley sites would not adversely affect daytime or nighttime views in the surrounding areas. Site specific conditions at each of the Castro Valley project sites are described below.

- The nearest sensitive receptor to L5008W off Fraga Road at the end of Barnhill Road is a residence approximately 300 feet to the northwest, at the top of hill on the north side of I-580. The abutment work at this site would be performed in a ravine, approximately 50 feet lower in elevation than the residence. Trees and shrubs between the residence and the work site would obscure direct views of the nighttime lighting. Another residence approximately 470 feet east of the abutment work is approximately 50 feet lower than the work site on top of the tracks. This residence is also screened from the work site by intervening heavy vegetation and terrain.
- The nearest sensitive receptor to L5009W would also be performed in a ravine, associated with San Lorenzo Creek. This residence at 4773 Old Dublin Road is approximately 220 feet west of the abutment work and approximately 50 feet below the elevation of the abutment work. The intervening space contain tall trees and shrubs that screen the residences from the repairs on the elevated BART tracks.
- The nearest residence to L5010W is approximately 650 feet southeast of the abutment work site, and trees near the house would help screen views of the work lighting on top of the tracks.

3.2 Agriculture and Forest Resources

3.2.1 Setting

The five project sites are within BART ROW and not zoned or used for agricultural or forestry use. The areas adjacent to the project sites are developed, urbanized areas and not used or zoned for agricultural use.

3.2.2 Discussion

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? – *No Impact*

The project sites are within an urban area that is designated by the California Department of Conservation's Important Farmland Finder as Urban and Built-Up Land (California Department of Conservation 2017). The Project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. No impact would occur.

b. Conflict with existing zoning for agricultural use, or a Williamson Act contract? – *No Impact*

The project sites would not conflict with zoning for agricultural use or a Williamson Act Contract, because the project sites would be within the BART ROW. No impact would occur.

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))? – *No Impact*

The project sites are not zoned for forest or timberlands; they are transportation facilities within the BART ROW. The Project would not conflict with existing zoning for, or cause rezoning of, forest land or timberland. No impact would occur.

d. Result in the loss of forest land or conversion of forest land to non-forest use? – *No Impact*

The project sites are not occupied by forest land. The Project would not convert forest land to non-forest use. No impact would occur.

e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use? – *No Impact*

The project sites are not on or near farmland or forest land. The Project would involve abutment repairs, slope stabilization, and repairs to existing slopes beneath the BART guideway. Project implementation would not result in environmental changes that would convert farmland or forest land to other uses. No impact would occur.

3.3 Air Quality

3.3.1 Setting

Air quality is defined by the concentration of pollutants in relation to their impact on human health. Concentrations of air pollutants are determined by the rate and location of pollutant emissions released by pollution sources, and by the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, and sunlight. Therefore, ambient air quality conditions in the local air basin are influenced by such natural factors as topography, meteorology, and climate, in addition to the amount of air pollutant emissions released by existing air pollutant sources.

All five of the project sites are within the San Francisco Bay Area Basin (SFBAAB) and under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The BAAQMD monitors air quality in Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa counties as well as the portions of Solano and Sonoma counties in the SFBAAB. Local

climatological effects, including wind speed and direction, temperature, inversion layers, precipitation, and fog can exacerbate air quality problems in the SFBAAB. The SFBAAB climate is characterized by warm, dry summers and mild winters.

Individual air pollutants at certain concentrations may adversely affect human or animal health, reduce visibility, damage property, and reduce the productivity or vigor of crops and natural vegetation. Six air pollutants have been identified by the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) as being of concern, both on a nationwide and statewide level: ozone; carbon monoxide (CO); nitrogen dioxide (NO_2); sulfur dioxide (SO_2); lead; and particulate matter (PM), which is subdivided into two classes based on particle size: PM equal to or less than 10 micrometers in diameter (PM_{10}); and PM equal to or less than 2.5 micrometers in diameter ($PM_{2.5}$). Because the air quality standards for these air pollutants are regulated using human and environment health-based criteria, they commonly are referred to as criteria air pollutants.

Areas are classified under the federal Clean Air Act and California Clean Air Act as attainment, non-attainment, or maintenance (previously non-attainment and currently attainment) for each criteria pollutant, based on whether federal and State air quality standards have been achieved. With respect to federal standards, the SFBAAB is designated as a nonattainment area for ozone and $PM_{2.5}$, and as an attainment or unclassified area for all other pollutants (BAAQMD 2017a). With respect to the State standards, the SFBAAB is designated as a nonattainment area for ozone, PM_{10}, and $PM_{2.5}$, and as an attainment area for all other pollutants (BAAQMD 2017a).

In addition to criteria air pollutants, EPA and CARB regulate hazardous air pollutants, also known as toxic air contaminants (TACs). TACs collectively refer to a diverse group of air pollutants that are capable of causing chronic (i.e., long duration) and acute (i.e., severe but short-term) adverse effects on human health, including carcinogenic effects. TACs can be separated into carcinogens and noncarcinogens, based on the nature of the effects associated with exposure to the pollutant. For regulatory purposes, carcinogens are assumed to have no safe threshold below which health impacts would not occur. Any exposure to a carcinogen poses some risk of contracting cancer. Noncarcinogens differ in that a safe level of exposure below which no negative health impact is believed to occur is generally assumed to exist. These levels are determined on a pollutant-by-pollutant basis.

3.3.2 Discussion

a. Conflict with or obstruct implementation of the applicable air quality plan? – *Less than Significant*

Air quality plans describe air pollution control strategies to be implemented by a city, county, or region. The primary purpose of an air quality plan is to bring an area that does not attain federal and State air quality standards into compliance with the requirements of the federal Clean Air Act and California Clean Air Act. The BAAQMD prepares plans to attain State and national ambient air quality standards in the SFBAAB. The BAAQMD adopted the 2017 Clean Air Plan: Spare the Air, Cool the Climate on April 19, 2017 (BAAQMD 2017b). This plan provides a regional strategy

to attain State and federal air quality standards by reducing ozone, particulate matter, TACs, and greenhouse gases (GHG).

Air quality plans identify potential control measures and strategies, including rules and regulations that can be implemented to reduce air pollutant emissions from industrial facilities, commercial processes, on and off-road motor vehicles, and other sources. The BAAQMD implements these strategies through rules and regulations, grant and incentive programs, public education and

The 2017 Clean Air Plan control measures that would be applicable to the Project are SS35 (PM from Bulk Material Storage, Handling and Transport), SS36 (PM from Trackout [3]), and SS38 (Fugitive Dust), which would be implemented to reduce fugitive dust emissions. The Project would implement BFS Section 1.11, Dust Control, to abate fugitive dust emissions during construction activities, including material handling, stockpiles, and trackout. Thus, project construction activities would be performed in accordance with BART's own construction standards and since BART's construction measures would be consistent with the control measures included in the 2017 Clean Air Plan to reduce fugitive dust, the Project would not conflict with the 2017 Clean Air Plan.

Consistency with the air quality plan also is determined through evaluation of project-related air quality impacts and demonstration that project-related emissions would not increase the frequency or severity of existing violations, or contribute to a new violation of the National Ambient Air Quality Standards or California Ambient Air Quality Standards. The BAAQMD CEQA Air Quality Guidelines include thresholds of significance and screening criteria that are applied to evaluate regional impacts of project-specific emissions of air pollutants and their impact on the BAAQMD's ability to reach attainment (BAAQMD 2017c). The BAAQMD has developed screening criteria for certain sizes of projects and types of construction activities, as detailed below, to provide a conservative indication of whether a project could result in a potentially significant air quality impact or cause a significant impact to air quality in the region. As described in Section 3.3.2(b), project construction activities would not exceed the screening criteria recommended by the BAAQMD. Therefore, the Project would not conflict with or obstruct implementation of the applicable air quality plan. The impact would be less than significant.

b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard? – *Less than Significant with Mitigation*

By its very nature, air pollution generally is a cumulative impact. The nonattainment status of regional pollutants is from past and present development, and this regional impact is cumulative rather than attributable to any one source. Per Section 15064(h)(4) of the State CEQA Guidelines,

[3] The BAAQMD defines "trackout" to be any sand, soil, dirt, bulk material or other solid particles from a site that adhere to or agglomerate on the exterior surfaces of vehicles (including tires), and subsequently fall or are dislodged onto a paved public roadway or the paved shoulder of a paved public roadway on the path that vehicles follow at any exit and extending 50 feet out onto the paved public roadway beyond the boundary of the site. Material that has collected on the roadway from erosion is not trackout (BAAQMD Regulation 6, Particulate Matter, Rule 6, Prohibition of Trackout).

the existence of significant cumulative impacts caused by other projects alone will not constitute substantial evidence that a project's incremental effects are cumulatively considerable. If a project's emissions are below the BAAQMD thresholds of significance or screening criteria, the project is not considered to result in a cumulatively considerable contribution to a significant impact on regional air quality (BAAQMD 2017c).

The BAAQMD CEQA Air Quality Guidelines are for informational purposes only and should be followed by local governments at their own discretion (BAAQMD 2017c); they do not commit local governments or the air district to any specific course of regulatory action. As described in the CEQA Guidelines Appendix G, where available, the significance criteria established by the applicable air quality management district may be relied upon to determine significance. The BAAQMD has established construction-related thresholds of significance for criteria pollutants, which are considered to be the allowable emissions limits for individual projects to avoid impeding the region's ability to attain and maintain ambient air quality standards. In addition, because regional air quality standards have been established for these criteria pollutants to protect the public, with a margin of safety, from adverse health impacts caused by exposure to air pollution, these trigger levels also can be used to assess project emissions and inform a project's impacts on regional air quality and health risks under CEQA.

The BAAQMD CEQA Air Quality Guidelines also identify screening criteria to provide Lead Agencies with a conservative indication of whether a project could result in a potentially significant air quality impact. If all of the screening criteria are met by a project, then a Lead Agency would not need to perform a detailed air quality assessment of the project's emissions. The following list presents the BAAQMD's screening criteria, applicable to the Project (BAAQMD 2017c):

- The project is below the applicable screening level size shown in Table 3-1 of the BAAQMD CEQA Guidelines.
- All basic construction mitigation measures would be included in the project design and implemented during construction.
- Construction-related activities would not include any of the following:
  - demolition;
  - simultaneous occurrence of more than two construction phases;
  - simultaneous construction of more than one land use type;
  - extensive site preparation; or
  - extensive material transport (e.g., greater than 10,000 cubic yards of soil import/export).

Table 3-1 of the BAAQMD CEQA Guidelines shows screening level sizes by project land use types, including residential, commercial/retail, and general light and heavy industrial land uses. As described in Section 2, Project Description, the Project would make slope stabilization improvements and maintenance repairs, including clearing any blocked drains and armoring and

reinforcing the slopes underneath the BART bridge structures to prevent any further erosion damage. Therefore, the Project would not involve construction of any new land use types. The construction-related screening sizes shown in Table 3-1 of the BAAQMD CEQA Guidelines range from 259,000 square feet to 11 acres. As described in Section 2.4, Proposed Improvements, the project sites range between 2,450 and 6,015 square feet. Therefore, the Project would not exceed any of the screening level sizes recommended in the BAAQMD CEQA Guidelines.

As discussed in Section 2.6, BART Facilities Standards, the Project would implement BFS Section 01 57 00, including 1.11, Dust Control, and 1.12, Mud Control, which would ensure compliance with the BAAQMD basic construction mitigation measures. Table 1 lists the BAAQMD basic construction mitigation measures and the corresponding BFS. As shown in Table 1, BAAQMD's basic construction measures would be implemented through BFS. Compliance with BFS would reduce emissions during construction activities.

Table 1. BAAQMD Basic Construction Mitigation Measures and BART Facilities Standards

BAAQMD Basic Construction Mitigation Measure	BART Facilities Standard
(1) All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times daily.	***Section 1.11 (E).*** Where earthwork operations are in progress, keep exposed earth surfaces dampened continuously. Also, keep dirt accessways and roads dampened continuously.
(2) All haul trucks transporting soil, sand, or other loose material off site shall be covered.	***Section 1.12 (D).*** All trucks coming to the jobsite or leaving the jobsite with materials or loose debris shall be loaded and covered in a manner that will prevent dropping of materials or debris on streets. Spillage resulting from hauling operations along or across any public traveled way shall be removed immediately.
(3) 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.	***Section 1.11*** ***(G)*** Prohibit mud, dust, and particulates from construction activities from leaving the Jobsite by use of temporary construction entry-exits, tire washers, and/or stabilized construction roadways. Perform street sweeping activities as needed, with a commercial grade vacuum sweeper with rotating bristles and spray/fogger nozzles to remove off site tracking of mud, dirt or dust particulates. Do not use a motorized kick broom or water truck where MS4s or other storm drains may be deleteriously affected by silt, dirt or sediment incursion. ***Section 1.12*** ***(A)*** The Contractor shall take proper measures to prevent offsite tracking of mud, dirt or sediment. Such measures shall include, but are not limited to, implementation of temporary construction entry-exits, stabilized construction roadway, or temporary entry-exit tire wash best management practices as outlined in the project WPCP or SWPPP BMP implementation manual. ***(B)*** All egress from the Jobsite shall be maintained in a dry condition, and any mud tracked onto streets, sidewalks, or drives shall be immediately removed, and the affected area shall be cleaned. The Engineer may order such work at any time the conditions warrant.

BAAQMD Basic Construction Mitigation Measure	BART Facilities Standard
	(C) Where trucks will leave a muddy site and enter paved public streets, the Contractor shall maintain a suitable truck wheel-washing facility and crew. Before leaving the site, trucks and other vehicles, shall be cleaned of mud and dirt, including mud and dirt clinging to exterior body surfaces of vehicles.
(4) All vehicle speeds on unpaved roads shall be limited to 15 mph.	***Section 1.11*** ***(B)*** Quantities and equipment for dust control shall be sufficient to effectively prevent dust nuisance on and about the jobsite.
(5) 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.	Not applicable. The Project does not involve paving activities. As described above, graded areas and areas with earthwork operations will be dampened continuously. Additionally, Section 1.11 (A) of the BFS calls for dust control at all times, including holidays and weekends, as required to abate dust nuisance or fugitive wind born particulates from the site due to construction activities or stockpiles. Dust and stockpile wind borne erosion control shall be by means of sprayed water or by other approved methods (e.g., temporary hydraulic mulch, rolled erosion control products (RECPs)), polyacrylamide or straw mulch with tackifier. Chemicals, oil, or similar palliative shall not be used. Recycled water shall be used where available. Do not allow duct control activities to initiate non-storm water discharges of water, silt, or sediment into MS4s or other storm drains.
(6) Idling times will be minimized either by shutting equipment off when not in use or by reducing the maximum idling time to 5 minutes (as required by California's airborne toxics control measure under Title 13, Section 2485 of the California Code of Regulations). Clear signage will be provided for construction workers at all access points.	Idling limits already required per CARB Airborne Toxic Control Measures. BART has training programs/contracting requirements in place that ensure contractors implement CARB requirements
(7) All construction equipment will be maintained and properly tuned, in accordance with manufacturers' specifications. All equipment will be checked by a certified mechanic and determined to be running in proper condition before operation.	This measure does not have any bearing on fugitive dust emissions, so not satisfying this measure would not translate into a significant fugitive dust impact.
(8) A publicly visible sign will be posted with the telephone number and person to contact regarding dust complaints. This person will respond and take corrective action within 48 hours. The BAAQMD's phone number also will be visible, to ensure compliance with applicable regulations.	***Section 1.11*** ***(D)*** Complaints from the public shall be reported to the Engineer and shall be acted on immediately.

Source: Compiled by AECOM 2022; BAAQMD 2017c

Furthermore, project construction activities would not involve any demolition, simultaneous occurrence of more than two construction phases, construction of more than one land use type, extensive site preparation, or extensive material transport. Construction activities would involve minor, short-term activities, lasting approximately 55 workdays at each site in Concord and approximately 40–50 workdays at each site in Castro Valley. Equipment to stabilize the slopes would require use of a backhoe, a skid loader, a grader, a small bulldozer, and various trucks. Equipment to repair the abutments and drainage facilities above the slopes would require use of a vibratory plate compactor, small hand tools, a water buffalo, pickup and delivery trucks, lighting, and a generator. As described in Section 2.4, Proposed Improvements, the proposed slope improvements would be limited to minor excavation activities, import of aggregate base, and import of riprap. Material import/export would not exceed 10,000 cubic yards at any of the project sites. Thus, with implementation of the BFS, the Project would meet the screening criteria identified for construction activities, and construction activities would not exceed any BAAQMD thresholds of significance or cause a significant impact to air quality in the region. In addition, off-road construction equipment larger than 50 brake horsepower (bhp), including portable generators, would be CARB certified and in compliance with local air regulations, as applicable, minimizing construction-related emissions. After construction, operational and maintenance activities would not increase beyond existing conditions. Therefore, the Project would not result in a cumulatively considerable net increase of any criteria pollutant. The impact would be less than significant with mitigation.

c. Expose sensitive receptors to substantial pollutant concentrations? – *Less than Significant*

According to the BAAQMD, if a project area is likely to be a place where people live, play, or convalesce, or if sensitive individuals are likely to spend a substantial amount of time there, it should be considered a receptor (BAAQMD 2017c). Sensitive individuals refer to those individuals most susceptible to poor air quality, including children, the elderly, and those with pre-existing serious health problems that are affected by air quality. Examples of receptors include residences, schools and school yards, parks and playgrounds, daycare centers, nursing homes, and medical facilities. The zone of influence defined by the BAAQMD for risks and hazards for new sources and receptors is a 1,000-foot radius from a project site.

No sensitive receptors are within 1,000 feet of the Concord project sites (C3015E and C3015W). However, receptors are near the Castro Valley project sites (L5008W, L5009W, and L5010W)—specifically, single-family homes within 1,000 feet. The nearest sensitive receptor is a single-family home on Old Dublin Road, approximately 170 feet from project site L5009W.

Criteria Air Pollutants

As described in Section 3.3.2(b), the Project would not exceed the screening criteria recommended by the BAAQMD. The screening criteria are intended to provide lead agencies with a conservative indication of whether a project could result in a potentially significant air quality impact. Therefore, project construction activities would not result in emissions of criteria air pollutants that would exceed the BAAQMD regional thresholds of significance. The regional

thresholds of significance were designed to identify those projects that would result in significant levels of air pollution, and to assist the region in attaining the applicable State and federal ambient air quality standards. The ambient air quality standards were established using health-based criteria to protect the public with a margin of safety from adverse health impacts from exposure to air pollution. After construction is completed, operational and maintenance activities would remain similar to existing conditions. Thus, the criteria air pollutant emissions associated with the Project would not expose sensitive receptors to substantial criteria pollutant concentrations. No impact would occur.

Toxic Air Contaminants

The greatest potential for TAC emissions during project construction would be related to diesel PM emissions, generated by the construction equipment and haul truck trips. The Office of Environmental Health Hazard Assessment (OEHHA) developed a Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2015). Because of uncertainty in assessing cancer risk from very short-term exposures, OEHHA does not recommend assessing cancer risk for construction projects lasting less than 2 months for the nearest residential receptor. Since there are no sensitive receptors within 1,000 feet of the Concord project sites, the repair work for these sites would not expose sensitive receptors to substantial pollutant concentrations.

As described in Section 2.5, Construction, project construction activities would last approximately 40-50 days at each of the three sites in Castro Valley and the repair work would cease following completion of the proposed improvements. Although each individual site in Castro Valley would not meet the OEHHA recommendations for assessing cancer risk (i.e., the repair work would last less than 2 months at each site), due to the close proximity of sites L5008W and L5009W (approximately 600 feet apart), the sensitive receptors within 1,000 feet of either site may be exposed to pollutants from the repair work at both sites for a total duration of 80 to 100 days. However, the emission-generating activities would not be occurring at the same location nor at the same distance from the receptors for the entire duration of the repair work at both sites. For example, studies indicate that diesel PM emissions and the relative health risk can decrease substantially within 300 feet (CARB 2005; Zhu et al. 2002). In addition, the topography varies among the nearby residences and includes vegetated terrain, which acts as a buffer and separates the nearest sensitive receptors from project work areas. Therefore, trucks and off-road equipment would not operate in the immediate vicinity of any sensitive receptor for an extended period, and the potential exposure to TAC emissions would be limited. Based on the limited construction duration at each site, varying buffer distances for the nearest receptors, and the highly dispersive nature of diesel PM emissions, project construction would not expose sensitive receptors to substantial TAC concentrations. Furthermore, maintenance-related and operational activities are not anticipated to increase above existing conditions. Therefore, the Project would not expose sensitive receptors to substantial pollutant concentrations. The impact would be less than significant.

d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? – *Less than Significant*

The occurrence and severity of odor impacts depends on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. Although offensive odors rarely cause any physical harm, they can be unpleasant, leading to considerable distress among the public, and causing citizens to submit complaints to local governments and regulatory agencies. Typical facilities that generate odors include wastewater treatment facilities, sanitary landfills, composting facilities, petroleum refineries, chemical manufacturing plants, and food processing facilities.

Project construction activities could cause short-term odor emissions from diesel exhaust associated with construction equipment. As described in Section 3.3.2(c), no receptors are within 1,000 feet of the Concord project sites; thus, other emissions, such as those leading to odors, would not affect a substantial number of people. The nearest receptors to the Castro Valley project sites include residences; however, the Project would use typical construction techniques, odors would be typical of most construction sites and limited in duration (approximately 55 workdays at each of the Concord project sites, and approximately 40–50 workdays at each of the Castro Valley projects), and the intervening vegetated terrain would help dissipate any emissions (such as those leading to odors). After construction is completed, maintenance-related and operational activities are not anticipated to increase above existing conditions. Therefore, project construction and operation would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. The impact would be less than significant.

3.4 Biological Resources

3.4.1 Setting

Data Collection and Review

The following databases were consulted to identify biological resources that have the potential to occur in the project vicinity:

- U.S. Fish and Wildlife Service Information for Planning and Consultation – official species list generated from the Sacramento Fish and Wildlife Office, using the Action Area boundaries as the search extent (USFWS 2021a)
- California Natural Diversity Database (CNDDB) – a list of known plant and wildlife occurrences using a 5 mile-radius buffer around the project site
- California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants of California (CNPS 2021a) – ESA-listed plant occurrences
- U.S. Fish and Wildlife Service (USFWS) designated critical habitat
- Calflora digital library – for information on distribution and ecology of select ESA-listed plant species (Calflora 2021)

- eBird online database – for distribution and abundance of ESA-listed bird species in the general project vicinity (eBird 2021)
- Federal Register – for selected ESA-listed species, including final rule publications for species listing status and critical habitat
- Recovery plans for selected ESA-listed species – used to determine species' current and historical ranges
- National Wetland Inventory (USFWS 2021b)

After conducting desktop research, an AECOM biologist visited project sites C3015W and C3015E in Concord and project sites L5008W, L5009W, and L5010W in Castro Valley. During this survey, the biologist documented 1) habitat for special-status and common wildlife and plant species, 2) vegetation communities within the project site footprints and in the surrounding area, and 3) water features. The survey consisted of meandering transects within the project site footprints and within 50 feet of them.

Special-Status Species

The potential occurrence of special-status plant and wildlife species in the project sites and surrounding area was determined from habitat information that was collected through a review of the CNDDB, the USFWS Information for Planning and Consultation (IPaC) species list tool, the CNPS online Inventory of Rare and Endangered Vascular Plants of California, and the November 19, 2020 reconnaissance field survey. For this section, special-status species include:

- species listed, proposed, or candidate species for listing as Threatened or Endangered by USFWS, pursuant to the federal Endangered Species Act (ESA) of 1973, as amended;
- species listed as Rare, Threatened, or Endangered by the California Department of Fish and Wildlife (CDFW), pursuant to the California Endangered Species Act (CESA) of 1984, as amended;
- species designated as Fully Protected under Section 3511 (birds), Section 4700 (mammals), and Section 5050 (reptiles and amphibians) of the California Fish and Game Code;
- species protected under other regulations (e.g., local policies, Migratory Bird Treaty Act [MBTA]);
- species designated by CDFW as California Species of Special Concern;
- plant species listed as Category 1B.1 and 1B.2 in the CNPS online Inventory of Rare and Endangered Vascular Plants of California; and
- species not currently protected by statute or regulation, but considered rare, threatened, or endangered under Section 15380 of the State CEQA Guidelines.

Special-status species determined to have a moderate or greater potential to occur in the project vicinity, along with their status and likelihood of occurrence in the project area, are shown in

Table 2 and Table 3. The lists in these tables represent those species identified in the review of the CNDDB, USFWS, and CNPS queries having the highest likelihood to occur in the project vicinity (i.e., within the known range, and/or with potential habitat present). Species that were identified by these sources as potentially occurring in the region, but for which no suitable habitat exists, and the project area is outside the known range of the species, are not addressed in the tables or considered further in this document. In addition, species identified in the CNDDB, USFWS, and CNPS queries that do not meet the status criteria described above are not addressed in this document.

Concord Project Sites

Project sites C3015W and C3015E are part of the BART guideway that spans Kinne Boulevard in Concord. South of these project sites are portions of the Concord Naval Weapons Station that primarily has non-native grassland habitat, scattered with roads and military installations (see Figure 14). To the northwest is the Diablo Creek Golf Course, and to the northeast are more developed areas of the Concord Naval Weapons Station, including industrial-like facilities and office buildings. The slopes at project sites C3015W and C3015E primarily feature ruderal vegetation mixed with California annual grassland vegetation. Large amounts of debris from the SR-4 litter the area under the BART guideway that spans Kinne Boulevard.

Note: View facing east, showing ruderal habitat interspersed with coyote brush.

Figure 14. View of Slope at Project Site C3015E

An intermittent tributary to the Contra Costa Canal and Mount Diablo Creek, a seasonal creek, runs between these two project sites. This intermittent tributary to the Contra Costa Canal runs north to south and in between Kinne Boulevard and the slope at project site C3015E, and is a human-made, concrete-lined canal/ditch with 3-foot-tall vertical banks (see Figure 15). Mount Diablo Creek runs southeast to northwest, from the southern portion of the Concord Naval Weapons Station to the Diablo Creek Golf Course and underground for approximately 400 feet in the project vicinity, passing under Kinne Boulevard. Riparian trees are northwest and southeast of these project sites.

Table 2. Special-Status Species Potential to Occur at Concord Project Sites

Species	Scientific Name	Common Name	Status	Potential to Occur at Project Sites C3015W and C3015E
Reptile	*Emys marmorata*	western pond turtle	SSC	Five records of this species are within 5 miles of the project sites, the nearest of which is 1.96 miles away. The seasonal creek feature and concrete lined ditch may provide suitable aquatic dispersal habitat for this species. **Moderate Potential**
Bird	*Aquila chrysaetos*	golden eagle	GBEPA	One CNDDB record of this species is within 5 miles of the project sites, 1.87 miles away. No nesting habitat for this species was observed in the project vicinity, but this species may forage in California annual grasslands or fly over the project sites. **Moderate Potential**
Bird	*Athene cunicularia*	burrowing owl	SSC	Four CNDDB records of this species are within 5 miles of the project sites, the closest of which is 2.08 miles away. No burrows were observed in the project footprint; however, burrows may exist in the project vicinity, in the California annual grassland. This species has a moderate potential to nest or overwinter in the project vicinity. **Moderate Potential**

Notes:

1 Federal

FE Federally listed as Endangered

FT Federally listed as Threatened

MBTA Protected under the Migratory Bird Treaty Act

State

SE State listed as Endangered

ST State listed as Threatened

SSC California Department of Fish and Wildlife designated “Species of Special Concern”

CNPS

1B California Native Plant Society (CNPS) Ranking. Defined as plants that are rare, threatened, or endangered in California and elsewhere.

CNPS Threat Code Extension

.1 Species seriously endangered in California

.2 Species fairly endangered in California

Potential to occur (only those species with known, high, or moderate potential are reflected above; however, the full range of ratings is presented here for informational purposes)

Potential to occur ratings are evaluated as follows:

- A rating of “known” indicates that the species has been observed on the site.
- A rating of “high” indicates that the species has not been observed, but sufficient information is available to indicate suitable habitat and conditions are present on-site and the species is expected to occur on-site.
- A rating of “moderate” indicates that it is not known if the species is present, but suitable habitat exists on-site.
- A rating of “low” indicates that species was not found during biological surveys conducted to date on the site and may not be expected given the species’ known regional distribution or the quality of habitats located on the site.
- A rating of “not likely” indicates that the taxa would not be expected to occur on the project site because the site does not include the known range or does not support suitable habitat.

Sources: CDFW 2021; Compiled by AECOM 2021

Figure 15. Human-made Intermittent Ditch between Kinne Boulevard and the Slope at Project Site C3015E

Special-status species with a moderate or greater potential to occur in the vicinity of the Concord project sites are shown in Table 2 and include one reptile with a moderate potential (Western Pond turtle); and two birds with a moderate potential (golden eagle and burrowing owl). Special-status amphibian and mammal species have either low or no potential to occur and the Project sites. Two special-status plant species—Congdon's tarplant (*Centromadia parryi* ssp. *Congdonii*) and San Joaquin spearscale (*Extriplex joaquinana*)—initially were determined to have a moderate potential to occur due to nearby CNDDB occurrences and their potential to occur in California annual grassland habitat. Following the site visit, neither of these species have the potential to occur on site, because the project footprint at both of the Concord project sites is mixed ruderal vegetation underneath SR 4 and provides poor quality habitat for special-status plants.

Castro Valley Project Sites

Project sites L5008W, L5009W, and L5010W are along the BART guideway in the median of I-580, within and immediately east of Castro Valley. Project site L5008W is west of Five Canyons Parkway, and the slope below the abutment is bare earth covered primarily with Himalayan blackberry (*Rubus armeniacus*) and ruderal vegetation. Project site L5009W is east of Old Dublin Road, and project site L5010W is west of East Castro Valley Boulevard. The slopes below the two abutments are in disturbed (bare earth) areas, surrounded by Himalayan blackberry, ruderal vegetation, and coyote brush (*Baccharis pilularis*) scrub (Figure 16 and Figure 17).

Table 3. Special-Status Species Potential to Occur at Castro Valley Project Sites

Species	Scientific Name	Common Name	Status	Potential to Occur at Project Sites L5008W, L5009W, and L5010W
Reptile	*Emys marmorata*	western pond turtle	SSC	One CNDDB record of this species is within 5 miles of the project sites, 4.22 miles away. San Lorenzo Creek provides suitable habitat for this species. **Moderate Potential**
Reptile	*Masticophis lateralis euryxanthus*	Alameda whipsnake	FT, ST	Twenty CNDDB records of this species are within 5 miles of the project sites, the nearest of which is 0.38 mile away. Suitable riparian and scrub habitat exists for this species in the project vicinity. **High Potential**
Amphibian	*Rana draytonii*	California red-legged frog	FT, SSC	Fourteen CNDDB records of this species are within 5 miles of the project sites, the nearest of which is 1.03 miles away at Crow Creek. San Lorenzo Creek provides suitable aquatic dispersal habitat for this species, and upland areas may provide suitable upland dispersal habitat. No burrows were observed within the project footprint, but erosional cracks and crevices may be suitable for CRLF refugia. **High Potential**
Mammal	*Antrozous pallidus*	pallid bat	SSC	Two records of this species are within 5 miles of the project sites, the closest of which is 1.68 miles away. The closest record does not have an associated date ,and the other is from 1932. Riparian trees near these slopes may provide suitable habitat for roosting bats. The BART bridge abutments and spans were inspected for bat sign, and none was detected in the project vicinity. **Moderate Potential**
Mammal	*Neotoma fuscipes annectens*	San Francisco dusky-footed woodrat	SSC	One CNDDB record of this species is within 5 miles of the project sites, 1.25 miles away. The San Lorenzo Creek riparian zone and scrub habitat in the project vicinity provide suitable habitat for this species. No San Francisco dusky-footed woodrat middens were observed during surveys. **Moderate Potential**

See notes from Table 2.

Note: View facing west showing bare soil that recently has been colonized by ruderal vegetation and Himalayan blackberry.

Figure 16. View of the Slope at Project Site L5008W

Note: View facing southwest showing ruderal vegetation interspersed with coyote brush adjacent to the bare soil work area.

Figure 17. View of Slope at Project Site L5010W

San Lorenzo Creek is a perennial feature that runs immediately east of project sites L5008W and L5009W, and immediately south of L5010W. Vegetation in this urban creek is an understory of Himalayan blackberry, English ivy (*Hedera helix*), and ruderal species, with an overstory mixture of native trees such as oaks (*Quercus* spp) and willows (*Salix* spp.), and non-native and ornamental trees such as eucalyptus (*Eucalyptus* spp.) (see Figure 18).

Note: View facing north.

Figure 18. San Lorenzo Creek adjacent to Project Site L5008W

Special-status species with a moderate or greater potential to occur in the vicinity of the Castro Valley project sites are shown in Table 3 and include one reptile with a moderate potential (Western pond turtle) and one with a high potential (Alameda whipsnake); one amphibian with a high potential (California red-legged frog); and two mammals with a moderate potential (pallid bat and San Francisco dusky-footed woodrat). Special-status bird species have low or no potential to occur at the project sites. One special-status plant species—Diablo helianthella (*Helianthella casanea*)—initially was determined to have a moderate potential to occur because of nearby CNDDB occurrences and its potential to occur in riparian areas. Based on the site visit observations, this species does not have the potential to occur on site, because the project footprint at the three Castro Valley project sites is either bare soil or bare soil with sparse Himalayan blackberry, which provide poor quality habitat for special-status plants.

3.4.2 Discussion

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service, or NOAA Fisheries? – *Less than Significant with Mitigation*

Special-Status Plants

Concord Project Sites. Vegetation at these project sites includes ruderal and California annual grassland. Habitat for special-status species is poor, and both sites are littered with debris from SR-4. No special-status plant species are expected to occur at either of these sites. No impact would occur.

Castro Valley Project Sites. Vegetation at project site L5008W is primarily bare ground with sparse cover of Himalayan blackberry. Project sites L5009W and L5010W are on bare soil. These slopes appear to be cleared of vegetation regularly. Suitable habitat for special-status plant species does not occur on any of the slopes at these three project sites. No impact would occur.

Special-Status Wildlife

Concord Project Sites. Four special-status species have the potential to occur at the project sites in Concord. Potential effects associated with project construction are described below. No operational impacts would occur post-construction because no long-term operations or activities would occur following the slope stabilization repairs, except routine inspections to check that the slopes are performing as designed. Runoff would be properly managed and conveyed from the overhead tracks downslope without the drainage spillover and leaks that contribute to the erosion and sedimentation of slope soils that can adversely affect water quality and wildlife habitat.

Western Pond Turtle. Western pond turtle has the potential to occur within the seasonal creek and concrete-lined ditch at project sites C3015W and C3015E. The project footprint associated with each of these sites is in an upland area that is not suitable for western pond turtle dispersal or nesting. Thus, direct impacts on this species are not expected. Indirect impacts on western pond turtle may occur if project runoff or accidental spills are allowed to enter nearby waterbodies. Project runoff and accidental spills could degrade the quality of habitat in these water features. However, BART projects will comply with BFS Section 01 57 00, Subsection 1.10, Erosion and Sediment Control, that requires BART contractors to develop an Erosion and Sediment Control Plan to prevent erosion and sedimentation impacts during construction activities. Subsection 1.10 also requires contractors to comply with all applicable federal, State, and local laws, orders, and regulations concerning the prevention, control, and abatement of water pollution (see Section 3.10, Hydrology and Water Quality for further information on BART's requirements to protect water quality). Therefore, the impact on western pond turtle would be less than significant.

Golden Eagle. Although golden eagle has a moderate potential to occur at the Concord project sites, no suitable nesting habitat was observed during the survey in the project vicinity. Potential

impacts on golden eagle would be limited to behavioral impacts on foraging eagles or eagles flying over the project sites. Because of the abundance of habitat for eagles in the project vicinity, any behavioral impacts on golden eagle are expected to be negligible. No impact would occur.

Western Burrowing Owl. This State Species of Special Concern has the potential to occur in California annual grassland habitat in the vicinity of project sites C3015W and C3015E. No burrows were observed within the project footprint during the field survey, and thus no direct harm to burrowing owl or its habitat is anticipated, but if this species is present in the project vicinity, increased noise and human presence from construction could result in impacts on nesting or overwintering owls. Construction could result in behavioral impacts, nest abandonment, and nest failure, or abandonment of overwintering habitat. The impact would be potentially significant.

To avoid and minimize impacts on Western burrowing owl, Mitigation Measure BIO-5 would be implemented, requiring a survey for burrowing owl habitat in the project vicinity. If suitable habitat/burrows are observed, preconstruction burrowing owl surveys will be conducted in accordance with the California Burrowing Owl Consortium 1993 Burrowing Owl Survey Protocol and Mitigation Guidelines. This guidance includes methods for conducting preconstruction surveys, establishing and modifying exclusion buffers around active nests, monitoring active nests, and reporting the results of monitoring efforts. With implementation of Mitigation Measure BIO-5, the impact would be reduced to a less-than-significant level.

Pallid Bat. The BART guideway and the two Concord project sites were inspected for bat sign during surveys. No bat sign was observed within the weepholes in the BART guideway or along any other portions of the guideway. Although pallid bat is not expected to occur along the BART guideway, pallid bat would have the potential to roost in trees adjacent to the project sites within the riparian corridors associated with the seasonal creek. Because of the ambient noise from the BART trains and overhead freeway, if pallid bat was to use the riparian trees for roosting in the project vicinity, construction noise or human presence is not expected to affect this species. The impact would be less than significant.

Castro Valley Project Sites. Six special-status species have the potential to occur at the project sites in Castro Valley. Potential effects associated with project construction are described next. No operational impacts would occur post-construction for the same reasons cited for the Concord project sites.

Western Pond Turtle. Western pond turtle has the potential to occur within San Lorenzo Creek at project sites L5008W, L5009W, and L5010W; however, the project footprint for each of the slopes at these sites is an upland area that is not suitable for western pond turtle dispersal or nesting. Thus, direct impacts on this species are not expected from the slope repairs at the Castro project sites. Indirect impacts on western pond turtle may occur if project runoff or accidental spills are allowed to enter any of these waterbodies. Project runoff and accidental spills could degrade the quality of habitat in these waterways. By implementing standard water quality BMPs and using the erosion control devices required by BFS (i.e., Section 01 57 00 Subsection 1.10, Erosion and Sediment Control, as described for the Concord project sites), no indirect impacts on western

pond turtle are anticipated. Therefore, the impact on western pond turtle would be less than significant.

Alameda Whipsnake. Alameda whipsnake has the potential to occur within the project footprint and in the surrounding riparian and scrub habitats at project sites L5008W, L5009W, and L5010W. Significant impacts on the Alameda whipsnake because of slope stabilization repairs at the Castro Valley project sites could result from direct injury or mortality, changes to its behavior, or loss of the suitable habitat. Injury or mortality of Alameda whipsnake from project activities is not expected because: 1) the slope at project site L5008W is sparsely vegetated with Himalayan blackberry and the slopes at the other two project sites are bare soil; and 2) Alameda whipsnake is a fast-moving and agile species that would not remain present when vehicles and construction equipment move into the site. Nevertheless, such incidents cannot be discounted, and the impact would be potentially significant.

To reduce the potential harm to Alameda whipsnake, Mitigation Measure BIO-1 would be implemented, requiring that construction workers receive environmental training before working on site. Also, Mitigation Measure BIO-2 would be implemented, requiring that a preconstruction survey be conducted before all initial ground-disturbing activities and vegetation removal, and that all initial ground-disturbing activities and vegetation removal be monitored by a qualified biologist. In addition, in accordance with Mitigation Measure BIO-3, all trenches would be covered or ramped at the end of each workday, to reduce the potential for Alameda whipsnake to become trapped.

With respect to behavioral impacts on the Alameda whipsnake, increased human presence and noise associated with construction activities could alter its movements or cause temporary cessation of foraging. However, these behavioral effects are expected to be negligible because the San Lorenzo Creek riparian corridor and scrub habitat in the vicinity is plentiful and would provide suitable habitat for the Alameda whipsnake to move away from the project sites.

Although the project footprint is in close proximity to riparian or scrub habitat used by the Alameda whipsnake, the project footprint itself does not provide suitable habitat for Alameda whipsnake. Thus, the slope stabilization improvements would not result in a loss of Alameda whipsnake habitat. As discussed previously for the western pond turtle, by implementing standard water quality BMPs and using erosion control devices required by BFS (i.e., Section 01 57 00 Subsection 1.10, Erosion and Sediment Control), no indirect impacts on Alameda whipsnake habitat are anticipated. With these measures and implementation of Mitigation Measures BIO-1, BIO-2, and BIO-3, the impact on Alameda whipsnake would be reduced to a less-than-significant level.

California Red-Legged Frog. California red-legged frog (CRLF) has a moderate potential to occur within San Lorenzo Creek at project sites L5008W, L5009W, and L5010W. The project would not result in any impacts on the bed or banks of San Lorenzo Creek. Thus, no direct impacts on CRLF aquatic dispersal habitat would occur.

CRLF has the potential to occur in and adjacent to upland areas within the project footprint at project sites L5008W, L5009W, and L5010W. The slope at project site L5008W is sparsely vegetated with Himalayan blackberry, and the slopes below L5009W and L5010W are bare soil. Therefore, habitat and cover for CRLF in these three locations are poor, and the proposed slope repairs would not affect suitable upland habitat. However, because of the proximity of San Lorenzo Creek and the presence of erosional cracks and crevices at project site L5008W that may provide refugia for this species, the presence of CRLF in the project footprint cannot be ruled out. Therefore, construction at all three of these sites has the potential to result in crushing or injury of CRLF. To reduce the potential for CRLF to be present in the project footprint during construction, Mitigation Measure BIO-1 would be implemented. Mitigation Measure BIO-1 would require that construction workers receive environmental training before working on site. Mitigation Measure BIO-2 would be implemented, requiring that a preconstruction survey be conducted before any ground-disturbing activities and vegetation removal, and that all ground-disturbing activities and vegetation removal be monitored by a qualified biologist. In addition, in accordance with Mitigation Measure BIO-3, all trenches would be covered or ramped at the end of each workday, to reduce the potential for CRLF to become trapped.

If this species is present in the project vicinity during construction, increased human presence and noise may result in behavioral changes, such as alteration of movements or temporary cessation of foraging. To reduce the potential for CRLF behavior to be affected, Mitigation Measure BIO-4 would be implemented, requiring that all work be stopped within 50 feet of any observed CRLF, and the CRLF would be allowed to leave the work area of its own volition. With implementation of the BFS and Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-4, the impact on CRLF would be reduced to a less-than-significant level.

Pallid Bat. The BART guideway and the three Castro Valley project sites were inspected for bat sign during surveys. No bat sign was observed within the weepholes in the BART guideway or along any other portions of the guideway. Although pallid bat is not expected to occur along the BART guideway, pallid bat has the potential to roost in trees within the riparian corridors associated with San Lorenzo Creek at project sites L5008W, L5009W, and L5010W. Because of the ambient noise from the BART trains and overhead freeway, if pallid bat uses riparian trees for roosting in the project vicinity, construction noise and human presence are not expected to affect these bats. The impact would be less than significant.

San Francisco Dusky-Footed Woodrat. San Francisco dusky-footed woodrat would have the potential to occur in riparian areas associated with San Lorenzo Creek, and scrub habitat surrounding the creek at project sites L5008W, L5009W, and L5010W. However, the project footprint does not contain suitable habitat for this species, and no middens were observed in the project vicinity during surveys. Therefore, no impact would occur.

Mitigation Measure BIO-1: Environmental Awareness Training for All Project Sites. Before the start of construction, a qualified biologist or other qualified resource specialist will develop environmental training for all project personnel, which will cover all pertinent conservation measures, permit conditions, and any other required environmental compliance measures. Training will be conducted by a qualified biologist or other qualified resource

specialist, and may be provided via recording. All project personnel will attend the training before entering the project work area. On completion of the training, attendees will sign a form stating that they participated in the training and understand the material presented. This training may be combined with other environmental training for the Project, such as cultural resource training. In the event that non-English-speaking personnel are employed by the Project, an interpreter will be present during the environmental training, or training materials will be supplied in an appropriate language.

Mitigation Measure BIO-2: Preconstruction Surveys and Biological Monitoring for California red-legged frog and Alameda whipsnake at Castro Valley Project Sites. A preconstruction survey for California red-legged frog and Alameda whipsnake will be performed by a qualified biologist immediately before initial ground-disturbing activities or vegetation clearing at project sites L5008W, L5009W, and L5010W. A biological monitor also will be present on site during all initial ground-disturbing activities and vegetation removal. Through communication with the construction site supervisor, the qualified biologist may stop work if it is deemed necessary for any reason to protect listed species, and this biologist will advise the on-site Project Manager or designee on how to proceed appropriately.

Mitigation Measure BIO-3: Avoid Entrapment of Special-Status Wildlife at Castro Valley Project Sites. To prevent inadvertent entrapment of special-status wildlife during construction, all excavated, steep-walled holes or trenches more than 1 foot deep will be covered with plywood or similar materials at the close of each workday, or will be equipped with one or more escape ramps, constructed of earth fill or wooden planks. A construction site supervisor will inspect all holes and trenches at the beginning of each workday and before such holes or trenches are filled.

Mitigation Measure BIO-4: Avoid Contact with Listed Species at All Project Sites. If a special-status wildlife species is observed in the project vicinity, all construction activities will cease within 50 feet of the animal. The animal will be allowed to leave the work area of its own volition. If the animal does not or cannot leave the work area of its own volition, the construction site supervisor will contact BART, and BART will contact the appropriate resources agencies (CDFW and or USFWS) to coordinate relocation of the animal if necessary.

Mitigation Measure BIO-5: Western Burrowing Owl Survey at the Concord Project Sites. Preconstruction burrowing owl surveys will be conducted in accordance with the Burrowing Owl Survey Protocol and Mitigation Guidelines (California Burrowing Owl Consortium 1993) at project sites C3015W and C3015E. This guidance will include conducting a habitat assessment and burrow survey. If suitable habitat is observed, burrowing owl surveys will be completed during the nesting season (February 1 to August 31) or during the overwintering season (December 1 to January 31), if construction is scheduled to take place during these seasons. Guidelines for establishing and modifying exclusion buffers around active nests, monitoring active nests, and reporting the results of monitoring efforts also will be followed.

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

The project footprint at the Concord sites includes ruderal and California annual grassland vegetation; in Castro Valley, the project footprint at project site L5008W is sparsely vegetated with Himalayan blackberry, and the other two projects sites are bare soil/developed. Based on field surveys and direct observation of the project footprint, no riparian habitats, sensitive natural communities, or wetlands are present. All ground disturbances would be limited to the project footprint and would not involve modification of any sensitive habitats. No acreage of riparian habitat, natural community, or wetlands would be lost during project implementation.

In Concord, a seasonal creek is northeast of project site C3015W with a riparian corridor; in Castro Valley, San Lorenzo Creek (which also has a riparian corridor) is adjacent to each of the three project sites. If runoff from these project sites enters either of these waterways, increased sedimentation could occur. If an accidental spill were to occur on site and enter either of these waterbodies, it may result in their degradation. With implementation of standard water quality BMPs and erosion control devices required by BFS (i.e., Section 01 57 00 Subsection 1.10, Erosion and Sediment Control), the impact would be less than significant.

c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? – *Less than Significant with Mitigation*

Concord Project Sites

A seasonal creek is northeast of project site C3015W, and a concrete-lined ditch is west of project site C3015E. These features potentially are jurisdictional waters of the U.S.

The concrete-lined ditch may need to be crossed to access project site C3015E from Kinne Boulevard. The preferred crossing would be south of the project site where the concrete-lined ditch transitions to a box culvert, which can support construction vehicles and equipment and avoid encroachment or disturbance below the top of bank. If this preferred access to project site C3015E is not permitted by the U.S. Department of the Navy, then Mitigation Measure BIO-6 would be required. To minimize impacts on this water feature, the concrete-lined ditch would need to be spanned using metal plates, a bridge structure, or any other conventional construction method so that construction vehicles and equipment would be able to cross the seasonal creek and would not enter or affect it.

If runoff from the project entered any of these potentially jurisdictional waterways, increased sedimentation could occur. If an accidental spill occurs on site and hazardous materials enter these waters, this may result in their degradation. The impact would be potentially significant.

With implementation of BFS (i.e., Section 01 57 00 Subsection 1.10, Erosion and Sediment Control) and Mitigation Measure BIO-6 (below), the impact would be reduced to a less-than-significant level.

Castro Valley Project Sites

San Lorenzo Creek is adjacent to project sites L5008W, L5009W, and L5010W. No construction activities would occur within this creek. However, potential impacts could occur if runoff from these project sites entered these potentially jurisdictional waterways and increased sedimentation. Similarly, if an accidental spill occurs on site and enters this feature, this could adversely affect water quality. With implementation of standard water quality BMPs and erosion control devices required by BFS (i.e., Section 01 57 00 Subsection 1.10, Erosion and Sediment Control), no impact would occur.

> **Mitigation Measure BIO-6: Avoid Impacts on Waters of the U.S. at the Concord Project Site.** All waters of the U.S. will be avoided by the Project. If access to the slope repair work at project site C3015E via Kinne Boulevard cannot be accomplished using the box culvert south of the project site, and will require crossing the human-made, concrete-lined, open ditch, no construction equipment or materials will be allowed to enter the bed and banks of this feature. To avoid this feature, metal plates, a bridge structure, or other conventional construction methods will be used to span or cross it.

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? – *Less Than Significant With Mitigation*

Trees and shrubs found in the project vicinity could provide nesting habitat for a wide variety of native birds; however, no suitable trees for nesting are within the project footprint. All migratory birds, including feathers or other parts, nests, eggs, or products are protected under the MBTA (16 U.S. Code [USC] 703–712). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 Code of Federal Regulations (CFR) Part 10, except as allowed by implementing regulations (50 CFR 21). Disturbance that causes nest abandonment or loss of nest productivity (e.g., killing or abandonment of eggs or young) may be considered a “take” and potentially is punishable by fines and imprisonment. Incidental take permits are not issued for this act. Any proposed project must take measures to avoid the take of any migratory birds, nests, or eggs. All nesting birds protected under this law would need to be avoided during project construction.

Active nests of most birds also are protected under Section 3503 of the California Fish and Game Code, which reads, “It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.” Raptor nests also are protected under Section 3503.5. Thus, CDFW typically recommends preconstruction surveys for potentially suitable nesting habitat that would be directly (actual removal of trees/vegetation) or indirectly (noise disturbance) affected by construction-related activities. The impact would be potentially significant.

However, with implementation of Mitigation Measure BIO-7, the impact would be reduced to a less-than-significant level.

> **Mitigation Measure BIO-7: Nesting Bird Survey at All Project Sites.** If any construction activities occur during the active nesting period (February 1 through August 31), a preconstruction survey for nesting birds will be conducted by a qualified biologist. Nesting bird surveys will be conducted within 1 week before the start of construction activities. If no active nests are found, no further surveys and no further mitigation will be required. However, if 2 weeks lapse during construction within the active nesting period (i.e., if no work takes place on site for 2 continuous weeks between February 1 and August 31), then the survey will be repeated to ensure that any nests have not been occupied or created during the work stoppage. This survey will be required each year before any project construction activities occurring during the active nesting period. This survey will not be required if construction occurs outside the active nesting period.
>
> If active nests are found in any areas that may be directly affected by construction activities, a qualified biologist will assess the potential impacts of project construction noise levels to ensure an appropriate buffer is established to protect the active nests. The extent of these buffers will be determined by the biologist based on the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? – *No Impact*

In Concord, one 6-inch diameter at breast height (DBH) ash tree (*Fraxinus* spp.) is within the project footprint at project site C3015W and may require removal. This tree is not designated as a "heritage tree" or "protected tree" under Section 8.40.020 of the City of Concord Municipal Code. Thus, no conflicts with local plans or regulations are anticipated from removal of this tree.

In Castro Valley, one 6-inch DBH black walnut (*Juglans nigra*) tree is within the project footprint at project site L5008W. The Alameda County Tree Ordinance only requires encroachment permits for trees within the "right-of-way," which is defined by and restricted to public roadways (12.11.100). Therefore, no conflicts are anticipated from removal of this tree.

The Project would not conflict with any local policies or ordinances protecting biological resources. No impact would occur.

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? – *No Impact*

Based on a review of the boundaries of Habitat Conservation Plans (HCPs), Natural Communities Conservation Plans (NCCPs), and local, regional, and State habitat conservations plans, the project area is not within the boundaries of any adopted HCP or NCCP. The nearest HCP/NCCP

is the East Contra Costa County HCP/NCCP, for an area approximately 1 mile northeast of the Concord project sites and approximately 5 miles east of the Castro Valley project sites. Thus, no impact would occur.

3.5 Cultural Resources

3.5.1 Setting

Baseline historic and archaeological conditions in the project vicinity are based on a review of various sources, including the following:

- available ethnographic and historical literature and maps, archaeological base maps and site records, survey reports, and atlases of historical places on file at the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) at Sonoma State University (NWIC 2020);
- a review of San Francisco Bay–Delta Regional Context and Research Design for Native American Archaeological Resources (Byrd et al. 2017;
- a review of the Built Environment Resources Directory for Alameda and Contra Costa Counties (California State Parks Office of Historic Preservation 2021); and
- a Sacred Lands File review by the California Native American Heritage Commission (NAHC) (NAHC 2021a).

Precontact Context

The following context is abstracted from the Regional Research Context section of the San Francisco Bay–Delta Regional Context and Research Design for Native American Archaeological Resources (Byrd et al. 2017). This previously developed context provides broad background for the cultural processes and trends that shaped the archaeological record of the Bay–Delta area.

The earliest evidence for human occupation in California, during the Terminal Pleistocene (13,500 to 11,700 calibrated years before present [cal BP]), is very sparse, consisting primarily of isolated fluted points, and therefore is poorly understood. No fluted points or archaeological deposits dating to this period have been documented in the San Francisco Bay Area. The absence of these archaeological sites can be attributed partially to the small mobile populations leaving only a marginal footprint on the landscape, in conjunction with the subsequent rise of sea levels and coastal erosion burying what limited sites were deposited during this time (Byrd et al. 2017).

Early Holocene (11,700 to 8,200 cal BP) occupation of the San Francisco Bay region is characterized by a semi-mobile hunter-gatherer population, who used a wide range of plants and animals from marine, lacustrine, and terrestrial environments (Byrd et al. 2017). Charred remains of acorn nutshell at Los Vaqueros, in the Diablo Range, provide direct evidence for use of this nut crop during the Holocene (Rosenthal and Meyer 2009).

Middle Holocene (8,200 to 4,200 cal BP) archaeological deposits are represented with more than 60 known sites in the Bay–Delta area (Byrd et al. 2017). Artifact assemblages are varied and

characterized by groundstone (handstones and millingslabs, as well as mortars and pestles); side-notched dart points; cobble-based implements; and shell beads and ornaments (Byrd et al. 2017).

Evidence for late Holocene (4,200 to 180 cal BP) occupation in central California is extensive; more than 240 known archaeological sites date to this period in the Bay–Delta area (Milliken et al. 2009; Rosenthal and Meyer 2009). The Late Period of the late Holocene is the best-documented era. Current data suggest that Bay–Delta area populations increased in size, sedentary villages flourished, and ritual activity increased (Byrd et al. 2017). Artifact assemblages include “clam disk beads, distinctive Haliotis [abalone] pendants, flanged steatite pipes, chevron-etched bone whistles and tubes, elaborately finished stone ‘flowerpot’ mortars, and needle-sharp coiled basketry awls” (Milliken et al. 2009). The bow and arrow appear in the region around 700 cal BP, with a distinctive arrow style dubbed the “Stockton Serrated.” This arrow was almost exclusively manufactured from Napa Valley and Annadel obsidian during this period (Byrd et al. 2017).

Historic Context

In 1772, the Spanish, led by Juan Bautista de Anza, began exploring the inner coastal region of California encountering large villages inhabited by Chupcan (Bay Miwok) and Chochenyo (Ohlone). Later, Spanish settlers established a permanent presence through construction of missions and presidios. By the turn of the century, nearly all Indigenous residents of the Bay Area were forcefully removed from their villages to the missions (Levy 1978a; Levy 1978b; Milliken et al. 2009). Section 3.18, Tribal Cultural Resources, presents an ethnographic history.

When Mexico became independent from Spain in 1822, the Spanish missions were secularized, and their lands were redistributed to private individuals by way of land grants. Large parcels were developed into cattle ranches, maintained by Mexican grantees. After the Mexican–American War, the area became part of the United States in 1848. Contra Costa County was one of the original 27 counties of California; in 1853, the portion of Contra Costa County across the Bay from San Francisco became Alameda County (Hoover et al. 2002).

Concord

The modern city of Concord and the Concord project sites are on the former Rancho Monte Del Diablo land grant, which was granted in 1834 to Salvio Pacheco (Hoover et al. 2002). Following California’s admission into the United States, industries were established along the Carquinez Strait to ship goods to San Francisco and interior cities of Sacramento and Stockton (Cantrell 2021). The introduction of the railroad in the latter half of the 1800s, in conjunction with the post-Gold Rush sedimentation of the rivers and sloughs, led to the end of water transport in the region. The portion of CNWS south of the project site was developed in 1944 and 1945, with magazines to disburse stored explosives and gun ammunition, administration buildings, military barracks, and a weapons laboratory (Concord Community Reuse Project n.d.). This portion of CNWS was closed in 1999. SR-4 was constructed in the 1930s; in the 1990s, it was upgraded to allow

construction of the BART Pittsburg/Bay Point line in the median. The Concord project sites are approximately 1 mile northeast of the North Concord/Martinez BART Station.

Castro Valley

The modern community of Castro Valley and the Castro Valley project sites are on former Rancho San Lorenzo. Castro Valley initially was settled for orchards and farming, leading it to become California's second largest egg-producing area in the early 1900s (Hoover et al. 2002). Ranching was the main industry until after World War II, when shopping centers and subdivisions began replacing more rural land uses (Castro Valley/Eden Area Chamber of Commerce 2021). I-580 was constructed in the 1950s and 1960s, along the general alignment of the original Lincoln Highway; in the 1990s, I-580 was upgraded to allow construction of the Dublin/Pleasanton BART line in the median. The Castro Valley project sites are on the BART Dublin/Pleasanton line, over 1 mile east of the Castro Valley BART Station.

Historical Resources Inventory in Project Vicinity

No cultural resources, historic architectural resources, or Sacred Lands were identified in the project sites and immediate vicinity through the records searches or background research. In 2018, a records search of the entire BART ROW and a 20-foot buffer (10 feet beyond the BART ROW on both sides) was requested from the NWIC (File No. 18-0313) (AECOM 2018). According to the 2018 NWIC records search results, no resources are within 50 feet of the current project sites. An updated NWIC records search was conducted in 2020 (File No. 20-0845) that confirmed no previously-recorded resources were identified within or adjacent to the current project footprint.

The San Francisco Bay-Delta Regional Context and Research Design for Native American Archaeological Resources (Byrd et al. 2017) was reviewed to identify areas of potential surface and buried archaeological sensitivity for precontact resources in project sites. This document contains a geoarchaeological sensitivity assessment of the entire Bay Area. The slope stabilization repair sites were compared against these areas of sensitivity. The results of the records search at each location are shown in Table 4.

Table 4. Project Site Precontact Archaeological Sensitivity

Project Site Number	Previous Cultural Resources Study?	Cultural Resource Present?	Surface Sensitivity	Buried Sensitivity
C3015E	Yes	No	High	Moderate
C3015W	Yes	No	High	Low
L5008	Yes	No	Moderate	Not assessed
L5009	Yes	No	Moderate	Not assessed
L5010	Yes	No	Moderate	Not assessed

Source: Byrd et al. 2017; compiled by AECOM 2021

The slope repair locations are in areas ranging from “Low” to “High” sensitivity; some areas were not assessed (Byrd et al. 2017). Sensitivity was determined based on proximity to water, slope, and other environmental factors. Although portions of the Project are in locations with moderate or high sensitivity for surface archaeological resources, a desktop review determined that the project sites have been heavily modified by construction of the BART system, and the slopes to be repaired are not on natural landforms. In addition, the records search revealed that the project sites had been studied previously, and no archaeological resources had been identified (File No. 20-0845). Therefore, the actual potential for surficial archaeological resources in any of the slope stabilization project sites appears to be low.

Although a moderate potential exists for buried archaeological resources at one of the repair locations, C3015E, the proposed slope repair work would not require extensive or deep ground disturbance, and undisturbed soils are unlikely to be encountered as part of the Project. A pedestrian archaeological survey was not conducted because of the extensive modifications of the landforms that were identified during the desktop review, the prior study coverage, and the lack of previously recorded resources.

3.5.2 Discussion

a. Cause a substantial adverse change in the significance of a historical resource pursuant to in §15064.5? – *No Impact*

Under CEQA, a historical resource (these include both archaeological and historic architectural resources) is considered to be significant if it meets the criteria for listing in the California Register of Historical Resources (CRHR). These criteria are set forth in Section 15064.5 of CEQA, and are define as significant any resource that:

a. is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;

b. is associated with lives of persons important in our past;

c. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

d. has yielded, or may be likely to yield, information important in prehistory or history.

The Project would not result in a substantial adverse change in the significance of a historical resource (archaeological or historic architectural), as defined in Section 15064.5, because the cultural resources investigation for the Project did not identify any historical resources in the project area that meet the criteria of significance under CEQA. Therefore, no impact would occur.

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? – *Less than Significant with Mitigation*

In addition to assessing impacts on archaeological resources meeting the requirements for listing as historical resources, impacts on unique archaeological resources also are considered under CEQA, as described in Section 15064.5, as well as under Section 21083.2 of the California Public Resource Code (PRC).

No known archaeological resources are within 50 feet of the project area; however, previously unknown archaeological resources may exist in the project area. These resources could include precontact or historic-period archaeological artifacts or features. Although the potential for archaeological resources to be present exists, the potential for encountering intact resources is very low because the project work would be confined to existing manufactured slopes that were constructed for BART in the 1990s. This work would not require extensive or deep ground disturbance, and undisturbed soils are unlikely to be encountered as part of the Project. Nevertheless, the unanticipated discovery of archaeological resources cannot be dismissed, so construction activities could have a potentially significant impact.

If previously unknown archaeological resources are encountered during implementation of the Project, they could be adversely affected. Implementing Mitigation Measure CUL-1 would be applied to both cultural resources and Tribal cultural resources. This would reduce potential impacts on previously unknown archaeological resources to a less-than-significant level.

> **Mitigation Measure CUL-1: Unanticipated Discoveries of Archaeological Resources.** If construction workers unearth archaeological resources during project implementation, all project activities within 100 feet will halt until a professional archaeologist (who meets the Secretary of the Interior's Professional Qualifications Standards in archaeology) is retained and determines the significance of the discovery. If the resource potentially also is a Tribal cultural resource, the archaeologist will assess impacts, significance, and mitigation, in consultation with local Native American representatives.
>
> Precontact archaeological materials may include obsidian and chert flaked-stone tools (e.g., projectile points, knives, or scrapers) or toolmaking debris; culturally darkened soil (midden) containing heat-affected rocks, artifacts, or shellfish remains; stone milling equipment (e.g., mortars, pestles, hand stones, or milling slabs); and/or battered stone tools, such as hammerstones. Historic period materials may include foundations or hollow-filled features, such a privies or wells.
>
> Impacts on any significant resources may be mitigated through avoidance, data recovery, or other methods, as identified by a qualified archaeologist, local Native American representatives, and BART. Any mitigation plan developed by a qualified archaeologist will be approved by BART before implementation. Project-related ground-disturbing activities will not be continued in the vicinity of any discovered resource until the significance of the resource is resolved and mitigation action (if any) is completed.

c. Disturb any human remains, including those interred outside of dedicated cemeteries? – *Less than* Significant *with Mitigation*

Section 15064.5 of CEQA assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. These procedures are detailed under Section 5097.98 of the PRC. No known burial locations are in the project area, and no known archaeological sites have the potential to harbor human remains in the project vicinity. However, the possibility still exists that unmarked burials may be unearthed during subsurface construction activities. Consequently, the Project could disturb human remains during construction, including those outside of formal cemeteries. The impact would be potentially significant. Implementing Mitigation Measure CUL-2 would reduce the impact to a less-than-significant level.

> **Mitigation Measure CUL-2: Treatment of Human Remains.** If human remains are encountered, all provisions of Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the California Public Resources Code will be followed. Work will stop within 100 feet of the discovery, and both a qualified archaeologist and BART project manager must be contacted within 24 hours. BART staff will contact the County Coroner. If human remains are of Native American origin, the County Coroner will notify the California Native American Heritage Commission within 24 hours of this determination, and a Most Likely Descendent will be identified. No work will proceed in the discovery area until consultation is completed and procedures to avoid or recover the remains have been implemented.

3.6 Energy

3.6.1 Setting

Electric and natural gas services to Concord and Castro Valley are provided by Pacific Gas and Electric Company (PG&E). PG&E has 106,681 circuit miles of electric distribution lines, 18,466 circuit miles of interconnected transmission lines, 42,141 miles of natural gas distribution pipelines, and 6,438 miles of transmission pipelines (PG&E 2021). The Project would not require natural gas or electricity services for construction activities. Operational and maintenance-related activities also would not require any electricity or natural gas consumption. Thus, PG&E's capacity to supply electricity and natural gas is not discussed further in this document.

Gasoline and diesel fuel consumption would occur during project construction, for vehicles, trucks, and equipment. Transportation is the largest energy-consuming sector in California, accounting approximately 39 percent of all energy use in the state in 2019 (EIA 2021a). Historically, gasoline and diesel fuel accounted nearly all demand; however, numerous options now are available, including ethanol, natural gas, electricity, and hydrogen. Despite advancements in alternative fuels and clean-vehicle technologies, gasoline and diesel remain the primary fuels used for transportation in California, with 360.2 million barrels of motor gasoline and 98.4 million barrels of diesel consumed in 2019 (EIA 2021b).

3.6.2 Discussion

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation? – *Less than Significant*

Energy efficiency is a possible indicator of environmental impacts. The actual adverse physical environmental effects of energy use and the efficiency of energy use are detailed throughout this IS in the environmental topic–specific sections. For example, the use of energy for transportation sources (including construction equipment and haul trucks) would lead to GHG and criteria air pollutant emissions, the impacts of which are addressed in Section 3.8, Greenhouse Gas Emissions, and Section 3.3, Air Quality, respectively. Similarly, the temporary increase in construction traffic because of worker commutes and truck deliveries, which would use energy from fuel consumption, is addressed in Section 3.17, Transportation. All physical environmental effects associated with energy use are addressed in the topic–specific sections of this IS.

Energy consumption during project construction would involve energy used by construction equipment, haul trucks, and workers' commute vehicles. Construction activities at each project site would last approximately 55 workdays in Concord and 40–50 workdays at each work site in Castro Valley. An estimated 20 construction personnel would perform the repairs at each site. Stabilizing the slopes would require the use of a backhoe, a skid loader, a grader, a small bulldozer, and various trucks. Equipment to repair the abutments and drainage facilities above the slopes would require the use of a vibratory plate compactor, small hand tools, a water buffalo, pickup and delivery trucks, lighting, and a generator. Minor excavation and material import would require a delivery truck. The construction equipment and haul trucks primarily would use diesel fuel, while work trucks (pickups) and personal vehicles used for commuting would primarily be gasoline-fueled.

Based on limited construction activities, the short-term duration of construction, anticipated equipment, number of construction workers, and the minor repair and maintenance activities required, the Project would not include unusual activities that would necessitate the use of construction equipment that would be less energy-efficient than similar equipment at comparable construction sites. In addition, in accordance with the CARB Airborne Toxic Control Measure for Diesel-Fueled Commercial Motor Vehicle Idling, construction contractors are required to minimize idling time of construction by shutting equipment off when not in use or reducing idling time to 5 minutes. The Project also would implement the BFS, as described in Section 3.3.2b, which would require that all construction equipment be maintained in proper working condition, according to manufacturers' specifications, as well as be checked by a certified mechanic and determined to be running in proper condition before operation. These required practices would limit wasteful and unnecessary energy consumption.

In addition, as described in Section 2, Project Description, the Project would correct existing erosion damage. Project implementation would reduce the long-term risk to BART's passengers, employees, and property from slope failure and erosion at or below project sites, thereby reducing the need for more extensive (and higher energy-consuming) repairs in the long term. Therefore,

fuel consumption associated with project construction would not be inefficient, wasteful, or unnecessary. The impact would be less than significant.

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? – *No Impact*

The Project is not using land that was otherwise slated for renewable energy production and does not otherwise conflict with any State or local renewable energy plans. Project implementation would ensure the continued smooth operation of the BART system and help to avoid long-term interruptions to the public transit system from slope failure and erosion at the project sites. BART provides an alternative form of transportation that reduces vehicle miles traveled and the associated energy consumption from passenger vehicles. For example, the fuel efficiency equivalent in a BART car is 65.9 miles per gallon compared to an average single-occupancy car (BART 2021). Therefore, the Project would not obstruct any state or local plans for renewable energy or energy efficiency. No impact would occur.

3.7 Geology and Soils

3.7.1 Setting

The project sites are in the Bay Area, where numerous earthquake faults occur at the intersection of the North American and Pacific tectonic plates. The nearest known active earthquake fault to the two BART bridge abutments in Concord is the Concord/Green Valley Fault, approximately 2.3 miles to the west; the nearest known active earthquake faults to the three BART bridge abutments in Castro Valley are the South Hayward Fault approximately 3 miles to the west and the Northern Calaveras Fault approximately 4.8 miles to the east (Jennings and Bryant 2010). The project sites are not within a Alquist-Priolo Fault Hazard Zone (California Geological Survey 2021).

According to Branum et. al. (2016), the project sites are in Very Strong and Severe Shaking areas. Peak horizontal ground acceleration (PGA), which is a measure of the projected intensity of ground shaking from seismic events, can be estimated using a computer model. CGS estimates that the project sites could be subject to PGAs that would represent very strong and severe ground shaking from one or more earthquakes that may occur in the future, over a 50-year time frame (Branum et al. 2016)

The project sites in Concord are in an area unevaluated by the Seismic Hazard Zone map (California Geological Survey 2021). The project sites in Castro Valley are in or very close to a seismically induced landslides and liquefaction hazard zone. Project site L5008W is within an Earthquake Zone of Required Investigation for landslides and liquefaction, as required by the California Geological Survey. Project sites L5009W and L5010W are not within a seismically induced landslide area, but they are both within an Earthquake Zone of Required Investigation for liquefaction (California Geological Survey 2021). An Earthquake Zone of Required Investigation requires a geotechnical investigation to be conducted and a geotechnical report to be developed demonstrating that the potential hazards from a development project have been investigated,

determined, and measured to protect lives and properly incorporated into the development design.

Soils at the project sites consist of imported, compacted artificial fill material that were emplaced when the bridge overcrossings were first constructed.

3.7.2 Discussion

a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. **Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. – *No Impact***

The Alquist-Priolo Fault Zoning Act is intended to prevent construction of structures used for human occupancy on the surface trace of active faults. Alquist-Priolo Earthquake Fault Zones are areas surrounding active earthquake faults that have a higher potential hazard related to surface fault rupture. None of the project sites are within an Alquist-Priolo Earthquake Fault Zone (California Geological Survey 2021), or within the trace of any other known fault (Jennings and Bryant 2010). The Project would repair slopes underneath several BART bridges, which would involve grading, vegetation grubbing, and installation of slope stability and drainage improvements, as well as repair the bridge abutments. Therefore, the Project would not expose people or structures to potential adverse effects from a rupture of a known earthquake fault. No impact would occur.

ii. Strong seismic ground shaking? – *Less than Significant*

Although a high potential would exist for very strong to severe seismic ground shaking at and around the project sites, the Project would not build or install any new structures. The Project is proposing to repair BART abutment structures and the slopes underneath the existing BART bridges. In addition, the design of the slope stabilization improvements would comply with seismic safety and other BFS. BART design criteria require that all operating facilities be designed to withstand the effects of the Maximum Credible Earthquake (the greatest probable earthquake that could occur in a region) without substantial degradation of structural integrity. Consequently, although strong seismic ground shaking could occur at the project sites, the proposed slope repairs would be engineered and implemented according to BART seismic safety design criteria. Therefore, the impact would be less than significant.

iii. Seismic-related ground failure, including liquefaction? – *No Impact*

Seismically induced liquefaction occurs when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and take on the characteristics of a fluid, thus becoming similar to quicksand. Liquefaction is most likely to occur in low-lying areas,

where the substrate consists of poorly consolidated to unconsolidated water-saturated sediments, recent Holocene-age sediments, or deposits of artificial fill. Additional factors that determine the liquefaction potential are the distance to an active seismic source and the depth to groundwater. The project sites are in an active seismic region with moderate to high liquefaction susceptibility (Jennings and Bryant 2010; California Geological Survey 2021). However, the Project would not construct or install new infrastructure or buildings that could fail because of liquefaction from seismic activity. The Project would repair slopes underneath BART bridges at two locations in Concord and three locations in Castro Valley, which would include slope regrading and applying slope repair measures to help prevent further erosional damages of the slopes. Therefore, the Project would not expose people or structures to risks associated with seismically induced liquefaction. No impact would occur.

iv. Landslides? – *Less than Significant*

The project sites are within Earthquake Zone of Required Investigation for landslides and liquefaction (California Geological Survey 2021). The Project is proposing to repair slopes underneath BART bridges, to address existing erosion problems and prevent further erosion in the future. BART is required to adhere to the Earthquake Zone of Required Investigation requirements, which would require a site-specific geotechnical analysis, and to incorporate the geotechnical investigation results into the project design. Therefore, the Project would not directly or indirectly cause landslide hazards. Therefore, the impact would be less than significant.

b. Result in substantial soil erosion or the loss of topsoil? – *No Impact*

During construction, the Project temporarily would disturb and erode soil, causing miscellaneous wastes to potentially discharge to surface waters through existing stormwater collection facilities. However, the construction activities would be required to comply with BFS Section 01 57 00 Subsection 1.10, Erosion and Sediment Control, which would minimize soil erosion and sediment transport to existing stormwater drainage systems. All project sites would disturb less than one acre of land; would be stabilized pursuant to the Water Quality Order No. 2013-0001-DWQ National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000004; and would be required to comply with BART's General Permit for Phase II Small MS4 General Permit 2013-0001-DWG.

The Project would repair and prevent further soil erosion; therefore, project operation would not result in substantial soil erosion; rather, it would correct existing erosion and drainage problems that contribute to erosion and slope stability issues. Project operation would result in a beneficial impact from reduced soil erosion in the future. No impact would occur.

c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? – *Less than Significant*

Project improvements are proposed because the slopes at the project sites have become unstable and damaged from stormwater erosion. The soil at the project sites are properly

engineered with compacted fill material from when the project sites and the Caltrans bridges on either side of the BART bridges originally were constructed. Subsidence would not occur at the project sites because the Project would not be withdrawing any groundwater. Implementation of standard engineering design and adherence to BART and industry standards would ensure that the project improvements and repairs would have no adverse effects with respect to landslides, lateral spreading, subsidence, liquefaction, or collapse. No impact would occur.

d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property? – *No Impact*

Expansive soils are composed largely of clays, which greatly increase in volume when saturated with water and shrink when dried (referred to as "shrink-swell" potential). Soils at the project sites are composed of imported, engineered, and compacted fill material. BFS contain specifications regarding the amount of clay allowed in imported fill material. These standards are intended to ensure that substantial soil expansion underneath BART facilities does not occur; therefore, no impact would occur.

e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater? – *No Impact*

The Project would not include the use of septic tanks or alternative wastewater disposal systems. The Project would involve abutment repairs and slope stabilization that would not generate a demand for any wastewater disposal systems. No impact would occur.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? – *No Impact*

Unique geologic features consist of rock formations, canyons, waterfalls, and other similar examples of outstanding natural features. No unique geologic features occur at the project sites or in the surrounding vicinity of each site. The project sites consist of imported, compacted fill material of Holocene age, which is not paleontologically sensitive and does not contain unique paleontological resources. The Project would not require excavating more than 6 feet deep. Excavation during project construction would not disturb the ground beyond the existing footprint of previously imported fill material that was emplaced when the bridge overcrossings originally were constructed. Therefore, no impact would occur.

3.8 Greenhouse Gas Emissions

3.8.1 Setting

Certain gases in Earth's atmosphere, classified as GHGs, play a critical role in determining the Earth's surface temperature. A portion of the solar radiation that enters the Earth's atmosphere is absorbed by the Earth's surface, and a smaller portion of this radiation is reflected back toward space. Infrared radiation is absorbed by GHGs; therefore, infrared radiation released from Earth

that otherwise would have escaped back into space is instead “trapped,” resulting in a warming of the atmosphere. This phenomenon, known as the “greenhouse effect,” is responsible for maintaining a habitable climate on Earth.

GHGs are present in the atmosphere naturally, are released by natural sources and anthropogenic sources, and are formed from secondary reactions taking place in the atmosphere. The following GHGs are widely accepted as being the principal contributors to human-induced global climate change that would be relevant to the Project: carbon dioxide (CO_2); methane (CH_4); and nitrous oxide (N_2O). Emissions of CO_2 are byproducts of fossil fuel combustion. CH_4 is the main component of natural gas and is associated with agricultural practices and landfills. N_2O is a colorless GHG that results from industrial processes, vehicle emissions, and agricultural practices.

Global warming potential (GWP) is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to CO_2. The GWP of a GHG is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time (i.e., lifetime) that the gas remains in the atmosphere (i.e., its atmospheric lifetime). The reference gas for GWP is CO_2; therefore, CO_2 has a GWP of 1. The other main GHGs that have been attributed to human activity include CH_4, which has a GWP of 28, and N_2O, which has a GWP of 265 (IPCC 2013). For example, 1 ton of CH_4 has the same contribution to the greenhouse effect as approximately 28 tons of CO_2. GHGs with lower emissions rates than CO_2 still may contribute to climate change because they are more effective at absorbing outgoing infrared radiation than CO_2 (i.e., high GWP). The concept of CO_2-equivalents (CO_2e) is used to account for the different GWP potentials of GHG to absorb infrared radiation.

3.8.2 Discussion

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? – *Less than Significant*

The BAAQMD has not adopted thresholds for evaluating GHG emissions from construction activities. However, the BAAQMD recommends that the Lead Agency make a determination on the significance of construction-generated GHG emission impacts in relation to meeting Assembly Bill (AB) 32 GHG reduction goals. In 2006, California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500, et seq.). AB 32 required that statewide GHG emissions be reduced to 1990 levels by 2020. In 2016, California passed Senate Bill (SB) 32, which requires California to reduce GHG emissions to 40 percent below 1990 levels by 2030. The SB 32 2030 target represents reductions needed to ensure that California can achieve its longer term 2050 target of a reduction of GHG emissions 80 percent below 1990 levels, per Executive Order B-30-15.

Although project construction also would generate GHG emissions, emissions would occur only over the short duration of the construction activities at each project site and would cease following completion of the proposed improvements. In addition, because the Project would reduce the long-term risk to BART’s passengers, employees, and property from slope failure and erosion at

the project sites, it would have the added benefit of reducing the need for more extensive (and a longer duration of GHG-emitting activities) repairs in the long-term. Project implementation also would ensure the continued operation of the BART system and help to avoid long-term interruptions to the public transit system from slope failure and erosion at or below the project sites. BART provides an alternative form of transportation that reduces vehicle miles traveled and the associated GHG emissions from passenger vehicles. As described in more detail in Section 3.8.2(b) below, prioritizing transportation sustainability and infrastructure for public transit is one of the key strategies included in the 2017 Climate Change Scoping Plan (CARB 2017) for achieving California's 2030 GHG emissions target. Project operation is not anticipated to generate any additional activities related to maintenance or operations that would exceed existing conditions. Therefore, project implementation would not generate GHG emissions that would have a significant effect on the environment. No impact would occur.

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? – *No Impact*

As described in Section 3.8.2(a), AB 32 established regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and established a cap on statewide GHG emissions. It required that statewide GHG emissions be reduced to 1990 levels by 2020. In 2016, the State Legislature passed SB 32, which established a 2030 GHG emissions reduction target of 40 percent below 1990 levels. In response to SB 32 and the companion legislation of AB 197, CARB approved the Final Proposed 2017 Scoping Plan Update: The Strategy for Achieving California's 2030 GHG Target (CARB 2017). The 2017 Scoping Plan draws from the previous plans to present strategies for achieving California's 2030 GHG reduction target. Although the 2017 Scoping Plan updates include measures that would indirectly address GHG emissions associated with construction activities, including the phasing in of cleaner technology for diesel engine fleets (including construction equipment), successful implementation of these measures predominantly depends on development of laws and policies at the State level, rather than separate actions by individual agencies or local governments. Thus, those polices formulated under the mandate of AB 32 and SB 32 that are applicable to construction-related activity, either directly or indirectly, likely would be implemented during project construction, if those policies and laws are developed before the start of project construction. The 2017 Scoping Plan also includes goals of reducing vehicle miles traveled through access to public transportation. Project implementation also would ensure the continued operation of the BART system and help to avoid long-term interruptions to the BART system from slope failure or erosion. In 2015, it was estimated that the BART system displaced approximately 350,000 metric tons of CO_2e from single-occupancy vehicles (BART 2017). Therefore, project construction would not conflict with the Scoping Plan updates.

In 2015, BART adopted a Strategic Plan, and in April 2017 adopted a revised Sustainability Policy to address goals and strategies for regional sustainability. The goals of the Sustainability Policy related to the Project include choosing sustainable materials, construction methods, and operations practices by (1) adopting standards, designing projects, and purchasing products and services to minimize ongoing maintenance and reduce waste, and (2) considering net embodied

energy, incorporating efficient construction, deconstruction, and recycling practices, and including local businesses. To implement the Sustainability Policy, BART prepared a Sustainability Action Plan in December 2017 that included targets, current progress, and future actions to integrate sustainability as a standard practice. Project implementation would ensure the continued operation of the BART system and help to avoid long-term interruptions to the public transit system from slope failure and erosion at or below the project sites. This would be consistent with the BART Sustainability Policy goals of minimizing maintenance and assessing and addressing resilience in projects and operations, to help BART prepare for disturbances most likely to happen in the future, including impacts from climate change. Consistent with implementation of hazard mitigation strategies that contribute to community safety, the Project also would reduce the long-term risk to BART's passengers, employees, and property from slope failure and erosion.

Therefore, the Project would not conflict with the goals and strategies of the 2017 Scoping Plan and BART's Sustainability Action Plan. Thus, the Project would not conflict with any applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions. No impact would occur.

3.9 Hazards and Hazardous Materials

3.9.1 Setting

Hazardous materials are substances consisting of properties that could create significant current or future hazards to human health or the environment. The risk of exposure to hazards and hazardous materials can be increased because of improper handling, disposal, transportation, or management of hazardous materials. Construction activities such as excavation and grading in previously contaminated areas potentially could expose health hazards and hazardous materials to the public through contaminated materials or hazardous vapors. Exposure to hazards and hazardous materials can be exacerbated through improper handling or storage of contaminated soil and groundwater. In addition, potential contamination can be spread through surface water runoff as well as by airborne particles.

Provisions of the BFS relevant to avoiding or minimizing hazards and hazardous materials impacts that otherwise could occur include emergency procedures to address encountering hazardous materials or toxic spills (Section 01 35 24, Construction Safety); control of traffic, pollution, erosion and sediment, dust, mud, and noise during construction (Section 01 57 00, Temporary Controls); and diversion of construction and demolition debris from landfills (Section 01 74 21, Waste Management). Of particular note is BFS Section 01 35 24, which requires preparation of a Site-Specific Emergency Action Plan and addresses the potential for construction workers to encounter hazardous materials during construction. The Site-Specific Emergency Action Plan also requires the contractor to take the necessary steps to prevent injury to the general public, BART employees, BART patrons, and damage to public property.

Concord Project Sites

The Concord project sites are within the former CNWS, an approximately 13,000-acre facility along the Suisan Bay coastline and extending inland into the City of Concord. Established in 1942, CNWS is one of the oldest naval ordnance support bases on the Pacific Coast. Historically, the base was active loading and unloading weapons and equipment from ships. CNWS consists of two parts: the 7,630-acre "tidal area," where most of the ordnance operations were concentrated, and the 5,170-acre inland area, where the administrative and support activities were based. The tidal area continues its historic role as an ammunition trans-shipment port, operated by the U.S. Army. The inland area was put on reduced operational status in 1999, and subsequently was closed as part of the Defense Base Realignment and Closure Act and transferred to the City of Concord and the East Bay Regional Park District in 2019.

Concord project sites C3015W and C3015E on Kinne Boulevard are in the inland area of the CNWS. Previous military activities at the CNWS have impacted the soil and groundwater. The Navy began environmental investigations of CNWS in 1982, and ongoing cleanup activities are performed by the Navy, with regulatory oversight by EPA, the San Francisco Regional Water Quality Control Board (RWQCB), and California Department of Toxic Substances Control (DTSC). The CNWS is a Superfund National Priorities List facility, meaning that it is on a list of sites of national priority with known releases or threatened releases of hazardous substances and is intended to guide EPA in determining which sites warrant further investigation and may need remedial action. For large, complex sites, areas of investigation and remediation may be separated into "operable units" or "solid waste management units." Although the San Francisco RWQCB and DTSC have determined various areas of the CNWS to require no further action, some areas still are in phases of cleanup through the Navy's Installation Restoration Program (Department of the Navy 2006).

The Concord project sites are south of Solid Waste Management Units 2, 5, 7, and 18, which collectively consist of six buildings that housed industrial operations which historically contributed to groundwater and soil gas contaminated with chlorinated solvents, including dichloroethene, tetrachloroethylene, and trichloroethylene. Although cleanup activities are underway and the land was transferred from the U.S. Navy to the City of Concord on November 13, 2017, the site remains an "open" site, indicating that the State regulatory agency, the RWQCB, has not closed the case and has not yet issued a letter declaring no further remedial action is needed. The site also appears on the State Water Resources Control Board's (SWRCB) GeoTracker database (as T10000007218) of sites that impact, or have the potential to impact, water quality (EPA 2021; Shahbazian 2021). This database is one of the databases making up the "Cortese List," which is required to be maintained and updated by the California Environmental Protection Agency (CalEPA 2021), pursuant to Government Code Section 65962.5, and which must be reviewed in performing CEQA reviews.

The U.S. Navy stated that although the BART Concord project sites are near Solid Waste Management Units 2, 5, 7, and 18, the proposed work area is not in the Administrative Area where these units are located. In particular, current remediation and the Navy's understanding of the plume associated with Solid Waste Management Unit 5 would not affect the Concord project sites,

and none of the other units or other waste sites are adjacent to or co-located with the BART work areas. Accordingly, the Navy considers the Concord sites as unencumbered from an environmental restoration and compliance perspective (Madali 2021). In addition, the Navy must prepare five-year reviews of their remediation activities at CNWS. The last readily available review from 2016 (the 2021 draft review was in preparation at the time of this IS/MND) reported that the selected cleanup solution for the units near the Concord project sites (i.e., air sparging and soil vapor extraction, groundwater monitoring, and institutional controls) began in January 2012, and that based on ongoing monitoring at and around the units, the concentrations of the chemicals of concern within the radius of influence had been reduced to below the remedial goals and that downgradient groundwater (to the west and not towards the BART work areas) were stable and also below the remedial goals (U.S. Navy 2016).

In addition to the State regulatory agencies, for risks associated with hazardous materials from routine handling or accidents, the Contra Costa County Health Services Hazardous Materials Program, in coordination with the Contra Costa County Fire Protection District, responds to hazardous materials spills and leaks, and provides emergency services in Concord.

Castro Valley Project Sites

No hazardous materials or history of hazardous waste are listed in GeoTracker for the Castro Valley project sites. At the sites, I-580 crosses Fraga Road, Five Canyons Parkway, Old Dublin Road, East Castro Valley Blvd., the San Lorenzo Creek, and the Chabot-to-Garin Trail. The project area is an urban-built environment with heavy vegetation and varied topography. Although no hazardous materials are found at the Castro Valley project sites, any potential risks associated with hazardous materials from routine handling or accidents would be reported to and handled by the Alameda County Department of Environmental Health. In addition, the Alameda County Fire District would provide emergency response services, in coordination with the County Department of Environmental Health.

3.9.2 Discussion

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? – *Less than Significant*

Federal agencies responsible for management of hazardous materials include the U.S. Department of Labor Occupational Safety and Health Administration (OSHA), EPA, and the U.S. Department of Transportation (DOT). EPA oversees remedial activities at the CNWS. DOT regulates transportation of hazardous materials between states, and California has adopted DOT regulations for transportation of hazardous materials originating in the state, in addition to intrastate transportation. In addition, project operations would not involve the routine transport, use, or disposal of hazardous materials, and any activities would be in compliance and coordinated with appropriate departments, such as the Contra Costa County Health Services Hazardous Materials Programs in Concord and the Alameda County Department of Environmental Health in Castro Valley.

No hazardous materials would be needed for post-construction operations or maintenance. Any disposal of chemicals and any hazardous materials used in the day-to-day operations would need to adhere to hazardous materials handling and disposal regulations set forth under the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and the California Hazardous Waste Control Law. Overall, the 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. Therefore, the impact would be less than significant.

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? – *Less than Significant*

To avoid accidental release of hazardous materials during the routine transport, use, or disposal of materials, construction contractors are responsible for emergency plans during project construction, and the BART System Safety Department would provide emergency support. Emergency plans during project construction would outline procedures to ensure coordination with local jurisdictions in evacuating areas and notifying BART and emergency response personnel.

Accidental release of hazardous materials during construction would need to comply with applicable federal, State, and local regulations, including Titles 8, 22, and 26 of the Code of California Regulations, the Uniform Fire Code, and Chapter 6.95 of the California Health and Safety Code. Furthermore, the contractor would comply with specifications outlined in BFS Sections 01 35 24 and 31 00 00, which would limit the potential for hazardous materials to be released into the environment, and Section 31 23 19, which would ensure that dewatering, if needed, would be done in a manner meeting all regulatory requirements.

To minimize effects from accidental releases of hazardous materials during construction, the Project would comply with BFS Section 01 35 24, which requires preparation of a Site-Specific Emergency Action Plan and addresses the potential for construction workers to encounter hazardous materials during construction. The Site-Specific Emergency Action Plan also would require the contractor to take the necessary steps to prevent injury to the general public, BART employees, BART patrons, and damage to public property. Because the project improvements would be performed within BART ROW and subject to the BFS requirements regarding hazardous materials, construction would be unlikely to pose substantial hazards to construction workers, the public, or the environment from environmental contamination. The impact would be less than significant.

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? – *No Impact*

No schools are within 0.25 mile of the Concord project sites. The closest schools, Heald College and Sun Terrace Elementary School, are both approximately 1.5 miles away. Similarly, no school

is within 0.25 mile from the Castro Valley project sites. The closest school to the project sites is Independent Elementary School, about 0.5 mile northwest. No other existing or proposed schools are in the project vicinity. Emission of hazardous materials, substances, or waste would not pose a safety hazard for existing or proposed schools near the project site. No impact would occur.

d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? – *Less than Significant with Mitigation*

The Castro Valley project sites are not on the Cortese List, based on a review of the State's databases of hazardous materials sites. However, the Concord project sites are on a Superfund National Priorities List, and are listed in the SWRCB's GeoTracker (as T10000007218) and the State DTSC's EnviroStor. The site is listed as having soil and groundwater pollution because of leakage and/or spillage of chemicals from past storage of fuel and equipment. Volatile organic compounds (VOCs), metals, perchlorate, radioactive isotopes, TPH-motor oil, and munition debris are reported as the main pollutants. The case currently is open (DTSC 2021).

The U.S. Navy, EPA, the RWQCB, and DTSC are engaged in remedial cleanup actions at the site. In addition to the BFS requirements for handling hazards and hazardous materials, these federal and State agencies also require implementation of remedial action plans to reduce the risk of hazardous materials exposure. However, the cleanup is ongoing and the impacted soil and groundwater could affect the Concord project sites and result in adverse effects for construction workers and the environment during the slope stabilization repairs. As previously mentioned, the Navy does not believe that the sites would be affected or encumbered by environmental restoration; however, the site remains an open site on the Cortese List.

To minimize this potential impact from soils, groundwater, and soil gas, Mitigation Measure HAZ-1 would require site-specific investigation to characterize the soil, groundwater, and soil gas at the Concord project sites. The investigation would include recommendations for project construction to reduce environmental and human health risks. Mitigation Measure HAZ-2 recommends procedures for dewatering, if needed. Mitigation Measure HAZ-3 requires inclusion in the contract construction specifications for handling of hazardous soils and groundwater. Mitigation Measure HAZ-4 would reduce environmental and human health hazards from contact, handling, and disposal of contaminated groundwater and soil. With implementation of the BFS and these mitigation measures, the potential impact would be reduced to a less-than-significant level.

> **Mitigation Measure HAZ-1: Develop Site Assessment and Conceptual Site Model to Characterize the Soil, Groundwater, and Soil Gas at the Concord Project Sites.** BART will consult with the Selected Regulatory Agency to determine whether a Site Assessment (a Phase II Environmental Site Assessment [ESA]) and Conceptual Site Model is needed to ensure adequate characterization of the soil, groundwater, and soil gas at project sites. If so, the details for the Site Assessment and Conceptual Site Model will be confirmed and is expected to examine and discuss all potential exposure pathways, including the following:

- dermal—physical contact with contaminated soil and groundwater during construction;
- inhalation—dust generated by construction activities and contaminants that volatilize or produce vapors; and
- surface and groundwater—potential for overland flow from construction dewatering to enter surface waters, and to percolate into clean groundwater that is not part of the current contaminated groundwater plume.

The Site Assessment and Conceptual Site Model will evaluate potential hazards to both construction workers and the environment during the construction phase, and will make recommendations governing soil re-use or disposal, and dewatering requirements during construction.

BART will provide the results from the completed Site Assessment and Conceptual Site Model to the Selected Regulatory Agency for review and approval. After the Selected Regulatory Agency approves the completed Site Assessment and Conceptual Site Model, BART will prepare a Site Management Plan that describes its plan to manage all of the identified risks. The Conceptual Site Model and Site Management Plan will provide a thorough evaluation of the specific constituents and their concentrations in groundwater, soil, or soil-gas at the project sites, and will include recommendations for project construction to reduce environmental risks and human health hazards. The Site Management Plan will be submitted to the Selected Regulatory Agency for review and approval.

BART will incorporate all elements of the approved Site Management Plan into the construction contractor specifications, in accordance with Mitigation Measures HAZ-2 and HAZ-3.

Mitigation Measure HAZ-2: Obtain a Permit for Construction Dewatering of Impacted Groundwater (as necessary) for the Concord Project Sites and Implement Appropriate Treatment Measures before Discharge. If construction dewatering at the project sites is necessary, BART will obtain a permit for construction dewatering of potentially impacted groundwater from the San Francisco Bay RWQCB or Selected Regulatory Agency. BART will comply with all requirements of the permit and will include all of the permit requirements in the construction specifications. An appropriate method for treating the groundwater before discharge will be employed (as determined by a registered environmental engineer, retained specifically for the Project in coordination with the Selected Regulatory Agency).

Mitigation Measure HAZ-3: Incorporate Standards for HazMat Training and the Proper Handling and Disposal of Impacted Soils into the Construction Specifications for the Concord Project Sites. Based on the results of the Site Assessment and Conceptual Site Model that are completed pursuant to Mitigation Measure HAZ-1, BART will require specifications and procedures to be followed by the construction contractor for potential contact with impacted groundwater, and the safe handling, treatment, and disposal of excavated soils from the project site (if soils are found to be impacted), consistent with all

applicable federal, State, and local requirements. The following provisions will be included in the project's construction specifications:

a. All construction workers who will be involved with ground disturbance will be trained in Hazardous Waste Operations and Emergency Response (HAZWOPER) as related to impacted groundwater, as well as related to impacted soil, if any is found to be present based on the results of the Site Assessment (Phase II ESA).

b. If the results of the Site Assessment (Phase II ESA) and Conceptual Site Model indicate that impacted soil is present, then BART will ensure that a licensed engineering contractor with a Class A license and hazardous substance removal certification is used to perform any soil removal from the project sites. A California-licensed engineer will provide field oversight on behalf of BART, to document the origin and destination of all removed materials. If necessary, removed materials will be stockpiled temporarily and covered with plastic sheeting, pending relocation, segregation, or off-site hauling. To protect groundwater and surface water quality, contaminated soils will not be stored on site during the winter rainy season (i.e., November through April), to the extent practicable. All impacted materials will be disposed at an appropriately licensed landfill or facility.

   BART will provide the Selected Regulatory Agency with documentation to verify that all of these requirements have been met.

Mitigation Measure HAZ-4: Prepare and Implement a Site-Specific Health and Safety Plan for the Concord Project Sites. To protect the health of construction workers and the environment, BART will prepare and implement a site-specific Health and Safety Plan (HASP). The HASP will be prepared in accordance with State and federal Occupational Safety and Health Administration (OSHA) regulations (29 CFR 1910.120) and will be approved by a certified industrial hygienist. Copies of the HASP will be made available to construction workers for review during their orientation training and/or during regular health and safety meetings. The HASP will identify potential hazards (including impacted groundwater, and the potential for stained or odiferous soils at any location where earth-moving activities are to occur), chemicals of concern, personal protective equipment and devices, decontamination procedures, the need for personal or area monitoring, and emergency response procedures. The HASP will be consistent with all applicable components of the Site Management Plan, as approved by the Selected Regulatory Agency pursuant to Mitigation Measure HAZ-1.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area? – *No Impact*

The project sites are not in the vicinity of a public or private airport or within an airport land use plan. Buchanan Field Airport in Concord is the closest public airport, approximately 3.2 miles southwest of the project sites. The Hayward Executive Airport is approximately 11 miles southwest of the Castro Valley sites. No other private or public airstrips are in the project vicinity.

Airport and aircraft operations would not pose a safety hazard for people working at the project sites. No impact would occur.

f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? – *No Impact*

Because the slopes are within BART ROW and not within public ROW, the extent of construction would not interfere with emergency evacuation plans or encroach into roadways that would be used by emergency responders, or used in the event of an emergency evacuation. Furthermore, as described in Section 2.6, BART Facilities Standards, BART requires all construction projects to comply with BFS Section 01.57.00, Temporary Controls, which were developed to avoid and minimize impacts related to construction activities. Particular controls that would allow emergency response and evacuation include the following:

- Traffic plans and controls – Requirements to prepare a plan showing proposed traffic control devices, temporary signage, pavement markings, and striping and maintenance of access to adjacent properties. As part of this section, contractors must also obtain local jurisdiction approval of changes to travel lanes (e.g., temporary closures, shifting traffic lanes, or barricading traffic).
- Construction operations under traffic – Requirements regarding the operation of construction equipment to allow traffic on local streets to travel without unnecessary delays, to avoid hazardous conditions, and to move oversized loads only after first obtaining approval from the local jurisdiction.

Therefore, the Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. No impact would occur.

g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? – *No Impact*

The BART Local Hazard Mitigation Plan outlines applicable wildfire mitigation strategies for all BART facilities and operations, such as continued compliance with State and local fire codes and standards for all facilities, including providing adequate access roads, on-site fire protection systems, evacuation signage, and fire breaks (BART 2016). Adherence to these safety measures would minimize the risk of increased frequency, intensity, or size of wildfires, and decrease the risk of exposure of people or structures to wildfire. The Project would implement and comply with the BART Local Hazard Mitigation Plan and provisins of the BFS that address fire hazards, as discussed in Section 3.20, Wildfire. No impact would occur.

3.10 Hydrology and Water Quality

3.10.1 Setting

The San Francisco RWQCB is the State agency with primary responsibility for designating the beneficial uses of the San Francisco Bay and setting the water quality objectives required to

ensure that those uses are protected. The SWRCB regulates the discharge of stormwater through the NPDES permit program. BFS Section 01 57 00 Subsection 1.10, Erosion and Sediment Control would require BART contractors to develop an Erosion and Sediment Control Plan, to prevent erosion and sedimentation impacts during construction activities. Subsection 1.10 also would require the contractors to comply with all applicable federal, State, and local laws, orders, and regulations concerning the prevention, control, and abatement of water pollution.

Concord Project Sites

Most of Concord is within the Mount Diablo Creek watershed, which drains into Pacheco Slough and the Suisun Bay. Five other watersheds that are at least partially within Concord and drain into creek systems outside Concord include Concord, Grayson Creek/Murderers Creek, Kirker Creek, Pine Creek/Galindo Creek, and Willow Creek/Coastal Drainages (Concord GP 2030). Surface waterbodies in Concord include Mallard Reservoir, Walnut Creek, Pacheco Creek, Mount Diablo Creek, Galindo Creek, Pine Creek, Contra Costa Canal, and sloughs and wetlands along Suisun Bay. Some stock ponds, watering holes, and seepage ponds are found on the Concord Reuse Project (CRP) site (Concord GP 2030). The Concord project sites are adjacent to Mount Diablo Creek and within the Mount Diablo Creek watershed.

Concord is underlain by two groundwater basins, Clayton Valley and Ygnacio Valley. The Clayton Valley groundwater basin is bounded by Suisun Bay to the north, Mt. Diablo Creek to the east, the Concord Fault to the west, and the foothills of Mt. Diablo to the south. The Ygnacio Valley groundwater basin is bounded by Suisun Bay to the north, Highway 680 to the west, the Concord Fault to the east, and the City of Walnut Creek to the south (Concord GP 2030).

The Sustainable Groundwater Management Act (SGMA) requires groundwater agencies within high or medium priority basins to adopt groundwater sustainability plans. Basins with a low priority (as assigned by the California Department of Water Resources [DWR]) are not required to adopt groundwater sustainability plans. The Clayton Valley Groundwater Basin is a very low priority basin, and therefore a groundwater sustainability plan has not been prepared (DWR 2020).

The Concord project sites are adjacent to Mount Diablo Creek, which is part of the Concord stormwater collection system, maintained by the Contra Costa County Flood Control District. The storm drainpipes typically drain into 11 miles of creeks and drainage channels, among them Mount Diablo Creek, Galindo Creek, Pine Creek, and their tributaries, and/or the Walnut Creek Flood Control Channel, which is maintained by the Contra Costa County Flood Control District. FEMA indicates that the Concord area is most prone to flooding north of Mallard Reservoir to Suisun Bay, along Pacheco Creek, and near the Buchanan Field Airport. Because the CNWS is restricted, FEMA has not classified 100-year flood zones in this area. The majority of the CNWS is on upland slopes, which would lessen the probability of flooding; however, the low-lying areas of the CNWS near Suisun Bay and the Contra Costa Canal may be susceptible to flooding (Concord GP 2030).

Concord project sites C3015W and C3015E are partially within a FEMA special flood hazard zone AE (the designation AE indicates areas at high risk for flooding and regulated floodway) (FEMA 2017).

Castro Valley Project Sites

Castro Valley is in the southern San Francisco Bay hydrologic region. The majority of Castro Valley is within the San Lorenzo watershed, which includes Chabot, Castro Valley, Cull, Crow, and Sulphur creeks. Flows in San Lorenzo Creek are controlled by the Don Castro Dam, built in 1964 and maintained by the Alameda County Flood Control and Water Conservation District for flood control purposes (ACFCWCD 2021). San Lorenzo Creek flows adjacent to the three Castro Valley project sites (Figure 2) and down to the Don Castro Dam just south of the project sites.

Section 303(d) of the Clean Water Act (CWA) requires states to identify waters where the permit standards, any other enforceable limits, or adopted water quality standards still are unattained. The law requires states to develop Total Maximum Daily Loads (TMDLs) to improve the water quality of impaired waterbodies. TMDLs are the quantities of pollutants that can be safely assimilated by a waterbody without violating water quality standards. San Lorenzo Creek is listed as impaired on the CWA 303(d) list for diazinon, and a TMDL for diazinon in 2007 (SWRCB 2021), which means it is too polluted or degraded to meet water quality standards. The pollutant diazinon has been identified in this creek, which indicates agricultural pesticides have entered it through runoff and sewer lines (Alameda County Board of Supervisors et al. 2012).

The Castro Valley project sites are in the foothills of the Diablo Range and are not within the boundaries of a DWR-defined groundwater basin. Little is known about the groundwater in this area, partly because of the general lack of development, which in turn results in very few groundwater studies. The Diablo Range consists of fractured bedrock; therefore, the groundwater quantity and quality varies greatly from well site to well site because of the small and unpredictable yields of the fractured rock system that typifies the geology in this range. Because the Castro Valley project sites are not within a DWR-defined groundwater basin, the requirements of the SGMA do not apply, no identified groundwater sustainability agency exists, and a groundwater sustainability plan is not required.

Castro Valley lies in Flood Zone 2 of the ACFCWCD. FEMA is responsible for determining flood elevations and floodplain boundaries. FEMA maps identify the locations of special flood hazard areas, including the 100-year floodplain. Flood zone mapping in the Flood Insurance Rate Maps published by FEMA indicate that the Castro Valley area is most prone to flooding along Chabot and Castro Valley creeks. Most drainage systems in Castro Valley are adequate to carry runoff from a 10-year storm and a 15-year storm (Alameda County Board of Supervisors et al. 2012).

Castro Valley project site L5010W is within a FEMA special flood hazard area, also known as a 0.2% Annual Chance Flood Hazard Zone. The two other Castro Valley project sites, L5008W and L5009W, are in Zone X, also known as an area of minimal flood hazard (FEMA 2009).

3.10.2 Discussion

a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality? – *Less than Significant*

The Project potentially could result in a minor increase in surface water pollutants during earth-moving activities. Construction activities would affect water quality temporarily because of disturbed and eroded soil, accidental spills of petroleum products, and other miscellaneous wastes that could be discharged to surface waters through existing stormwater collection facilities. However, construction activities would be required to comply with BFS Section 01 57 00 Subsection 1.10, Erosion and Sediment Control, which would minimize soil erosion and sediment transport to existing stormwater drainage systems. All project sites would disturb less than 1 acre of land; would be stabilized pursuant to Water Quality Order No. 2013-0001-DWQ NPDES General Permit No. CAS000004; and would comply with BART's General Permit for Phase II Small MS4 General Permit 2013-0001-DWQ. This permit requires BART to prevent the discharge of pollutants to storm drainage systems via installation, implementation, and maintenance of BMPs, consistent with the California Storm Water Quality Association's (CASQA) Best Management Practice Handbooks or equivalent. Implementation of required BMPs would reduce potential erosion and sediment impacts from project construction. Furthermore, if groundwater dewatering is required during construction, BART would apply for a permit from the San Francisco RWQCB. Permit conditions to protect groundwater quality could include discharge volume limits, discharge mass limits for specific contaminants, and/or pretreatment of groundwater before discharge.

The Project would improve the surface water runoff quality from the project sites because it would reduce erosion and potential sedimentation that could adversely affect water quality. The project operational phase would not substantially degrade surface or groundwater quality, because the project would not include new impervious surfaces that would increase the amount of surface runoff. Furthermore, BMPs and permit terms would be implemented to reduce construction-related water quality effects, and on completion of construction, each project site would be stabilized to prevent potential future erosion. The Project would not violate water quality standards or otherwise substantially degrade surface or groundwater quality. Therefore, the impact would be less than significant.

b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin? – *No Impact*

The project sites would not increase the amount of impervious surfaces, and therefore would not reduce the amount of existing groundwater recharge in the area. The Project would not use or increase the demand for groundwater. No impact would occur.

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i. Result in substantial erosion or siltation on- or off-site? – *Less than Significant*

No surface waterbodies are in any of the project sites. The Project would not involve work in the bed or bank of Mount Diablo Creek, or the concrete stormwater channel adjacent to the Concord project sites, or San Lorenzo Creek adjacent to the Castro Valley project sites.

The Project would repair damaged abutments, drainage facilities, and slopes caused by stormwater erosion, and reinforce the slopes to prevent further erosion in the future. The Project also would repair the clogged and deteriorated drainage system. Accordingly, the Project would not alter the drainage pattern, because the stabilized slopes would occupy the same footprint as the existing damaged slopes and would not alter the permeability of the slope embankments.

Waterways are in the project vicinity, but increased erosion and sedimentation would be minimized by implementation of erosion and sediment control measures, as required by BFS (see Section 2.6, BART Facilities Standards). BMPs would control stormwater runoff during construction, and therefore, project construction would not result in substantial erosion or siltation and would not alter the course of a stream or river. The Project repairs would decrease the amount of erosion and siltation from the project sites in the operations phase. Because the Project would correct and minimize erosion, it would not result in substantial erosion or siltation on or off-site. The impact would be less than significant.

ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite? – *Less than Significant*

Concord project sites C3015W and C3015E are partially within a FEMA AE Flood Zone and regulated floodway (FEMA 2017), while Castro Valley project site L5010W is in a 0.2% Annual Chance Flood Hazard Zone. The other two project sites in Castro Valley (L5008W and L5009W) are within Zone X, also referred to as an area of minimal flood risk (FEMA 2009, 2017).

The Project would not substantially alter drainage patterns at any site. The Project would involve repairing cracked abutments, cleaning out blocked drains on the BART tracks, repairing gullies or rills in the slopes below, and regrading the slopes to apply Class II Aggregate base and small riprap on the slopes to prevent further erosional damage. These project-related improvements would not increase the rate or amount of surface runoff from the sites that could alter existing flood hazards. The impact would be less than significant.

iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? – *Less than Significant*

The Project would not create or contribute to additional runoff water from each project site that would exceed the capacity of the existing stormwater drainage systems. The Project would not

add impervious surfaces at any sites, nor increased amounts of surface runoff as described in Item c(ii). Therefore, the Project would not create or contribute additional stormwater runoff from the project sites that could exceed the stormwater drainage capacity. The impact would be less than significant.

iv. impede or redirect flood flows? – *Less than Significant*

The Project would not change the existing drainage pattern but would correct the malfunctioning stormwater drainage to prevent stormwater erosion on the slope in the future. The Project would not impede or redirect flood flows in the project area, because it would not construct new infrastructure but rather would replace and reinforce the existing slopes. The regraded slopes would occupy the same small footprint as the existing slopes, so that the potential to impede or redirect flood flows would be minimal. The impact would be less than significant.

d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation? – *Less than Significant*

The Project sites within the FEMA flood hazard zone are not at risk of releasing pollutants because of potential flood inundation. The Project would repair and reinforce the existing slopes, to eliminate stormwater erosion in the future. The project would not use or introduce new pollutants to the project sites, and therefore would not risk the release of pollutants during potential flood inundation.

Tsunami hazards zones typically are near oceans and bays, while seiche hazard zones typically are near large bodies of water. The Concord project sites are not within an area that has been mapped for tsunami hazards by the California Department of Conservation. However, the sites are far enough inland to not be considered to be within a tsunami hazard zone. Furthermore, no large bodies of water are near the Concord project sites to place them within a seiche hazard zone (California Department of Conservation 2021). The Castro Valley project sites are not near the San Francisco Bay, nor are they near any large waterbodies. The Project sites are not in a tsunami or seiche zone, and therefore are not at risk of releasing pollutants because of potential project inundation. The impact would be less than significant.

e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? – *Less than Significant*

For the reasons described in Section 3.10.2(a), the Project's compliance with existing laws, regulations, ordinances, and policies related to water quality control, which are required by law, ensures that the Project would not conflict with the Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin (RWQCB 2019).

As described in Section 3.10.1, a Groundwater Sustainability Plan for the Clayton Groundwater Basin, where the Concord project sites are located, is not required and there are no plans exist to prepare one. Furthermore, the Project does not require groundwater and would not reduce the

existing pervious surface that provides groundwater recharge at the project sites. Therefore, the Concord project sites would not conflict with a sustainable groundwater management plan.

As further described in Section 3.10.1, the Castro Valley project sites are not within a DWR-defined groundwater basin, the requirements of the SGMA do not apply, no identified groundwater sustainability agency exists, and a groundwater sustainability plan is not required. Because the Project does not require groundwater and would not reduce the existing pervious surface that provides groundwater recharge at the project sites, the Castro Valley project sites would not substantially decrease groundwater supplies or interfere with groundwater recharge, and therefore would not substantially reduce groundwater sustainability. Therefore, the impact would be less than significant.

3.11 Land Use and Planning

3.11.1 Setting

Section 53090 of the California Government Code exempts rapid transit districts, such as BART, from having to comply with local land use plans, policies, and zoning ordinances. However, BART does intend to respect local plans and polices to the degree feasible.

Concord Project Sites

The project sites are all within the BART ROW and under a JUMA with Caltrans. The project sites are on either side of Kinne Boulevard, over which the BART bridge crosses, in between the east and west bound lanes of SR-4. Public access to Kinne Boulevard is restricted, and therefore public access to the project sites is are restricted.

The project sites are in the CNWS Inland Area, which has been transferred to the City of Concord. The City of Concord is proposing to redevelop this land for the Concord Reuse Project (CRP). A Notice of Preparation was submitted by the City of Concord to prepare an EIR for the CRP, pursuant to CEQA. The CRP would implement, refine, and augment the vision described in the City's 2012 Concord Reuse Project Area Plan, adopted by the City Council in January 2012 as an amendment to the Concord 2030 General Plan. The plan would be refined, as the CRP areas become available for transfer from the U.S. Navy to the City as a Local Reuse Authority and upon selection of a master plan developer. Project sites C3015W and C3015E are within the CRP area, planned in the Phase 2 development, estimated to begin in 2030. The project sites would remain within the designated BART ROW, after the CRP is developed. The Concord City Council on October 27, 2021 selected a master plan developer for the land transferred from the Concord Naval Weapons Station. An initial step for the developer will be to prepare conceptual and financial plans that will form the basis for further negotiations with the City.

Castro Valley Project Sites

The project sites are all within the BART ROW. Immediately north of project sites L5008W, L5009W, and L5010W, the land use is designated and zoned as "public facilities," formerly designated as "public/institutional." The purpose of this land use designation is to support

government, civic, cultural, health, and infrastructure aspects of the community. The designation indicates public ownership and public use, which covers uses such as for a water treatment plant, fire stations, police stations, post offices, libraries, hospitals, and publicly owned office buildings (Alameda County Community Development Agency 2012).

Immediately south of the project sites L5008W, L5009W, and L5010W, the land is designated as Park/Open Space, Hillside Residential, and Measure D land. Measure D is an initiative that was approved by Alameda County voters in 2000, which amended the County's previous General Plan to establish an Urban Growth Boundary (UGB). Outside the UGB, lands are designated as Resource Management. The project sites L5009W and L5010W are bounded by Measure D lands to the south (Alameda County Community Development Agency 2012).

3.11.2 Discussion

a. Physically divide an established community? – *No Impact*

Project repair of abutments and damaged slopes would take place within the existing BART ROW. The Project would not change the existing BART ROW area or the physical boundaries of the slopes. It would not introduce new structures or facilities that could physically separate the areas where the improvements are proposed. Therefore, the Project would not have any effect on physical changes or divisions to communities, districts, or neighborhoods in Concord or Castro Valley. No impact would occur.

b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? – *No Impact*

The Project would be entirely within the existing BART ROW. The Project would repair existing facilities and would not add any new infrastructure. Because the Project would not alter existing land uses, introduce or encourage new uses, or alter the intensity of use at the project sites, it would not conflict, be inconsistent, or impede Concord or Castro Valley land use plans, policies, or regulations that avoid or mitigate environmental impacts. Therefore, no impact would occur.

3.12 Mineral Resources

3.12.1 Setting

Under California's Surface Mining and Reclamation Act of 1975 (SMARA), the State Mining and Geology Board may designate certain mineral deposits as being regionally significant to satisfy future needs. The Board's decision to designate an area is based on a classification report prepared by the California Division of Mines and Geology (now the California Geological Survey [CGS]) and on input from agencies and the public. In compliance with SMARA, CGS has established four mineral resource zone (MRZ) classifications that distinguish the presence or absence of minerals, within a range of MRZ-1 to MRZ-4.

The project areas are included in a mineral land classification report for the South San Francisco Bay region. According to the report, the project areas are not known to contain regionally significant mineral resources. (Kohler-Antablin 1996)

3.12.2 Discussion

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? – *No Impact*

The project areas are not in areas known to have any mineral resources (Kohler-Antablin 1996). Project construction would include minimal excavation (maximum of 6 inches) to repair the damages to the existing slopes underneath the BART abutment bridges. The Project would not result in the loss of availability of regionally significant mineral resources. No impact would occur.

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? – *No Impact*

No significant aggregate or mineral resources are in or near the project sites (City of Concord 2012; Alameda County Community Development Agency 2012). No impact would occur.

3.13 Noise

3.13.1 Setting

Acoustic Fundamentals

Noise is generally defined as sound that is loud, disagreeable, or unexpected. Sound, as described in more detail below, is mechanical energy transmitted through a medium (e.g., air) in the form of a wave from a disturbance or vibration.

Sound Properties. A sound wave is introduced into a medium by a vibrating object, or source. The source could be vibrating vocal cords, the string and soundboard of a guitar, or the diaphragm of a radio speaker. Regardless of the source, the particles of the medium through which the sound moves vibrate in a back-and-forth motion at a given frequency (i.e., pitch).

The frequency of a wave is determined by how often the particles vibrate when the wave passes through the medium. It is measured as the number of complete back-and-forth vibrations of a particle per unit of time. If a particle of air undergoes 1,000 longitudinal vibrations in 2 seconds, then the frequency of the wave would be 500 vibrations per second. A commonly used unit for frequency is Hertz (Hz). A guitar string vibrating at 500 Hz will set the air particles in the room vibrating at the same frequency, which carries a sound signal to the ear of a listener that is detected as a 500-Hz sound wave.

The amount of energy carried by a wave is related to the amplitude (i.e., loudness) of the wave. A high-energy wave is characterized by high amplitude; a low-energy wave is characterized by low amplitude. A doubling of the amplitude of a wave is equal to a quadrupling of the energy

transported by the wave. A tripling of the amplitude of a wave is equal to a ninefold increase in the amount of energy transported by the wave.

Sound and the Human Ear. The human ear is able to detect a wide range of sound pressure fluctuations. Sound pressure levels are expressed in units called decibels (dB). *B*ecause the human ear is not equally sensitive to all sound frequencies, a specific frequency-dependent rating scale is used to relate noise to human sensitivity. An A-weighted dB (dBA) scale performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. This dBA scale is used by most authorities for regulation of environmental noise. Table 5 lists typical indoor and outdoor noise levels.

Table 5. Typical Indoor/Outdoor Noise Levels and Common Environmental Noise Sources

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet flyover at 1,000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	— 70 —	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	— 60 —	
		Large business office
Quiet urban daytime	— 50 —	Dishwasher, next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Notes:
dBA = A-weighted decibels
Source: Caltrans 2013

Sound Propagation. As sound (noise) propagates from the source to the receptor, the attenuation—the manner of noise reduction relative to distance—depends on such factors as surface characteristics, atmospheric conditions, and the presence of physical barriers. Sound travels uniformly outward from a point source in a spherical pattern with an attenuation rate, generally, of 6 dBA per doubling of distance (dBA/DD). In other words, sound decreases by 6 dBA each time the distance between the noise source and the receptor doubles.

However, from a line source (e.g., road), sound travels uniformly outward in a cylindrical pattern with an attenuation rate, generally, of 3 dBA/DD. The characteristics of the surface between the source and the receptor may further absorb and/or reflect sound, thus resulting in a different attenuation rate. Atmospheric conditions such as wind speed, temperature, and humidity may also affect noise levels. Furthermore, the presence of a barrier between the source and the receptor may attenuate noise levels. The actual amount of attenuation depends on the barrier size and the frequency of the noise. A noise barrier may be any natural or human-made feature, such as a hill, tree, building, wall, or berm.

Noise Descriptors. The proper descriptor for noise from a specific source depends on the spatial and temporal distribution, duration, and fluctuation of the noise. The following are the noise descriptors most often encountered when dealing with traffic, community, and environmental noise (Caltrans 2013):

- Lmax (maximum noise level): The maximum instantaneous noise level during a specific period of time. The Lmax may also be referred to as the "peak (noise) level."
- L_{min} (minimum noise level): The minimum instantaneous noise level during a specific period of time.
- L_n (statistical descriptor): The noise level exceeded "n" percent of a specific period of time.
- L_{eq} (equivalent noise level): The average noise level. The instantaneous noise levels during a specific period of time in dBA are converted to relative energy values. From the sum of the relative energy values, average energy value is calculated, which is then converted back to dBA to determine the L_{eq}.
- L_{dn} (day-night noise level): The 24-hour L_{eq} with a 10 dBA "penalty" for the noise-sensitive hours between 10:00 p.m. and 6:00 a.m. The L_{dn} attempts to account for the fact that noise during this specific period of time is a potential source of disturbance with respect to normal sleeping hours.
- CNEL (community noise equivalent level): The CNEL is similar to the L_{dn} described above, but with an additional 4.77 dBA "penalty" for the noise-sensitive hours between 7:00 p.m. and 10:00 p.m., which are typically reserved for relaxation, conversation, reading, and television. If using the same 24-hour noise data, the CNEL is typically about 0.5 dBA higher than the L_{dn}.

Negative Effects of Noise on Humans. Negative effects of noise exposure include physical damage to the human auditory system, interference, and disease. Exposure to noise may result in physical damage to the auditory system, which may lead to gradual or traumatic hearing loss. Gradual hearing loss is attributable to sustained exposure to moderately high noise levels over a period of time, while traumatic hearing loss is attributable to sudden exposure to extremely high noise levels over a short period. However, both gradual and traumatic hearing loss may result in permanent hearing damage. In addition, noise may interfere with or interrupt sleep, relaxation, recreation, and communication. Although most interference may be classified as annoying, the inability to hear a warning signal may be considered dangerous. Noise may also contribute to diseases associated with stress, such as hypertension, anxiety, and heart disease. The degree to which noise contributes to such diseases depends on the noise frequency, bandwidth, level, and exposure time (Caltrans 2013).

Vibration

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Sources of vibration include natural phenomena (earthquakes, volcanic eruptions, sea waves, landslides) and human activity (explosions; traffic; and operation of machinery, trains, or construction equipment). Vibration sources may be continuous (e.g., operating factory machinery) or transient (e.g., explosions).

Vibration amplitudes are commonly expressed in peak particle velocity (PPV) or root-mean-square (RMS) vibration velocity. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. RMS is a measurement of the effective energy content in a vibration signal, expressed mathematically as the average of the squared amplitude of the signal. PPV is typically used in the monitoring of transient and impact vibration and has been found to correlate well to the stresses experienced by buildings (FTA 2018; Caltrans 2020). PPV and RMS vibration velocity are normally described in inches per second (in/sec).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response to vibration. The response of the human body to vibration relates well to average vibration amplitude. Therefore, vibration impacts on humans are evaluated in terms of RMS vibration velocity, and like airborne sound impacts on humans, vibration velocity can be expressed in dB notation, as vibration decibels (VdB).[4] Table 6 summarizes the general human response to different levels of groundborne vibration.

[4] Vibration levels described in VdB are referenced to 1 microinch per second.

Table 6. Human Response to Different Levels of Groundborne Vibration

Vibration-Velocity Level (in VdB)	Human Reaction
65	Approximate threshold of perception.
75	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85	Vibration acceptable only if there is an infrequent number of events per day.

Note:
VdB = vibration decibels, referenced to 1 microinch per second and based on the root-mean-square vibration velocity
Source: FTA 2018

The effects of groundborne vibration include movement of building floors, rattling of windows, shaking of items that sit on shelves or hang on walls, and rumbling sounds. In extreme cases, vibration can damage buildings, although this is not a factor for most projects. Human annoyance from groundborne vibration often occurs when vibration exceeds the threshold of perception by only a small margin. Table 7 shows the general thresholds for structural responses to vibration levels.

Table 7. Construction Vibration Damage Criteria

Structure and Condition	Peak Vibration Threshold	
	PPV, in/sec	Approximate Lv
I. Reinforced-concrete, steel or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

Notes:
in/sec = inches per second
PPV = peak particle velocity
Lv = particle velocity level
Source: Table 7-5, FTA 2018.

Existing Noise Environment

Existing Noise-Sensitive Land Uses. Noise-sensitive land uses generally consist of those uses where noise exposure would result in adverse effects on uses for which quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise. Other examples of noise-sensitive land uses include nursing homes, schools, hospitals, libraries, childcare facilities, parks and other outdoor recreation areas, and places of worship.

The only noise-sensitive land use near the Concord project sites is the Diablo Creek Golf Course, approximately 600 feet away. In Castro Valley, the noise-sensitive land uses are residences, with the nearest dwelling units within 220 to 650 feet of I-580 and BART.[5]

Existing Noise and Vibration Sources. The dominant noise sources around the Concord project sites are vehicular traffic on nearby roadways (including State Route 4, Kinne Boulevard, and the Port Chicago Highway) and BART trains passbys. Intermittent noise from aircraft flyovers also contribute to the existing noise environment. The principal noise sources near the Castro Valley project sites are vehicular traffic on nearby roadways (including I-580, East Castro Valley Boulevard, Five Canyon Parkway) and BART trains passbys. Natural noise sources (wind, bird, etc.) also, to a lesser extent, contribute to the existing noise environment in both repair areas.

Existing ground-borne vibration in the vicinity of the project areas is caused by passing trains and trucks on local roads and highways.

Existing Ambient Noise Levels. An ambient noise survey was conducted at the nearest sensitive receptor to the Concord project site from December 8 through December 10, 2021, to establish existing noise conditions in the area. Because it was not possible to gain access to the nearest noise-sensitive uses to the project sites in Castro Valley for noise measurements, the Castro Valley General Plan (Alameda County 2012), which predicted traffic noise levels along I-580 and BART for the year 2025, was used to approximate the ambient noise conditions. Although these noise levels are for 2025 and Project construction is anticipated to start in 2022, the traffic volume difference between 2022 to 2025 would not be more than one to two percent per year based on Caltrans I-580 annual traffic count (Caltrans multiple years). This change in traffic volumes on I-580 would result in a change of less than 1 dB. Therefore, the I-580 traffic noise contours in the Castro Valley General Plan are considered reasonable to use to describe ambient noise levels in the vicinity of the Castro Valley project sites. As shown in Table 8, ambient noise levels at the noise-sensitive land uses closest to the project sites would range from 60 to 73 dBA L_{den}/CNEL.

[5] Measurements are from the nearest sensitive land use to the center of I-580, where BART service and the project construction activities would occur.

Table 8. Summary of Ambient Noise Levels at the Nearest Sensitive Receptors in the Vicinity of the Project Sites

Location Description	Distance (feet) from Project Construction Site	L_{den}/ CNEL
Eastern edge of Diablo Creek Golf Course, 4050 Port Chicago Hwy, Concord	600	72.9 [a]
Residence at 5949 E. Castro Valley Blvd, Castro Valley	650	60 [b]
Residence at 4773 Old Dublin Road, Castro Valley	220	65 [b]
Residence on Old Dublin Road, Castro Valley	300	65 [b]
Residence on Fraga Road, Castro Valley	470	60 [b]

Notes:

a. Noise-level measurements were completed from December 8-9, 2021 using a Larson Davis Laboratories (LDL) Model 820 precision integrating sound-level meters. The meters were calibrated before the measurements using an LDL Model CAL200 acoustical calibrator. The meter was programmed to record A-weighted sound levels using a "slow" response. The equipment used complies with all pertinent requirements of the American National Standards Institute for Type 1/Class 1 sound-level meters (ANSI S1.4).

b. Noise levels from Castro Valley General Plan, 2007.

CNEL = community noise equivalent level

dB = decibels

L_{den} = day-evening-night noise level

L_{eq} = equivalent sound level (the sound energy averaged over a continuous period of time)

L_{max} = maximum instantaneous sound level

Source: Castro Valley General Plan, 2007;data compiled by AECOM, 2022

Applicable Criteria

Federal Transit Administration Transit Noise and Vibration Impact Assessment Manual (FTA Report No. 0123). No standardized criteria have been developed for assessing construction noise impacts. Consequently, criteria must be developed on a project-specific basis unless local ordinances apply. Local noise ordinances are typically not very useful in evaluating construction noise. They usually relate to nuisance and hours of allowed activity, and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the impact of a construction project. Project construction noise criteria should account for the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land use. While it is not the purpose of the FTA manual to specify standardized criteria for construction noise impacts, the following criteria in Table 9 from FTA can be considered reasonable criteria for assessment. If these criteria are exceeded, there may be adverse community reaction. The thresholds in Table 9 present FTA's criteria for both a general assessment and a detailed analysis. A general assessment is performed when a project is in a relatively early assessment stage when construction equipment and usage are only generally understood. A detailed analysis is appropriate when there are many noise sensitive sites adjacent to the construction site and more specific information regarding construction equipment, usage, and schedule are known.

Table 9. FTA General Assessment Construction Noise Criteria

Land Use	General Assessment L_{eq} (dBA)		Detailed Analysis L_{eq} (dBA)	
	Day	Night	Day	Night
Residential	90	80	80	70
Commercial	100	100	85	85
Industrial	100	100	90	90

dBA = decibel
L_{eq} = equivalent noise level
Source: FTA 2018

To address the human response to groundborne vibration, FTA has set forth guidelines for maximum acceptable vibration criteria for different types of land uses. These include 65 VdB for land uses where low ambient vibration is essential for interior operations (e.g., hospitals, high-tech manufacturing, laboratory facilities); 80 VdB for residential uses and buildings where people normally sleep; and 83 VdB for institutional land uses with primarily daytime operations (e.g., schools, churches, clinics, offices) (FTA 2018).

Standards have also been established to address the potential for groundborne vibration to cause structural damage to buildings. These standards were developed by the Committee of Hearing, Bio Acoustics, and Bio Mechanics (CHABA) at the request of the U.S. Environmental Protection Agency (FTA 2018). For fragile structures, CHABA recommends a maximum limit of 0.25 in/sec PPV (FTA 2018).

BART Guidance. BART has adopted construction noise standards that are in the BFS that were last updated in December 2020. For construction, the standards vary by daytime and nighttime, the land use of the receptor, and whether the noise is intermittent or continuous. These standards typically are used by BART for its construction specifications. For purposes of environmental review, BART adheres to FTA criteria as presented in Table 9, above.

3.13.2 Discussion

a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? – *Less than Significant*

Construction activities for the Project have the potential to adversely affect nearby sensitive receptors. The proposed construction equipment and a schedule for their use was obtained from the project engineers. As shown in Table 10, the mix of construction equipment would vary for the particular phase of work (i.e., during the first or latter half of the overall construction duration), throughout the workday, and between the daytime work, which is for the slope repairs, and the

Table 10. Construction Equipment and Scheduled Use at the Project Sites

<table>
<tr><th colspan="3">Slope Repair Weekday Work Schedule</th></tr>
<tr><th>Time</th><th>Activities for first half of construction period</th><th>Activities for second half of construction period</th></tr>
<tr><td>7:00 am</td><td>Tailgate Safety</td><td>Tailgate Safety</td></tr>
<tr><td>8:00</td><td rowspan="4">run backhoe, grader, jumping jack / vibratory plate compactor; possible dump trucks delivering materials; possible chainsaw on the first day to cut down any trees.</td><td rowspan="4">place geotextiles, use small hand tools, jumping jack, vibratory plate compactor, hand place rip rap on slope.</td></tr>
<tr><td>9:00</td></tr>
<tr><td>10:00</td></tr>
<tr><td>11:00</td></tr>
<tr><td>12:00 noon</td><td>Lunch</td><td>Lunch</td></tr>
<tr><td>1:00</td><td rowspan="4">run backhoe, grader, jumping jack / vibratory plate compactor; possible dump trucks delivering materials.</td><td rowspan="4">place geotextiles, use small hand tools, jumping jack, vibratory plate compactor, hand placing rip rap on slope.</td></tr>
<tr><td>2:00</td></tr>
<tr><td>3:00</td></tr>
<tr><td>4:00</td></tr>
<tr><td>5:00 pm</td><td>clean up jobsite, lock up tools and equipment, load equipment on truck / trailer.</td><td>clean up jobsite, lock up tools and equipment, load equipment on truck / trailer.</td></tr>
<tr><th colspan="3">Abutment Repair Weekend Work Schedule (assuming weekends, rather than the weekdays with its shorter nightly work shift)</th></tr>
<tr><th>Time</th><th>Construction activities on Saturdays</th><th>Construction activities on Sundays</th></tr>
<tr><td>10:00 pm</td><td>Tailgate Safety</td><td>Tailgate Safety</td></tr>
<tr><td>11:00</td><td rowspan="3">prep equipment, tools, materials 1:30 – 2:00 am time for safe clearance.</td><td rowspan="3">prep equipment, tools, materials 1:30 – 2:00 am time for safe clearance.</td></tr>
<tr><td>Midnight</td></tr>
<tr><td>1:00</td></tr>
<tr><td>2:00</td><td rowspan="3">remove ballast with vacuum truck; run generators for lights and for vacuum truck; remove old expansion joint; hydrojet track drains; use hand grinder to abrade surface; drill holes for abutment joint seal embedment; place abutment joint seal.</td><td rowspan="5">remove ballast with vacuum truck; run generators for lights and for vacuum truck; remove old expansion joint; hydrojet track drains; use hand grinder to abrade surface; drill holes for abutment joint seal embedment; place abutment joint seal; replace ballast previously removed and pack up equipment, materials; end of workday.</td></tr>
<tr><td>3:00</td></tr>
<tr><td>4:00</td></tr>
<tr><td>5:00</td><td>replace ballast previously removed; pack up equipment, materials; end of workday. 5:30 am BART service starts.</td></tr>
<tr><td>6:00</td><td>clean up jobsite, lock up tools equipment, load equipment on truck / trailer.</td></tr>
<tr><td>7:00</td><td></td><td>7:00 am BART service starts.</td></tr>
<tr><td>8:00 am</td><td></td><td>clean up jobsite, lock up tools equipment, load equipment on truck / trailer.</td></tr>
</table>

Source: Berilla 2022.

nighttime work, which is for the abutment repairs. The overall construction period or duration would vary for each site, from approximately 55 workdays for each of the two sites in Concord to approximately 40 to 50 workdays for each of the three sites in Castro Valley. Within this period, the abutment work would be completed in approximately 5 workdays (approximately 3 hours per day when BART trains would not be operating). BART may choose to perform the abutment repairs during the weekends, when there would be more available hours, and could complete these repairs within 3 to 4 weekends. Whether the abutment work is performed during the weekdays or weekends, it would still involve nighttime work and the same equipment. Therefore, in terms of noise exposure at the nearest sensitive land uses, the noise calculations presented below would be applicable for both scenarios.

To assess potential short-term, temporary (i.e., construction-related) noise impacts, noise levels of project construction equipment were determined and resultant noise levels at given distances from the source were calculated using reference sound levels and default usage factors from the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) for the different construction equipment (FHWA 2006). Also, the noise reduction per doubling of distance (dBA/DD) formula, accounting for ground (soft) conditions, was calculated in RCNM to identify the distance from the project sites where FTA construction criteria would suggest that there were no adverse noise impacts (that is, the screening distance). (FTA does not have a similar model, but the reference sound levels, default usage factors, and noise attenuation rates with distance in the FHWA model are the same as those recommended by FTA.) The distance from the center of the construction activities to the nearest noise-sensitive use (i.e., the golf course in Concord and the nearby residential properties in Castro Valley) was measured in Google Earth. The impact distance for the daytime construction activities (slope repair) within which the 80 dB threshold for residences would be exceeded would be 90 feet; for the nighttime construction activities (abutment repair), 180 feet based on 70 dB threshold. If the noise-sensitive land uses are beyond these distances, the noise levels for receptors at these uses would be below the FTA noise criteria. There are no noise-sensitive land uses within these screening distances that could be exposed to noise levels above the FTA noise criteria.

The estimated construction noise levels shown in Table 11 are conservative (worst-case), because they do not account for any intervening built or natural feature or metrological conditions that could affect noise propagation, which would further attenuate or block the noise from affecting the receptor. Detailed noise calculations are provided in Appendix NOI.

Table 11. Estimated Noise Levels from Project Construction Activities

Nearest Receptors	Distance (feet)	Predicted Noise Level (L_{eq}, dBA)
Slope Repair		
Eastern edge of Diablo Creek Golf Course, 4050 Port Chicago Hwy, Concord	600	57
5949 East Castro Valley Blvd, Castro Valley	650	56
4773 Old Dublin Rd, Castro Valley	220	68
Residence on Old Dublin Road, Castro Valley	300	65
Residence on Fraga Road, Castro Valley	470	60
Abutment Repair		
Eastern edge of Diablo Creek Golf Course, 4050 Port Chicago Hwy, Concord	600	53
5949 East Castro Valley Blvd, Castro Valley	650	52
4773 Old Dublin Rd, Castro Valley	220	64
Residence on Old Dublin Road, Castro Valley	300	60
Residence on Fraga Road, Castro Valley	470	55

Notes:
dBA = A-weighted decibels
L_{eq} = equivalent sound level (the sound energy averaged over a continuous period of time)
Calculations conducted by AECOM, 2022

The estimated construction noise levels[6] of 56 to 68 dB L_{eq} during the daytime slope repair activities and 52 to 64 dB L_{eq} during the nighttime abutment repair activities would not exceed the more stringent FTA detailed noise assessment thresholds for residential uses of 80 dBA for daytime and 70 dBA for nighttime. The shielding provided by the terrain in the Castro Valley project area between the nearest noise-sensitive uses[7] and the construction sites is not included in the estimation of the construction noise levels shown in Table 11. Therefore, actual construction noise levels would be less at the receptor locations. Even if the more stringent detailed analysis criteria are used, the Project would not result in a significant impact.

With respect to Project-related increases above the ambient noise levels in excess of the standard, as shown in Table 8, the measured ambient level in the project area in Concord was 73 dB at the nearest noise sensitive land use (i.e., the golf course). The assumed ambient noise levels in the project area in Castro Valley range from 60 to 65 dB at the nearest noise sensitive uses (i.e., the residences). Combining the project construction noise levels in Table 11 with the ambient levels in the project areas would increase the ambient levels minimally. Based on the

[6] Accounting for the use factor of individual pieces of equipment, continuous and combined noise levels generated by the simultaneous operation of all of the construction equipment. Not all equipment would operate at the same time, so the noise calculations are conservative and actual noise levels would be less than reported.

[7] Aerial images in Appendix NOI show the complex and variable terrain and dense vegetation surrounding the nearest noise-sensitive uses in the vicinity of the Castro Valley project sites.

logarithmic method used to add different noise source, two noise sources with identical noise levels would result in an increase of 3 dB. Ambient conditions plus construction noise from the project repairs would not exceed the standards of 80 dBA for daytime and 70 dBA for nighttime.

Based on the above analyses, the nearest noise sensitive land uses would not be exposed to noise levels that exceed applicable noise criteria and would not substantially increase noise levels above ambient conditions. Therefore, this impact is less than significant.

b. Generation of excessive groundborne vibration or groundborne noise levels? – *Less than Significant*

Construction activities have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used, the location of construction activities relative to sensitive receptors, and the operations/activities involved. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The type and density of soil can also affect the transmission of energy. Table 12 provides vibration levels for typical construction equipment.

Table 12. Typical Vibration Levels for Construction Equipment

Equipment		PPV at 25 Feet (in/sec)	Approximate Lv (VdB) at 25 Feet
Pile Driver (Impact)	Upper Range	1.518	112
	Typical	0.644	104
Pile Driver (Sonic)	Upper Range	0.734	105
	Typical	0.170	93
Vibratory Roller		0.21	94
Large Bulldozer/Hoe Ram		0.089	87
Drill		0.089	87
Truck		0.076	86
Jackhammer		0.035	79
Small Bulldozer		0.003	58
Significance Threshold		0.2/0.08 [1]	80

Notes:

[1] For normal residential buildings and buildings more susceptible to structural damage, respectively.

in/sec = inches per second

Lv = the velocity level in decibels referenced to 1 micro inch per second and based on the root- mean-square velocity amplitude

PPV = peak particle velocity

VdB = Vibration Decibel, logarithmic velocity unit

Source: FTA 2018

The movement and operation of the project's construction equipment may generate temporary ground-borne vibration. FTA determines a vibration criteria of 80 VdB (Table 6) for residential uses and buildings where people normally sleep for general impact assessment. Therefore,

vibration levels below 80 VdB at residential uses would avoid human annoyance. To avoid structural damage, the FTA criteria (Table 7) are 0.2 in/sec PPV for non-engineered timber and masonry buildings and below 0.5 in/sec PPV for reinforced-concrete, steel or timber (no plaster) (FTA 2018).

The construction equipment for the proposed project that would generate the maximum vibration would be trucks and bulldozers. The vibration level associated with the use of a large bulldozer is 0.089 in/sec PPV (87 VdB) at 25 feet (FTA 2018). The vibration-sensitive uses (buildings) nearest to the construction sites are the residential uses approximately 220 to 650 feet away. At these distances, the most substantial vibration generated by project construction equipment would attenuate to less than 59 VdB and 0.003 in/sec PPV, below the Caltrans criteria of 80 VdB to avoid human annoyance and 0.2 in/sec PPV for non-engineered timber and masonry buildings and below 0.5 in/sec PPV for reinforced-concrete, steel or timber (no plaster). Therefore, this impact would be less than significant.

c. For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels? – *No Impact*

The project sites are not located in the vicinity of a private airstrip or an airport land use plan or within 2 miles of a public airport or public-use airport. The proposed project would not expose people residing or working in the project area to excessive noise levels. Therefore, **no impact** would occur.

3.14 Population and Housing

3.14.1 Setting

Areas surrounding the project sites are characterized by a mixture of urban and suburban development, vacant (CRP), transportation infrastructure, and open space. The project sites are entirely within the BART ROW and are at and beneath the BART bridge abutments. No housing or people are in the project sites in Concord or Castro Valley.

3.14.2 Discussion

a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? – *No Impact*

The Project would not include residential components or other development that would induce growth or employment in the area. The project sites are areas within BART ROW, used to support and maintain BART transit infrastructure. The sites would continue to be undeveloped, and no plans exist for a change in their uses. The Project would not require any additional infrastructure (e.g., water, sewer, or power lines) during construction or operation. Therefore, the Project would have no impact related to inducing substantial population growth.

b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? – *No Impact*

The project sites are unoccupied and do not support housing, and project construction activities would not displace existing housing or people. No impact would occur.

3.15 Public Services

3.15.1 Setting

Fire Protection. The project sites in Concord receive fire protection and emergency paramedic services from the Contra Costa County Fire Protection District. The closest fire station, Station 6 at 2210 Clayton Road, is approximately 5 miles from the project sites.

The project sites in Castro Valley receive fire and paramedic service from the Alameda County Fire Department, except for the Fire Canyons area, which is served by the Fairview Fire Protection District. The Alameda County Fire Department has four fire stations in Castro Valley and the Fairview Fire Department has one.

Police Protection. The project sites in Concord receive police protection from the Concord Police Department. In addition, the California Highway Patrol, the Contra Costa County Sheriff, and the CNWS have cooperative agreements with the Concord Police Department and provide law enforcement services. The closest police station to the Concord project sites is the Northern Field Office at 2166 Solano Way, approximately 4 miles away.

The project sites in Castro Valley obtain police protection from the Alameda County Sheriff's Office, and the California Highway Patrol is responsible for enforcing the State Vehicle Code, including traffic and parking, as well as has a community patrol in Castro Valley.

Schools. No schools are within 0.25 mile of the Concord project sites. The closest schools, Heald College and Sun Terrace Elementary School, are both approximately 1.5 miles from the project sites. Also, no school are within 0.25 mile of the Castro Valley project sites. The closest school to the project sites is Independent Elementary School, about 0.5 mile to the northwest.

Parks and Other Public Facilities. The nearest recreational facility to the Concord project sites is Diablo Creek Golf Course which has access from Port Chicago Highway. The project sites are approximately 1.7 miles away from the entrance of the golf course. The Concord General Plan notes that although the CNWS generally is open space, it is not publicly accessible open space land.

The project sites in Castro Valley are approximately 3 to 5 miles by car from the Don Castro Regional Recreation Area, and about 0.5 mile on foot via the Chabot-to-Garin Regional Trail. The Chabot-to-Garin Regional Trail passes the slope embankment at L5008W in Castro Valley.

3.15.2 Discussion

a. Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection? – *No Impact*

Police protection? – *No Impact*

Schools? – *No Impact*

Parks? – *No Impact*

Other public facilities? – *No Impact*

The Project would not involve development of new residential uses and consequently would not result in any additional population that could create a demand for public services. The Project would not result in a change in function or use of the existing infrastructure. Consequently, Project construction and operation would not require any additional fire or police protection, and would not require alterations to schools, parks, or other public facilities to maintain performance objectives for these public facilities. Therefore, no impact would occur.

At Castro Valley project site L5008W, construction temporarily would close the Chabot-to-Garin Regional Trail to hikers, during the hours of construction. The construction along the slopes is anticipated to take approximately 40–50 workdays. This temporary impact would not result in the need for a new or altered trail, the construction of which could result in adverse physical impacts. As discussed further in Section 3.16, Recreation, BART would coordinate with the park district to ensure trail users can continue to enjoy this recreational facility.

3.16 Recreation

3.16.1 Setting

Concord Project Sites

There are two recreational facilities near the Concord project sites. The Diablo Creek Golf Course is to the northwest, approximately 1.7 miles away from the entrance of the golf course off Port Chicago Highway. Bayview Circle Park is in the southwest quadrant of the SR 4/Port Chicago Highway interchange, approximately 0.7 mile from the project sites. Access to the golf course and Bayview Circle Park is not available from Kinne Boulevard that passes between project sites C3015E and C3015W within the median of SR 4. Kinne Boulevard and the project sites within the CNWS are not publicly accessible.

Castro Valley Project Sites

In Castro Valley, project sites L5008W, L5009W, and L5010W within the median of I-580 are north of the Don Castro Regional Recreation Area, a 101-acre facility between Castro Valley and neighboring Hayward and managed by the East Bay Regional Park District. The park entrance is 3-5 miles by car from the project sites, but the northeast portion of the recreation area can be accessed via the Chabot-to-Garin Regional Trail, which continues north, follows San Lorenzo Creek and passes project site L5008W, and then continues 1.75 miles to the Cull Canyon Regional Recreation Area.

3.16.2 Discussion

a. Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? – *No Impact*

The Project would not increase population or otherwise contribute to the demand for recreational facilities, such as enhancing access that could increase their use. Because the Project would have no effect on use of the Don Castro Regional Recreation Area, it would not result its physical deterioration. There would be no impact.

During project construction, approximately 20 workers would be at each project site and would increase population temporarily. Although construction personnel likely would travel directly to the project site and return home after work, some may choose to visit the recreation area to picnic, fish, hike, or relax. Use of the recreational facility by workers would occur over the relatively short 40-50 workdays that they would be at the project sites. This short period and the relatively few workers who might visit Don Castro Regional Recreation Area would not result in substantial deterioration of the facility or accelerate deterioration. Therefore, the project construction would also have no effect.

b. Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? – *No Impact*

The Project would correct damaged BART abutments, drainage facilities, and embankment slopes. This work would not include recreational facilities nor would it result in new population or physical alterations at the project sites that require the construction, expansion, or alteration of a recreational facility. No impact would occur following completion of the repair work.

During construction, the slope stabilization work, involving truck deliveries, heavy construction equipment, and staging areas, would occupy portions of a short segment of the Chabot-to-Garin Regional Trail where it passes project site L5008W. Construction is anticipated to take approximately 40–50 workdays. The Project would not involve construction or expansion of a recreational facility but could require temporary trail closure. The closure would not result in an adverse physical effect on the environment but would interfere with its recreational use by

pedestrians and hikers. This interruption is not a CEQA physical environment impact, but for information purposes, is identified here as affecting the recreational experience for trail users. Pursuant to BFS 01 57 00 (Subsection 1.06, Traffic Plan and Controls), BART must prepare a traffic plan that describes traffic controls, warning and detour signs, temporary barricades, and other methods of maintaining access and circulation. Temporary closures of the trail or modifications to the trail to enable pedestrians and hikers to detour safely around the project site will be coordinated with the "appropriate jurisdictional authority," in this instance, the East Bay Regional Park District. Coordination and implementation of a traffic plan would minimize the impacts on use of the trail.

3.17 Transportation

3.17.1 Setting

Concord Project Sites

Regional access to the Concord sites is provided by SR 4, which has connections to Interstate 5 (I-5) to/from the east, and Interstate 680 (I-680) to/from the west. Direct access to the two project sites are via Kinne Boulevard, which passes under SR-4 at the project sites. Public access to these project sites is restricted because Kinne Boulevard, from Port Chicago Highway to Willow Pass Road, is within the Concord Naval Weapons Station Inland Area, which is off limits to the public.

Portions of the Concord Naval Weapons Station have been transferred to the City of Concord, and the City is working with a recently approved master plan developer to prepare development, circulation, and open space plans for this land. Both the City of Concord General Plan 2030 and the Concord Community Reuse Project, which serves as a framework and direction for the master plan, show the transferred land organized around an entirely new circulation system (City of Concord 2012a; City of Concord 2012b). The new complete streets network would eliminate Kinne Boulevard. The General Plan proposes a system of neighborhood streets feeding into two larger community streets, Delta Road and Los Medanos Boulevard. The Community Reuse Project proposes a similar layout, referring to the neighborhood streets as collectors and the community streets as through streets. The General Plan describes neighborhood streets as 2-4 lane roads with medium traffic volumes that provide access to future homes, parks, and neighborhood retail areas at slow to moderate travel speeds, and with significant walking and biking uses. Community streets are described as 4-6 lane roads with medium to high traffic volumes that connect to work, regional shopping, downtown, and civic uses at slow to moderate travel speeds, and with extensive bicycle and pedestrian uses.

Both the City of Concord 2030 General Plan and the Concord Community Reuse Project propose that the current Kinne Boulevard to be converted into a Caltrans Class I Path (an off-street bicycle path) subject to permitting because it would run along Mt. Diablo Creek (City of Concord 2012a; City of Concord 2012b). In addition, both planning documents propose transit routes traversing the area, including high frequency transit service on Los Medanos Boulevard and potential shuttle/local transit service on other area roads.

Castro Valley

Regional access to the three project sites in Castro Valley is provided by I-580, which has connections to I-680 to/from the east, and Interstate 880 (I-880) to/from the west. I-580 is a major east-west corridor for interregional commercial, commuter, and recreational traffic connecting the San Francisco Bay Area and the Central Valley. The three project sites in Castro Valley are along the BART Dublin/Pleasanton – Daly City line from that operates between the westbound and eastbound lanes of Interstate 580 (I-580). Within this area, I-580 crosses over Fraga Road, Five Canyons Parkway, Old Dublin Road, E. Castro Valley Boulevard, and the Chabot-to Garin-Trail. According to the Castro Valley General Plan (Alameda County 2012), E. Castro Valley Boulevard is classified as an arterial – a primary road providing east-west connections to less-frequently-traveled streets from the freeway. The average daily traffic volumes range from 10,000 to 25,000, and E. Castro Valley Boulevard was near the top of the range in 2012 when the General Plan was adopted. The Metropolitan Transportation Commission has designated Castro Valley Boulevard as part of the Metropolitan Transportation System, which includes routes considered essential to regional mobility. The route is used often as a way to bypass congestion in the nearby stretch of I-580. Fraga Road, Five Canyons Parkway, and Old Dublin Road are classified as residential streets, providing direct access to homes along their routes with lower travel speeds and average daily traffic volumes below 5,000 (Alameda County 2012).

Both E. Castro Valley Boulevard and Five Canyons Parkway have Class II bicycle lanes. For bicycles and pedestrians, the Chabot-to-Garin Regional Trail is a multiple-use unpaved regional trail within the Don Castro Regional Recreation Area that passes project site L5008W and then continues 1.75 miles to the Cull Canyon Regional Recreation Area (East Bay Regional Parks District, 2019). There are no transit services directly serving the area around the project sites.

3.17.2 Discussion

a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? – *No impact*

The Project would not conflict with programs, plans, ordinances, or policies that would affect any cars, public transit, roadways or bicycle and pedestrian facilities. There are no federal traffic and circulation regulations, plans, and policies that are applicable to the Project. The Project would also not conflict with any State or regional regulations, plans, or policies such as the AB1358 (California Complete Streets Act of 2008) or the Metropolitan Transportation System, because project construction is both extremely localized and temporary. The City of Concord General Plan, the Concord Reuse Project, and the Castro Valley General Plan adhere to AB1358 by proposing complete streets, designed to meet the needs of multiple users, including motorists, bicyclists, pedestrians, transit users, and persons of different physical capabilities. The project sites would not affect these plans, including their policies to improve connectivity and safety, or the inclusion of E. Castro Valley Boulevard as part of the Metropolitan Transportation System, because the project repairs would be completed within the BART right-of-way and would not encroach into or alter public rights-of-way that may be slated for roadway, bicycle, pedestrian, or transit service or facilities.

During the construction period, truck deliveries of construction equipment or materials could affect local circulation by vehicles, pedestrians, and bicyclists, but this potential would be temporary and would not affect the long-term goals and objectives for circulation, connectivity, safety, and use of the streets by multiple users.

Therefore, the project would have no effect on programs, plans, ordinances, or policies regarding the circulation systems in Concord or Castro Valley.

b. Would the Project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)? – *Less than Significant*

When Senate Bill 743 (SB 743) was adopted, metrics to measure traffic or transportation impacts were changed from automobile delay determined by level of service (LOS) to vehicle miles traveled (VMT). The goals of SB 743 were to better link land use and transportation planning and promote decisions that would reduce greenhouse gas emissions and particulates; encourage infill development and a diversity of uses; and promote multi-modal transportation networks.

Because the Project would repair existing facilities, it would not conflict or impede the long-term goals of SB743. In particular, the analysis of GHG emissions in Section 3.8 of this document explains that BART reduces vehicle miles traveled and the associated GHG emissions from passenger vehicles and promotes an alternative mode of travel that reduces single occupancy vehicles with efficient transit service. Additionally, the Project would enable the continued operation of the BART system and avoid long-term interruptions to the system for repairs (GHG emitting activities) if drainage problems, slope stability, and erosion were to worsen. Furthermore, the Project would not affect land use because the Project sites are small (less than 6,000 square feet), on BART property, and not developable. As a result, the Project would not encourage, nor discourage infill development or mixed uses but would satisfy the other goals of SB 743. Post construction, the only VMT would be that associated with routine inspections and maintenance of BART's infrastructure, the same as exists under current conditions. In other words, the Project would have no long-term change to VMT.

In the short term, during the temporary construction period, VMT would increase because construction personnel would be traveling from their homes to the work sites and then returning at the end of their work shifts. The quantification of this change in VMT is not required; SB 743 implemented measures to determine the transportation impacts from a project, in which a Lead Agency would have discretion to choose the appropriate methodology to evaluate VMT, either qualitatively or quantitatively. As stated by SB 743, land use development projects (i.e., those involving residential, office, and retail proposals) tend to have the greatest influence on VMT, however for other types of projects lead agencies should instead consider the purposes in (i.e., promote reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses) in applying a threshold of significance. Based on the assessment of the Project in the preceding paragraph, the Project would help achieve the purposes of SB 743 as reflected in Public Resources Code Section 21099(b)(1). In addition, although a different transportation agency responsible for state highways, Caltrans offers guidance in its Transportation Analysis under CEQA (Caltrans 2020) that is relevant to the project.

With respect to construction impacts, Caltrans states “vehicle trips used for construction purposes would be temporary, and any generated VMT would generally be minor and limited to construction equipment and personnel and would not result in long-term trip generation.” In response to this guidance, the Project would only affect VMT during the construction period, which would be of limited duration (approximately 55 workdays for each of the Concord sites and 40-50 workdays for each of the Castro Valley sites) and would involve relatively few personnel traveling (approximately 20 workers at each project site). As stated earlier, the Project would have no impact on long-term trip generation or VMT. Therefore, the Project would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).

c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? – *Less than Significant*

The Project would have no long-term, permanent effect on transportation hazards due to a geometric design feature or incompatible use, because the Project would not change any roads or intersections, nor would it use unsuitable equipment post construction. The completed repairs would be entirely within BART right-of-way, none of work would extend into public rights-of-way, and future operational and maintenance activities would be by light- and medium-duty vehicles that already use the roads in the project areas.

Construction equipment and heavy trucks would be required for slope repair work, but this use would occur only during the temporary construction period. The construction equipment and trucks would not increase hazards due to a design feature because they would not alter the local roads and intersections. They are, however, not typical of the vehicles that use the streets in the vicinity of the project sites and, thus, could be considered incompatible uses. This potential impact would not occur in Concord, because Kinne Boulevard is not publicly accessible, construction vehicles would not be mixing with other vehicles on a regular basis, and use of Kinne Boulevard would be permitted in coordination with the CNWS. In Castro Valley, where the roads expected to be used for construction are residential streets and are generally narrow and winding, construction equipment and trucks could pose a hazard because they travel more slowly and are larger and wider than typical vehicles on the roads. In addition, at BART Structure L5008W in Castro Valley, Project construction would temporarily close the Chabot-to-Garin Regional Trail to avoid hazards to hikers and bicyclists.

To address potential hazards and conflicts with vehicles, bicycle, and pedestrian use of these streets, the Project would be required to implement the BFS and specifically BFS 01 57 00 Subsection 1.06, Traffic Plan and Controls that requires preparation of a traffic control plan that will address temporary signs, traffic diversion patterns, and methods of control, and coordination and approval of the plan with the local jurisdictions (i.e., the City of Concord and/or the U.S. Department of the Navy for the Concord project sites, and Alameda County and the East Bay Regional Parks District for the Castro Valley project sites) to perform work in the public rights-of-way. Additionally, the Project would follow the BFS 01 57 00 Subsection 1.07, Construction Operations Under Traffic, ensuring that any construction equipment shall not be stored or operated in any lane intended for use by normal traffic, instead it shall be behind a guard rail,

barrier, curb, or other protective device. Furthermore, the Project would schedule the work so that construction is carried out to enable closed or otherwise affected traffic lanes to open without unnecessary delays, and no construction equipment exceeding the maximum vehicle dimensions specified in the Motor Vehicle Code would move over public streets without first obtaining approval from the appropriate jurisdictional authority. Therefore, the Project would have a less-than-significant impact.

d. Result in inadequate emergency access? – *Less than Significant*

The Project would not result in inadequate emergency access. Although slow-moving construction equipment and trucks may affect emergency access, local roads would continue to be accessible and access to individual properties would be maintained. As discussed above under Item c, BART and its contractors would comply with the BFS which contains standards, specifications, and procedures governing construction and design. Of particular relevance to emergency access is BFS Section 01 57 00 Temporary Controls, Subsection 1.06 Traffic Plan and Controls. In accordance with this subsection, BART will prepare a traffic control plan for each phase of work and apply for necessary permits to work in a public right-of-way. The traffic control plans will also have control devices such as temporary signage, temporary pavement markings, temporary barricades, temporary lighting and striping during project construction. BFS also stipulates that in areas where removal of existing sidewalks is necessary, temporary walkways, with a width no less than 4 feet, will provide access to adjacent businesses, entrances, and properties. According to, BFS 01 57 00 Subsection 1.07, Construction Operations Under Traffic, the Project will schedule work so that construction is carried out to enable closed or otherwise affected traffic lanes to open without unnecessary delays. For the reasons stated above, the Project would not result in inadequate emergency access Therefore, the impact would be less than significant.

3.18 Tribal Cultural Resources

3.18.1 Setting

The San Francisco Bay Area, Carquinez Strait, and Delta have been home to the many cultures and bands of the Ohlone and Bay Miwok people for thousands of years. These bands and communities were diverse and thriving until the Spanish invasion in the late 1700s. Today, Ohlone and Bay Miwok people continue to inhabit their ancestral homeland and practice their cultures in a highly altered and developed landscape.

Ethnographic literature (Kroeber 1925; Levy 1978a; Levy 1978b; Milliken et al. 2009) indicates that the Concord project site was in the territory of the Chupcan Bay Miwok (Milliken et al. 2009). The Castro Valley project sites were in the territory of Chochenyo (San Francisco Bay) Costanoan speakers.

Bay Miwok

Today's Bay Miwok are descendants of the Bay Miwok who lived in the area surrounding Mount Diablo, northward to Suisun Bay and eastward to the area surrounding the confluence of the

Sacramento and San Joaquin rivers. This region is characterized by myriad waterways and marshes, beside which the Bay Miwok placed their villages. The “Chupcans were Bay Miwok speakers who held the marshlands and oak groves of the Diablo Valley… their lands were at a strategic intersection of language groups. To the north across Suisun Bay were the Suisun Patwins and to the west on Carquinez strait were the Carquin Karkin [sic] Costanoans. The Chupcans were heavily intermarried with both of those local tribes and also with the Tatcans [Bay Miwok] of the San Ramon Valley to their south” (Milliken et al. 2009).

A typical settlement in Bay Miwok territory would have been situated on a natural rise along a major river or stream and could have included brush shelters, sweat house(s), acorn granaries, a dance house, and earth-covered living houses (Kroeber 1925; Levy 1978a). The principal subsistence activities of the Bay Miwok were hunting, fishing, and gathering wild plants. Subsistence practices relied on a large variety of food sources, rather than being dependent on a limited number of staples. The Bay Miwok were organized in a manner similar to that of many California Indians, in that a certain territory was identified as belonging to a group, and that group recognized themselves as a unit (i.e., tribelet). Several affiliated villages may have occurred in the tribelet territory. Each village, and often a group of allied villages, had a headman whose duty was to advise the members of the community (Kroeber 1925; Levy 1978a).

By the late eighteenth century, Spanish settlers moved into northern California, established the mission system, decimated local villages, and dramatically transformed Bay Miwok culture. Many Bay Miwok were baptized by the Franciscan missionaries and were enslaved on mission farms. Epidemics ravaged the people housed in the missions as populations were moved and enlarged during “mass migrations” (Milliken et al. 2009). Throughout the mission period, the Bay Miwok people staged acts of resistance and escape in response to the brutality of the missions, including the successful escape of a group of Saclans (Bay Miwok) from Mission Dolores in 1795 (Milliken et al. 2009). Following secularization of the missions, Bay Miwok people remained in the Bay Area and worked on the ranches and farms that were established on their former lands, but which they were unable to own. Despite these hardships, Bay Miwok people remain in their traditional territory, which includes Contra Costa County, and continue to engage in traditional cultural practices in their ancestral homeland.

Ohlone

Today’s Ohlone people are descendants of speakers of at least six related languages that existed in the San Francisco Bay Area, the Delta, and western central California. The San Francisco Bay Ohlone language groups included the Chochenyo Costanoan, Ramaytush, Rumsen, and Tamyen (Milliken et al. 2009). The Tribes who made up the Ohlone language group—such as the Chochenyo—had socio-cultural concepts unique to their territory and a dialect that reflected this. Some Tribes likely had more similarities with neighboring Tribes of a different linguistic group, based on a shared geographic and ecological environment, than with other Tribes within their own language family. Notwithstanding the many languages and their differences, the various local communities and bands shared similarities in their political organization, hunting and gathering ways, and “world views,” and social interaction and intermarriage was not uncommon (Milliken et al. 2009).

The basic Ohlone social unit was the family household, which was extended patrilineally (Harrington 1942). A household was made up of about 15 individuals. Households grouped together to form villages, which in turn combined to form "tribelets," "an aggregate of villages in the largest of which lived the tribelet chief" (Heizer and Elsasser 1980). Tribelets exchanged trade goods, such as obsidian, shell beads, and baskets; participated in ceremonial and religious activities together; intermarried; and could have extensive reciprocal obligations to one another involving resource collection (Margolin 2003). For the Ohlone, like many other native Californians, the acorn was a dietary staple and is attributed to high population densities and complex social and economic organizations in Central California (Bartelink 2006; Baumhoff 1963). The Ohlone used a range of other plant resources as food, medicine, soap, tools, and building materials. Animals eaten by the Ohlone and their neighbors included large fauna, such as black-tailed deer, Roosevelt elk, antelope, and marine mammals; smaller mammals such as dog, skunk, raccoon, rabbit, and squirrel; birds, including geese and ducks; and fish such as salmon, sturgeon, and mollusks (Levy 1978b). Besides providing sustenance, the Bay Area's flora and fauna provided the Ohlone with raw materials. For example, the Ohlone built dome-shaped shelters, thatched with ferns, tule, grass, and reeds. The thatch was tied to the structure's frame with willow withes. The Ohlone also built small sweathouses, accommodating six to eight persons, which were dug into creek banks and roofed with brush; and circular dance areas, which were enclosed by fences woven from brush or laurel branches (Levy 1978b). Plants, particularly sedge, also were woven into baskets. Tightly woven baskets, decorated with feathers or shells, were valued exchange items (Margolin 2003).

Similar to the Bay Miwok, Ohlone culture changed significantly by the late eighteenth century, when Spanish settlers moved into northern California. Despite the same brutality that marked the mission period, the Ohlone people, like the Bay Miwok continued to reinforce their cultural ties to important sites and resist efforts to erase their history (Akins and Bauer 2021). Today, Ohlone people remain in their traditional territory, which includes Alameda County, where they continue to advocate for protection of and access to important sites and resources in their ancestral homeland.

3.18.2 Discussion

Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in

subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe? – *Less than Significant with Mitigation*

AB 52 (Stats. 2014, ch. 532), which became effective on July 1, 2015, made several changes to CEQA regarding Tribal cultural resources and consultation with California Native American Tribes who previously had requested to be notified of projects in the geographic area traditionally and culturally affiliated with their Tribes. These provisions ensured that Tribes would have the opportunity to provide meaningful input on a project's potential effects on Tribal cultural resources (TCR) and possible measures to avoid or minimize any potentially significant impacts**.**

No known prehistoric archaeological sites are in or near the project sites. Such prehistoric resources also may be considered Tribal cultural resources and could include sites, features, and objects that are CRHR-listed, eligible to be listed, or in a local register of historical resources as defined in Section 5020.1(k) of the PRC. In addition, the Sacred Lands File maintained by the NAHC did not reveal the presence of sacred lands in the project vicinity, although this does not preclude the possibility of a Tribal cultural resource in this area.

In a letter dated March 17, 2021, the NAHC stated that the Sacred Lands File search for the project area was negative. As discussed in Section 3.5, Cultural Resources, the Project would have a potential to disturb previously unknown archaeological resources, including resources of importance to the Bay Miwok and the Ohlone. The potential also exists that the Project could disturb human remains. The impact would be potentially significant.

Pursuant to AB 52 to consult with Native American tribes, BART's consultant for this environmental document requested information from the NAHC a list of tribes that could have a geographical or cultural interest or knowledge about cultural resources in the project area. The NAHC response was received on November 7, 2021 and listed representatives of local Native American tribes for the project sites in Concord and Castro Valley. BART sent information regarding the project, maps, and contact information on February 14, 2022 to the tribes shown in Table 13. As of the publication date of this Draft IS/MND, no response has been received from any of the contacted Native American tribes.

Table 13. Native American Tribes Contacted Pursuant to AB 52

Native American Tribe	Concord Project Sites	Castro Valley Project Sites
Amah Mutsun Tribal Band of Mission San Juan Bautista	Yes	Yes
Chicken Ranch Rancheria of Me-Wuk Indians	Yes	No
Costanoan Rumsen Carmel Tribe	No	Yes
Guidiville Indian Rancheria	Yes	Yes
Indian Canyon Mutsun Band of Costanoan (sent to two contacts)	Yes	Yes
Muwekma Ohlone Indian Tribe of the SF Bay Area	Yes	Yes
Nashville Enterprise Miwok-Maidu-Nishinam Tribe	Yes	No
North Valley Yokuts Tribe (sent to two contacts for Concord and one contact for Castro Valley)	Yes	Yes
Tamien Nation (sent to two contacts)	No	Yes
The Confederated Villages of Lisjan	Yes	Yes
The Ohlone Indian Tribe	Yes	Yes
Tule River Indian Tribe	Yes	Yes
Wilton Rancheria (sent to two contacts)	Yes	Yes
Wuksache Indian Tribe/Eshorn Valley Band	Yes	Yes

Source: Native American Heritage Commission, 2021b

Mitigation Measure CUL-1 (treatment of unanticipated discovery of archaeological and tribal cultural resources) and Mitigation Measure CUL-2 (treatment of discovery of human remains) would be implemented as part of the Project. With implementation of these mitigation measures, the impact on TCR would be reduced to a less-than-significant level.

3.19 Utilities and Service Systems

3.19.1 Setting

Only utilities related to stormwater management would be required. The Project would be required to comply with BFS Section 01 57 00, which requires preparation of a plan and implementation of BMPs and control measures to reduce stormwater pollution. BART standards require BMPs that have demonstrated effectiveness at reducing stormwater pollution. Additionally, the BFS requires protection of open excavations, trenches, embankments, and similar openings with barriers, waterproof coverings, or other measures as required to prevent erosion of open earth areas and excavated piles from storm runoff. BART would adhere to the Municipal Regional Stormwater NPDES Permit (MRP), statewide NPDES General Permit for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities, and the statewide NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities.

3.19.2 Discussion

a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? – *No Impact*

The Project sites are used for transit infrastructure. They are not proposed for development that could create a demand for utilities service systems. During project construction, water, wastewater, electric power, and telecommunications would be supplied by BART and its contractor. The BFS require BART to identify existing utilities and to protect them from damage (BFS 31 00 00, Earthwork, Subsection 3.02; and BFS Section 33 05 25, Support and Protection of Utilities, Subsection 1.03B) prior to earthwork. Since the Project would not involve ground disturbance other than on the slopes, there is very low likelihood to require relocation of any utility. A generator would be brought to the Project sites to provide electric power for lighting and electric tools needed to repair the abutment joints and water seal the abutment. Therefore, the Project would have no impacts because of utility relocation or construction.

b. Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years? – *No Impact*

The Project would not involve use of the sites or facilities that would impose demand for water, and therefore would not affect water supply availability. Short-term water usage would be needed for construction activities such as soil compaction and dust control. This water would be brought to the project sites by the BART contractor and would not require use of local water supplies. Dust control would be needed only for the duration of construction: about 55 workdays for each of the Concord sites and about 40–50 workdays for the Castro Valley sites. Additionally, water would be used to clear the drains by discharging water through a high pressure hose. Water for this work also would be supplied by the BART contractor. Post construction, there would be no ongoing utility requirements, and thus no effect on water supply during normal, dry, and multiple dry years. Therefore, the Project would have no impact on water supplies.

c. Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the projected demand in addition to the provider's existing commitments? – *No Impact*

During construction, waste disposal facilities such as portable restrooms would be brought to the project sites by the BART contractor. The BART contractor would typically make arrangements with a vendor to supply these facilities and to dispose of the waste. The short construction duration and relatively small number of construction personnel at five project sites would not be expected to exceed the capacity of any wastewater treatment provider used by the portable restroom vendor. For information purposes, assuming a local vendor is used for the Concord project sites, wastewater treatment would be provided by Central Contra Costa County Sanitary District that has a treatment capacity of 54 million gallons per day and average daily flows of 34 million gallons per day (Central Contra Costa Sanitary District 2021). Similarly, if a local vendor were used for

the Castro Valley sites, the Castro Valley Sanitary District has a capacity of 20 million gallons per day at its Castro Valley/Oro Loma treatment plant and treats 12.4 million gallons per day (Oro Loma Sanitary District 2021). By comparison, the wastewater demand from the Project would be in the hundreds of gallons per day. Therefore, the impacts of the Project on wastewater capacity would be minimal, and there would be no impact on local wastewater treatment providers' ability to meet their commitments.

d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? – *No Impact*

BART complies with local ordinances to reduce construction and demolition debris and would only off-haul soils that cannot be reused and require disposal. For the Concord project sites, approximately 2 truckloads of soil may be removed from the sites; for the Castro Valley project sites, no soil removal is anticipated. Most of the soil would be reused onsite. BFS Section 01 57 00 Subsection 01 74 21, Waste Management, requires the diversion of construction and demolition debris from landfills shall in no case be less than that required by local regulations and also identifies minimum diversion rates. The BFS also require that a Solid Waste Management Plan shall be developed to identify the off-site recycling service and hauler of each designated debris item, who would then divert that item from the landfills, in the proposed quantities anticipated. Additionally, the plan shall designate a specific on-site area or areas to facilitate separation of materials for potential reuse, salvage, recycling, and return. Adherence to the BFS would reduce solid waste generation and would not impair local solid waste reduction goals. Therefore, no impact would occur.

e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste? – *No Impact*

As described above under Item e, BFS Section 01 57 00 Subsection 01 74 21 provides standards requiring compliance with local regulations at a minimum. The Concord Municipal Code, Chapter 8.20, Solid Waste, requires that 65 percent of construction and demolition waste be diverted from landfills, consistent with the State's Integrated Waste Management Act. The Castro Valley Sanitary District Code covering construction and demolition debris finds that it is feasible, except in unusual circumstances, to divert an average of 60 percent of construction and demolition debris from construction, demolition and renovation projects. The BFS requires a minimum of 75 percent of the construction waste be diverted from sanitary landfills. Because BART's diversion targets are higher than local requirements, the Project would not impede or thwart local reduction statutes and regulations. Therefore, no impact would occur.

3.20 Wildfire

3.20.1 Setting

State Responsibility Areas (SRAs) are fire prevention areas under state jurisdiction in which the California Department of Forestry and Fire Protection, or CAL FIRE, has legal responsibility for

firefighting. California law, Public Resources Code Sections 4201–4204 and Government Code Sections 51175–51189 require CAL FIRE to designate zones based on the potential for severe fire hazards. The factors that contribute to the determination of these zones include weather, slope, and fuel. All SRA lands are assigned a Fire Hazard Severity Zone: moderate, high, and very high.

Local Responsibility Areas (LRAs) are zones within incorporated cities, urban regions, agricultural lands, and specified desert areas where the local government, which includes city fire departments, fire protection districts and counties, and CAL FIRE, are responsible for wildfire protection. While local firefighting agencies are primarily responsible in LRAs, CAL FIRE does identify Very High Fire Hazard Severity Zones (VHFHSZ) located in these areas. These VHFHSZ within LRAs are also identified based on the severity of fire hazard using the same classifications of moderate, high, and very high.

The project sites are not within a CAL FIRE designated VHFHSZ; however, the project sites in Castro Valley are about 2.5 miles from a VHFHSZ that encompasses an open space area including the Lake Chabot Regional Park and Redwood Canyon Golf Course near San Leandro Creek and Redwood Road.

The BFS Section 01 57 00 Subsection 01 35 24 addresses construction safety and requires that BART's contractor shall take specific steps to protect the general public, construction personnel, and the work area from injuries and hazards. These steps and the procedures for response and notification must be documented in an Injury and Illness Prevention Program, along with Trade Specific Safety Programs and a Hazard Communication Program. The Trade Specific Safety Programs address a variety of safety risks, including welding, cutting, hot work, excavation, and trenching. A Site Specific Emergency Action Plan must be prepared for potential events, including fires and damage to various utilities, and identify means of reporting these incidents and evacuation procedures and escape routes. Among the other requirements to avoid fire hazards, the BFS require onsite fire extinguishers, a hazard assessment to determine potential hazards and the types of firefighting equipment necessary, including a survey of combustible materials, hazards posed by heat transfer, and flammable residues. To protect the public, the BFS require the contractor to adhere to the ANSI/ASSE "Protection of the Public on or Adjacent to Construction Sites" (ANSI/ASSE 2012).

3.20.2 Discussion

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:

a. Substantially impair an adopted emergency response plan or emergency evacuation plan*? – No Impact*

The repairs to these slopes and the operation are not expected to exacerbate fire hazards from existing conditions, since the use of the Project area would be unchanged from existing conditions. The slopes are within BART ROW and not within public ROW, therefore the extent of the construction would not interfere with or encroach into roadways that would be utilized by

emergency responders, or used in the event of an emergency evacuation. Construction activities could temporarily obstruct roadways but would not lead to closure of any such roadways. The BART Local Hazard Mitigation Plan and BFS would be consistent with emergency response plans implemented by local authorities. The risk of wildfire may be exacerbated during construction activities; however, the BFS 01 57 00 Subsection 1.06, Traffic Plan and Controls and BFS Subsection 01 35 24 regarding construction safety, described above, would minimize these risks. Therefore, there would be no impact related to impairment of an adopted emergency response plan or emergency evacuation plan for areas within an SRA or very high fire hazard severity zone.

b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire? – *No Impact*

Construction activities could exacerbate the potential risk of wildfire by adding to ignition sources within the area if not properly controlled. Ignition sources include hot exhaust from a vehicle parked on dry grass or welding during high winds sending sparks that travel through the air and land igniting dry grass. Wildfire ignition from construction activity could increase the risk of exposure to pollutants. However, the project sites are not located within an SRA or VHFHSZ. The nearest VHFHSZ is approximately 2.5 miles north-north west of the Castro Valley project sites. The potential for wildfires to spread to this area is limited because the area in between is the urbanized portions of Castro Valley which would offer minimal vegetation loading to fuel a wildfire. In addition, the prevailing wind pattern is from the west and north. Although wind speeds and direction will vary tremendously with topography, over the course of a year, the wind is from the west for 9.3 months and from the north for 2.7 months (Weather Spark 2021). Thus, prevailing winds in Castro Valley would direct fires away from the VHFHSZ.

BFS Section 01 57 00 Subsection 01 35 25, as described in Item a, includes actions and procedures to prevent fires. In addition, the BART Local Hazard Mitigation Plan outlines applicable wildfire mitigation strategies for all BART facilities and operations, such as continued compliance with state and local fire codes and standards for all facilities including providing adequate access roads, onsite fire protection systems, evacuation signage, and fire breaks. Adherence to these safety measures would minimize the risk of increased frequency, intensity, or size of wildfires, and decrease the risk of exposure of people to pollutant concentrations from a wildfire. No impact would occur.

c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment? – *No Impact*

The Project would stabilize slopes underneath BART facilities, repair bridge abutment joints, and clear blocked storm drains. These activities would not require the installation or maintenance of associated infrastructure that could exacerbate fire risks within an SRA or VHFHSZ. No impact would occur.

d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes? –– *No Impact*

The slope stabilization repairs would not expose people or structures to significant risks from downstream flooding, landslides, slope instability or drainage changes. Rather, the Project would reduce the risks of post-fire instability or drainage changes, by improving existing slope stability and drainage problems. Therefore, no impact would occur.

3.21 Mandatory Findings of Significance

3.21.1 Discussion

a. Does the Project have the potential to substantially 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? –– *Less than Significant with Mitigation*

As described in Section 3.4, Biological Resources, Section 3.5, Cultural Resources, and Section 3.10, Hydrology and Water Quality, the Project has the potential to adversely affect listed biological resources, aquatic features and water quality, and cultural features of California history and prehistory (archaeological and tribal cultural resources).

Biological and Aquatic Features

During the repairs for the abutments, drainage facilities, and slopes, the potentially affected sensitive biological resources at the Concord project sites would be the western burrowing owl, nesting birds, and Mount Diablo Creek. At the Castro Valley project sites, sensitive biological resources with a potential to be affected during construction include Alameda whipsnake, California red-legged frog, nesting birds, and San Lorenzo Creek.

The construction period is limited in duration (approximately 55 workdays at each of the Concord sites and 40–50 workdays at each of the Castro Valley sites), and the construction footprints are small (ranging from 4,250 to 6,015 square feet in Concord and from 2,450 to 3,240 square feet in Castro Valley). Nevertheless, there is a potential for these special status wildlife species or their habitats to be significantly affected. Compliance with the BFS and water quality/erosion and sedimentation regulations would minimize the effects on the aquatic features that is habitat for some of the listed species. In addition, seven mitigation measures (BIO-1 through BIO-7) would be required as described in Section 3.4, Biological Resources. With implementation of these mitigation measures, the Project would not reduce substantially the number or restrict the range of the special-status species and their habitats at and near the project sites. Therefore, the Project's effect on wildlife species would be less than significant.

Cultural Resources

Based on the archival and database searches performed for this IS/MND, there are no historical resources as defined in CEQA Guidelines Section 15054.5. Although there is the potential for archaeological resources to be present, the potential for encountering intact resources is very low, because the project work would be confined to existing manufactured slopes that were constructed for BART in the 1990s. This work would not require extensive or deep ground disturbance and it is unlikely undisturbed soils would be encountered as part of the Project. These conditions notwithstanding, if previously unknown archaeological resources are encountered during implementation of the Project, they could be adversely affected and thereby eliminate important examples of the major periods of California history or prehistory. To minimize this impact, two mitigation measures (CUL-1 and CUL-2) would be required as described in Section 3.5, Cultural Resources. With implementation of these mitigation measures, the Project's impacts would be reduced a to less-than-significant level.

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)? — *Less than Significant*

Based on the environmental assessments performed for the resource topics, the Project would have no impact on the physical environment once the repairs have been completed. Therefore, there would be no Project operational impacts that could cumulate with those of other projects and adversely affect the physical environment.

Project impacts that could cumulate with those of other projects would be limited to the construction period, which would be of relatively short duration (i.e., approximately 55 workdays for each of the Concord project sites and 40–50 workdays for each of the Castro Valley project sites). Additionally, the geographic scope of the Project impacts is highly localized, so that the other projects whose impacts might cumulate with those of the Project would need to be in relatively close proximity to the Concord and Castro Valley project sites. Finally, there are resource topics for which the Project would have no effect during construction. Accordingly, for these topics, there would be no cumulative impacts:

- aesthetics (specifically, impacts on scenic vistas and scenic resources along scenic highways);
- agricultural/forestry/mineral resources;
- historical resources;
- geology and soils (specifically, impacts related to faults, ground failure, erosion, expansive soils, and paleontological resources);
- hazards (specifically, impacts on schools, airports, and emergency response plans);

- hydrology (specifically, groundwater);
- land use and planning;
- population and housing;
- public services;
- recreation;
- utilities; and
- wildfire.

For other resource topics for which the Project's effect could combine with other projects, a review of the Concord, Alameda County, and Caltrans websites (City of Concord 2021; Alameda County Community Development Agency 2021; Caltrans 2021) was performed to identify other projects that would likely be expected to occur in the same timeframe and geographically proximate to the project sites. There were no projects identified by Concord or Caltrans in the project vicinity. The Concord City Council on October 27, 2021 selected a master plan developer for the land transferred from the Concord Naval Weapons Station. Any development around the Project would occur long after construction activities to repair the abutments and slopes along Kinne Boulevard.

The Alameda County website identified five development projects in Castro Valley, of which four were more than a mile away from the project sites. One project at 580 Marketplace, involving a digital billboard, is approximately 0.35 mile away on the north side of I-580. This project has already been constructed, and therefore would not have a compound effect with those of the Project.

Because there are no other projects in the proximity of the Project, there would be no cumulative impacts. Even if there were other nearby projects (e.g., utility improvements, activities at the CNWS, or local road, utility, or residential projects in Castro Valley), the localized nature of the project effects, the limited duration of the construction period, and the mitigation measures required to reduce the Project's impacts to less than significant would make the Project's incremental effects less than cumulatively considerable.

c. Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? -– *Less than Significant with Mitigation*

The Project would have the potential for significant impacts on resources that could cause adverse effects on humans:

- hazards and hazardous materials – exposure to impacted soils, groundwater, and soil gas affecting construction workers primarily at the Concord project sites; and

Compliance with the BFS, existing regulations, required permits, and implementation of the mitigation measures identified in this IS/MND (Mitigation Measures HAZ-1 through HAZ-4) would

reduce the substantial adverse effects on populations at and near the project sites. Therefore, impacts on human beings would be less than significant.

For other resources that affect human beings (e.g., changes to visual character, scenic views, and light and glare; construction air emissions; geologic hazards; greenhouse gas emissions; hydrology [flood hazards]; land use and planning [physical division of an established community]; population and housing [displacement]; public services and utilities [reduced, or interruption of, service]; transportation [safety and inadequate emergency access]; and wildfires), the analyses in the preceding sections of this IS/MND conclude that the Project would have either no or less-than-significant impacts.

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BART Slope Stabilization Project
Initial Study/
Mitigated Negative Declaration

Appendix NOI:
Noise Measurements and Construction Noise Worksheets

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

Project: 60612368 - B.11-01/142 Slope Stabilizaton

Date: **Thursday, December 08, 2022** **to** **Friday, December 09, 2022**

Site: LT-01

Hour	Leq	Lmax	L50	L90
17:00	67.9	77.5	67.6	65.6
18:00	66.0	73.9	65.7	63.6
19:00	65.4	74.7	65.0	62.7
20:00	64.7	74.9	64.2	62.2
21:00	64.3	72.0	63.8	61.4
22:00	63.4	73.2	62.8	60.2
23:00	61.3	70.9	60.5	57.9
0:00	59.7	80.3	58.0	54.9
1:00	59.3	72.8	58.0	54.2
2:00	59.4	67.6	58.5	54.6
3:00	64.4	75.3	63.7	60.0
4:00	68.5	76.2	68.2	65.5
5:00	69.8	76.9	69.6	68.0
6:00	68.5	79.3	68.3	67.0
7:00	68.5	74.0	68.4	67.1
8:00	68.0	81.0	67.8	66.4
9:00	67.3	78.5	67.1	65.4
10:00	67.4	73.9	67.2	65.6
11:00	66.7	76.6	66.4	64.8
12:00	66.7	75.7	66.4	64.5
13:00	66.2	77.3	65.9	64.3
14:00	65.9	78.5	65.6	64.1
15:00	65.9	72.6	65.7	64.0
16:00	65.7	73.1	65.5	63.6

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	66.6	75.6	66.2	64.4
Nighttime (10 p.m. - 7 a.m.)	65.6	74.7	63.1	60.3

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	68.5	81.0	68.4	67.1
Nighttime (10 p.m. - 7 a.m.)	69.8	80.3	69.6	68.0

Percentage of Energy

Daytime	68%
Nighttime	32%

Calculated L_{dn}, dBA

72.2

Long-Term 24 Hour Continuous Noise Monitoring

Model Input Sheet

Project: 60612368 - B.11-01/142 Slope Stabilizaton

Date: **Thursday, December 08, 2022** **to** **Friday, December 09, 2022**

Site: LT-01

Hour	Leq	Lmax	L50	L90
17:00	67.9	77.5	67.6	65.6
18:00	66.0	73.9	65.7	63.6
19:00	65.4	74.7	65.0	62.7
20:00	64.7	74.9	64.2	62.2
21:00	64.3	72.0	63.8	61.4
22:00	63.4	73.2	62.8	60.2
23:00	61.3	70.9	60.5	57.9
0:00	59.7	80.3	58.0	54.9
1:00	59.3	72.8	58.0	54.2
2:00	59.4	67.6	58.5	54.6
3:00	64.4	75.3	63.7	60.0
4:00	68.5	76.2	68.2	65.5
5:00	69.8	76.9	69.6	68.0
6:00	68.5	79.3	68.3	67.0
7:00	68.5	74.0	68.4	67.1
8:00	68.0	81.0	67.8	66.4
9:00	67.3	78.5	67.1	65.4
10:00	67.4	73.9	67.2	65.6
11:00	66.7	76.6	66.4	64.8
12:00	66.7	75.7	66.4	64.5
13:00	66.2	77.3	65.9	64.3
14:00	65.9	78.5	65.6	64.1
15:00	65.9	72.6	65.7	64.0
16:00	65.7	73.1	65.5	63.6

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 7 p.m.)	66.9	76.1	66.6	64.9
Evening (7 p.m. - 9 p.m.)	64.8	73.9	64.3	62.1
Nighttime (9 p.m. - 7 a.m.)	65.6	74.7	63.1	60.3

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 7 p.m.)	68.5	81.0	68.4	67.1
Evening (7 p.m. - 9 p.m.)	65.4	74.9	65.0	62.7
Nighttime (9 p.m. - 7 a.m.)	69.8	80.3	69.6	68.0

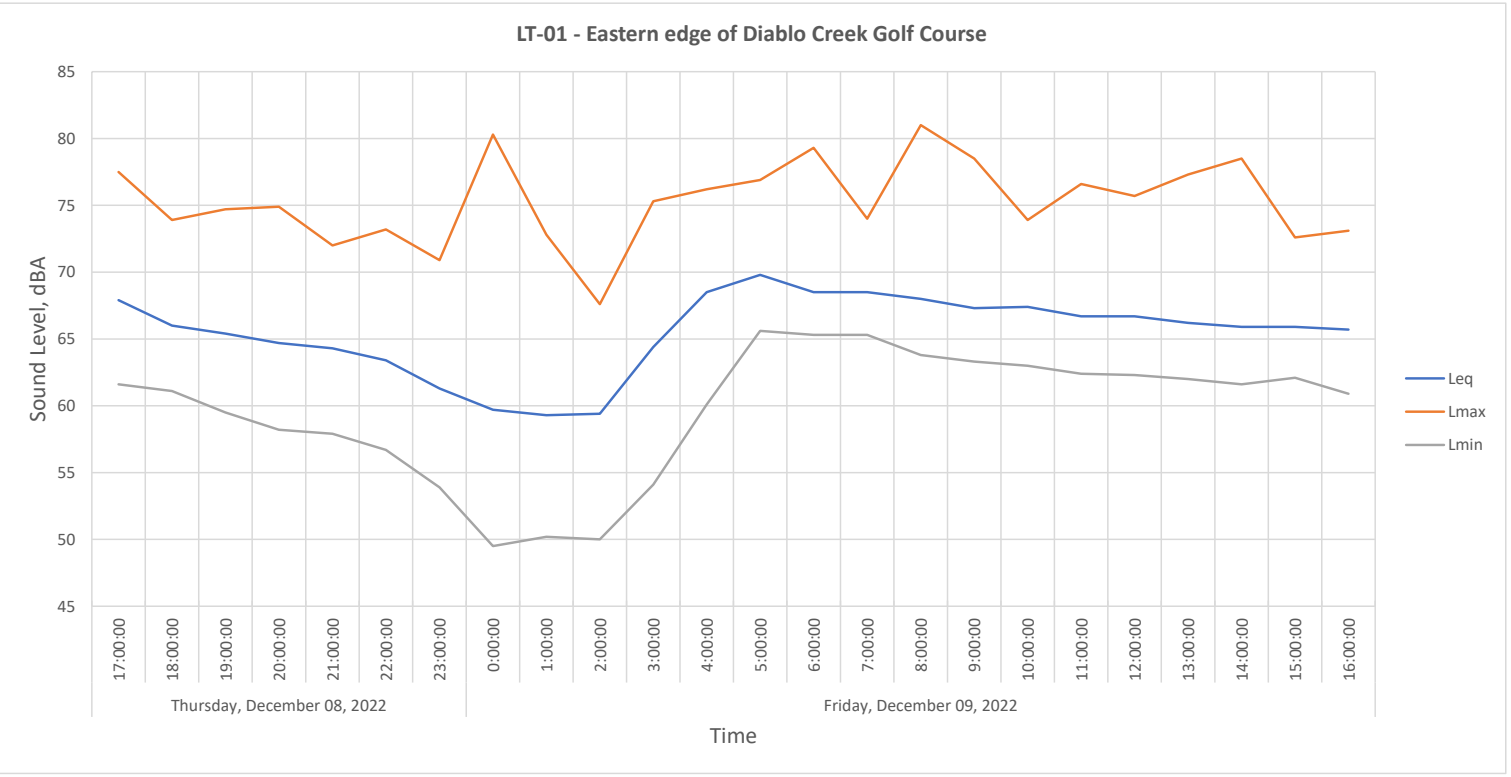
Percentage of Energy

Daytime	59%
Evening	9%
Nighttime	32%

Calculated CNEL, dBA

72.4

Date	Time	Leq	Lmax	Lmin
Thursday, December 08, 2022	17:00:00	67.9	77.5	61.6
	18:00:00	66	73.9	61.1
	19:00:00	65.4	74.7	59.5
	20:00:00	64.7	74.9	58.2
	21:00:00	64.3	72	57.9
	22:00:00	63.4	73.2	56.7
	23:00:00	61.3	70.9	53.9
Friday, December 09, 2022	0:00:00	59.7	80.3	49.5
	1:00:00	59.3	72.8	50.2
	2:00:00	59.4	67.6	50
	3:00:00	64.4	75.3	54.1
	4:00:00	68.5	76.2	60.1
	5:00:00	69.8	76.9	65.6
	6:00:00	68.5	79.3	65.3
	7:00:00	68.5	74	65.3
	8:00:00	68	81	63.8
	9:00:00	67.3	78.5	63.3
	10:00:00	67.4	73.9	63
	11:00:00	66.7	76.6	62.4
	12:00:00	66.7	75.7	62.3
	13:00:00	66.2	77.3	62
	14:00:00	65.9	78.5	61.6
	15:00:00	65.9	72.6	62.1
	16:00:00	65.7	73.1	60.9



Project-Generated Construction Source Noise Prediction Model

Location	Distance to Nearest Receiver in feet		Combined Predicted Noise Level (L_{eq} dBA)
Threshold*	35	Residential	90
	14	Commercial	100
Receptors	50		86
	600		59
	650		58
	640		59
	300		67
	470		62

Assumptions:	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Dump Truck	76	0.4
Backhoe	78	0.4
Compactor (ground)	83	0.2
Chain Saw	84	0.2
Grader	85	0.4
Pneumatic Tools	85	0.5

Ground Type	Soft
Ground Factor	0.50

Predicted Noise Level [2]	L_{eq} dBA at 50 feet[2]
Dump Truck	72.0
Backhoe	74.0
Compactor (ground)	76.0
Chain Saw	77.0
Grader	81.0
Pneumatic Tools	82.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
86.2

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, Ja

[2] Based on the following from the Federal Transit Noise and Vibratic

$L_{eq}(equip) = E.L.+10*\log (U.F.) - 20*\log (D/50) - 10*G*\log (D/50)$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

*Project specific threshold

Project-Generated Construction Source Noise Prediction Model

Location	Distance to Nearest Receiver in feet		Combined Predicted Noise Level (L_{eq} dBA)
Threshold*	72	Residential	80
	11	Commercial	100
Receptors	50		84
	600		57
	650		56
	640		56
	300		65
	470		60

Assumptions:	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Generator	81	0.5
Vacuum Street Sweeper	82	0.1
Pneumatic Tools	85	0.5
Pickup Truck	75	0.4

Ground Type	Soft
Ground Factor	0.50

Predicted Noise Level [2]	L_{eq} dBA at 50 feet[2]
Generator	78.0
Vacuum Street Sweeper	72.0
Pneumatic Tools	82.0
Pickup Truck	71.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
84.0

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, Ja

[2] Based on the following from the Federal Transit Noise and Vibratic

$L_{eq}(equip) = E.L.+10*\log(U.F.) - 20*\log(D/50) - 10*G*\log(D/50)$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

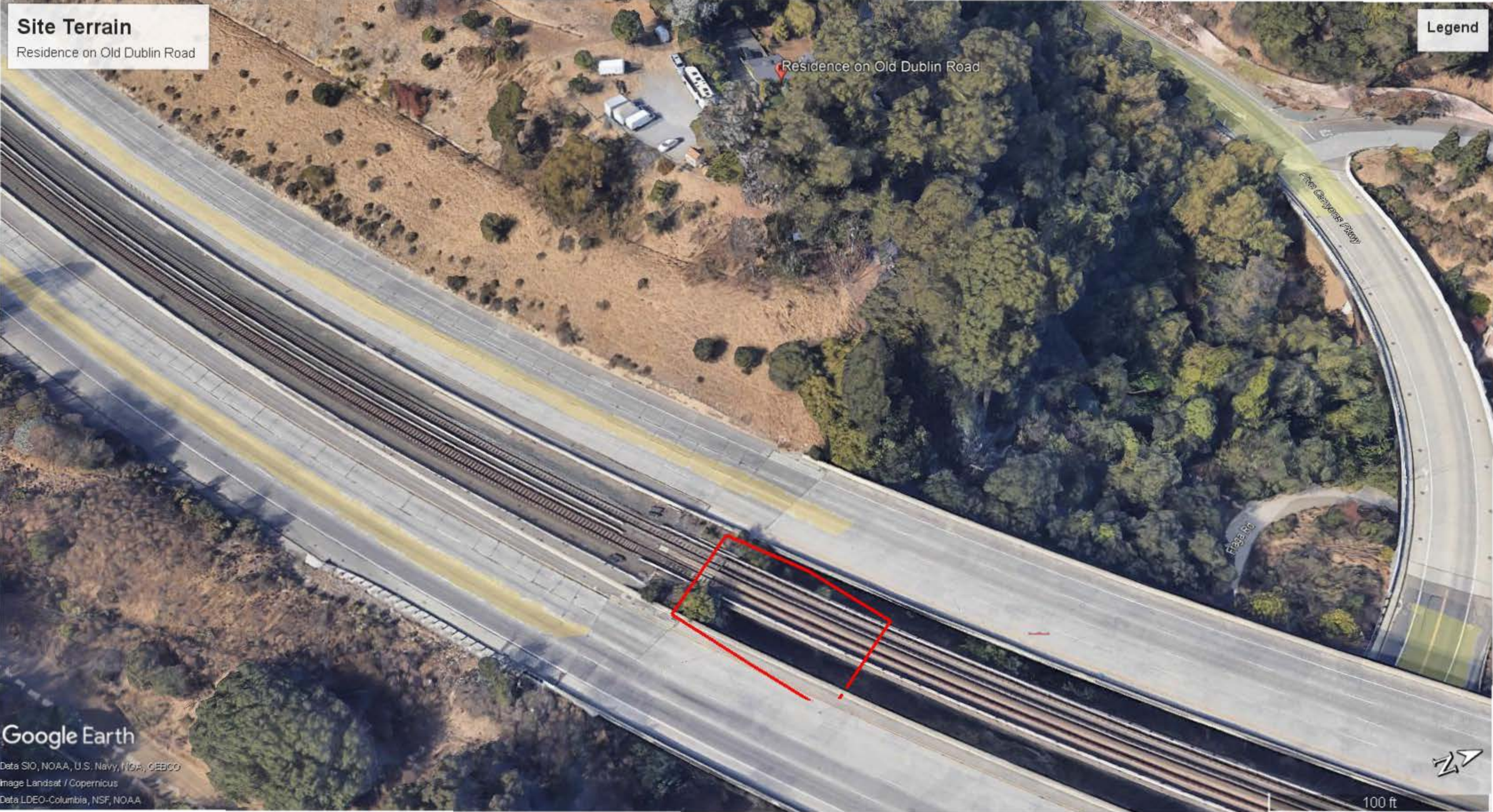
G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

*Project specific threshold


Site Terrain
5949 East Castro Valley Blvd
Legend
Bore 1
Bore 2
Bore 3
580
E Castro Valley Blvd
Bridge Way
Willow Creek Dr
5949 East Castro Valley Blvd
Pacheco Creek
Google Earth
Image Landsat / Copernicus
200 ft


Site Terrain
Residence on Fraga Road
Legend
Residence on Fraga Road
Five Canyons Pkwy
Google Earth
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat / Copernicus
Data LDEO-Columbia, NSF, NOAA
100 ft


Site Terrain
Residence on Old Dublin Road
Legend
Residence on Old Dublin Road
Frisbie Rd
Google Earth
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat / Copernicus
Data LDEO-Columbia, NSF, NOAA
100 ft