Final Environmental Impact Report

Pacific Gas and Electric Company
Moraga-Oakland X
115 Kilovolt Rebuild Project

(A.24-11-005)

State Clearinghouse #2025-02-0944

Prepared by
California Public Utilities Commission

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CONTENTS

TABLES

[Note that Tables not listed for Chapter 2 are in EIR Appendix B]

APPENDICES

Appendix A: Figures and Maps

ACRONYMS AND ABBREVIATIONS

AADT	Annual average daily traffic
AB	Assembly Bill
ABAG	Association of Bay Area Governments
ACCDA	Alameda County Community Development Agency
ACCR	Aluminum conductor composite reinforced
ACDEH	Alameda County Department of Environmental Health
ACE	Areas of Conservation Emphasis
ADA	Americans with Disabilities Act
AF	acre-feet
AGR	Agriculture and Forestry Resources
AIA	Airport Influence Area
ALJ	Administrative Law Judge
AMMs	Avoidance and minimization measures
ANSI	American National Standards Institute
API	Area of Potential Impact
APM	Applicant-Proposed Measure
APN	Assessor Parcel Number
APP	Avian Protection Plan
ATCMs	Airborne toxic control measures
AWS	Alameda Whipsnake
BAAQMD	Bay Area Air Quality Management District
BAHCP	Bay Area Operations and Maintenance Habitat Conservation Plan
BART	Bay Area Rapid Transit
BCC	Bird of Conservation Concern
BGEPA	Bald and Golden Eagle Protection Act
BIOS	Biogeographic Information System
BLM	Bureau of Land Management
BMP	Best management practice
BSA	Biological study area
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAISO	California Independent System Operator
CalEPA	California Environmental Protection Agency
CalOSHA	California Division of Occupational Safety and Health
CARB	California Air Resources Board
CCH	Consortium of California Herbaria
CCR	California Code of Regulations
CCRD	Confidential Cultural Resource Database
CCTS	Central California Taxonomic System
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEHC	California Essential Habitat Connectivity Project
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFC	California Fire Code
CFGC	CDFW Fish and Game Code

CFR	Code of Federal Regulations
CGP	Construction General Permit
CGS	California Geological Survey
CIWMB	California Integrated Waste Management Board
CLN	Conservation Lands Network
CNDDB	California Natural Diversity Database
CNEL	Community noise equivalent level
CNPS	California Native Plant Society
CO	Carbon monoxide
COPD	City of Orinda Police Department
COS	Conservation, Open Space, and Working Lands Element
CPS	Cleanup Program Sites
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRLF	California red-legged frog
CRPR	California Rare Plant Rank
CRS	Cultural Resource Specialist
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
DHS	Department of Health Services
DOT	U.S. Department of Transportation
DPM	Diesel particulate matter
DPS	Distinct Population Segment
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EA	Environmental Analysis
EBMUD	East Bay Municipal Utility District
EBRPD	East Bay Regional Park District
EDR	Environmental Data Resources, Inc.
EFS	Environmental Field Specialist
EHC	Environmental Health Criteria
EIR	Environmental Impact Report
EISA	Energy Independence and Security Act
EMF	Electric and magnetic fields
EOP	Emergency Operations Plan
EPA	Environmental Protection Agency
EPSS	Enhanced Powerline Safety Settings
ESLs	Environmental screening levels
FAA	Federal Aviation Administration
FEIR	Final Environmental Impact Report
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FHSZ	Fire hazard severity zone
FIRM	Flood Insurance Rate Map
FLPMA	Federal Land Policy and Management Act
FMP	Field Management Plan
FOCA	Federal Office of Civil Aviation
FPI	Fire Potential Index
FPs	Field Protocols

FRED	Field record environmental database
FTC	Flowable thermal concrete
FYLF	Foothill yellow-legged frog
GC	Government Code
GHG	Greenhouse gas
GHGRP	Greenhouse Gas Reporting Program
GO	General Order
GSA	General Services Agency
GSPs	Groundwater Sustainability Plans
GWP	Global warming potential
HABS	Historic American Building Survey
HAPs	Hazardous air pollutants
HCP	Habitat Conservation Plan
HDPE	High-density polyethylene
HFTD	High fire threat district
HHRLs	Human health risk levels
HLZ	Helicopter landing zone
HMBP	Hazardous Materials Business Plan
HWCL	Hazardous Waste Control Law
HWD	Hayward Executive Airport
HYD	Hydrology and Water Quality
I	Interstate
IARC	International Agency for Research on Cancer
IEEE	Institute of Electrical and Electronics Engineers
IEPR	Integrated Energy Policy Report
ITP	Incidental Take Permit
KOP	Key Observation Point
kV	Kilovolt
LCI	Lettis Consultants International, Inc.
LDSP	Light-duty steel pole
LOS	Level of service
LQG	Large quantity generators
LRA	Local Responsibility Area
LSP	Lattice steel pole
LST	Lattice steel tower
LT	Long-Term
LTO	Landing and takeoffs
LUST	Leaking Underground Storage Tank
LZ	Landing Zone
LZ/SA	Landing zones/staging areas
MAS	Master of Advanced Studies
MBTA	Migratory Bird Treaty Act
MBZs	Map Book Zones
MCV	Manual of California Vegetation
MGCC	Minimum ground conductor clearance
MLD	Most Likely Descendant
MM	Mitigation measure
MMCRP	Mitigation Monitoring, Compliance, and Reporting Program
MMRP	Mitigation Monitoring and Reporting Plan

MND	Mitigated Negative Declaration
MOFPD	Moraga-Orinda Fire Protection District
MOX	Moraga–Oakland X
MPR	Minor Project Refinement
MRRT	Montclair Railroad Trail
MRZ	Mineral Resource Zone
MTC	Metropolitan Transportation Commission
MW	megawatt
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Planning
NCP	National Contingency Plan
NEHRP	National Earthquake Hazards Reduction Program
NERC	North American Electric Reliability Corporation
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOA	Naturally occurring asbestos
NOC	Notice of Completion
NOE	Notice of Exemption
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTPs	Notices to proceed
NWCG	National Wildfire Coordinating Group
OAK	Oakland International Airport
OCHS	Oakland Cultural Heritage Survey
OEIS	Office of Energy Infrastructure Safety
OFD	Oakland Fire Department
OHWM	Ordinary High Water Mark
OMC	Oakland Municipal Code
ONOC1	Oakland North weather station
OPGW	Optical ground wire
OSCAR	Open Space, Conservation, and Recreation
OSHA	Occupational Safety and Health Administration
OUSD	Oakland Unified School District
PAR	Property Analysis Record
PBDB	Paleobiology Database
PCE	Petroleum hydrocarbon constituents, tetrachloroethene
PERP	Portable Equipment Registration Program
PFD	Piedmont Fire Department
PFM	Petition for Modification
PFYC	Potential Fossil Yield Classification
PG&E	Pacific Gas and Electric Company
PPD	Piedmont Police Department
PPV	Peak Particle Velocity
PSD	Prevention of Significant Deterioration

PSPS	Public Safety Power Shutoff
PTC	Permit to Construct
PV	Photovoltaic
Qa	Surficial sediments
RCRA	Resource Conservation and Recovery Act
RMS	Root-mean-square
ROG	Reactive organic gases
ROW	Rights-of-way
RPS	Renewables Portfolio Standard
RWQCB	Regional Water Quality Control Board
SA	Staging Area
SB	Senate Bill
SCADA	Supervisory control and data acquisition
SCAQMD	South Coast Air Quality Management District
SCH	State Clearinghouse
SDSs	Safety Data Sheets
SF6	Sodium hexafluoride
SFBAAB	San Francisco Bay Area Air Basin
SFHAs	Special Flood Hazard Areas
SGMA	Sustainable Groundwater Management Act
SHMA	Seismic Hazard Mapping Act
SIP	State Implementation Plan
SLF	Sacred Lands File
SMARA	Surface Mining and Reclamation Act of 1975
SPCC	Spill Prevention, Control, and Countermeasure
SQG	Small quantity generators
SR	State Route
SR-	State Route
SRA	State Responsibility Area
SSC	Species of Special Concern
ST	Short-Term
SVP	Society for Vertebrate Paleontology
SW	Static ground wire
SWPPP	Stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	Toxic air contaminant
TAZ	Transportation Analysis Zone
TCR	Tribal Cultural Resources
TMDL	Total maximum daily load
TMP	Traffic Management Plan
TPP	Transmission planning process
TSP	Tubular steel pole
U.S.	United States
UBC	Uniform Building Code
UCERF3	Uniform California Earthquake Rupture Forecast
UCMP	University of California, Museum of Paleontology
UFC	Uniform Fire Code
USA	Underground Service Alert
USACE	U.S. Army Corps of Engineers

USGS	U.S. Geological Survey
USNRTP	U.S. National Recreation Trails Program
UST	Underground storage tank
UWMPs	Urban Water Management Plans
VMT	Vehicle miles traveled
VS-VC	Visual Sensitivity – Visual Change
WBWG	Western Bat Working Group
WEAP	Worker Environmental Awareness Training Program
WHO	World Health Organization
WL	Watch List
WMP	Wildfire Mitigation Plan
WNSRT	White-Nose Syndrome Response Team
WSAB	Wildfire Safety Advisory Board
WTRM	Wildfire Transmission Risk Model
WUI	Wildland Urban Interface
XLPE	Cross-linked polyethylene

EXECUTIVE SUMMARY

ES.1. Introduction

ES.1.1. Project Application and Purpose

On November 15, 2024, Pacific Gas and Electric Company (PG&E or the Applicant) submitted Application A.24-11-005 to the California Public Utilities Commission (CPUC), seeking a Permit to Construct (PTC) for the Moraga-Oakland X 115 Kilovolt (kV) Rebuild Project (proposed Project, Project, or MOX Project).

The CPUC is lead agency under the California Environmental Quality Act (CEQA) and has prepared this Environmental Impact Report (EIR) to inform the public and to meet the needs of local, State, and federal permitting agencies. The EIR evaluates the impacts of the proposed Project and Project alternatives.

This EIR evaluates and presents the environmental impacts that are expected to result from construction and operation of PG&E's proposed MOX Project, and presents recommended mitigation measures that, if adopted, would avoid or minimize any of the significant environmental impacts identified. In accordance with CEQA requirements, this EIR also identifies alternatives to the proposed Project (including the No Project Alternative) that could avoid or minimize significant environmental impacts associated with the Project as proposed by PG&E, and evaluates the environmental impacts associated with these alternatives. Based on this environmental impact report, as well as the relative sensitivities of impacts in the study region, this EIR identifies the Environmentally Superior alternative as required by CEQA.

This EIR does not make a recommendation regarding the approval or denial of the proposed Project or any alternative; it is purely informational and will be used by the CPUC in considering whether to approve the proposed Project or an alternative analyzed in this EIR.

ES.1.2. Agency Process

Under CEQA, as amended (Public Resources Code Section 21080(a)), an environmental review document must be prepared, reviewed, and certified by the decision-making body before action is taken on any non-exempt discretionary project proposed to be carried out or approved by a State or local public agency in the State of California. Following CEQA review, the CPUC, as the lead agency, will act first on the Project before any of the responsible agencies take action on the Project (see Section 1.4.3, Anticipated Permits and Approvals). The CPUC Administrative Law Judge (ALJ) and Commissioners will use the EIR for decision-making regarding the proposed Project. If the proposed Project is approved by all required permitting agencies, the CPUC would be responsible for reviewing and approving all CEQA-related pre-construction compliance plans and ensuring that the proposed Project modifications and operations are conducted in accordance with the adopted mitigation measures and other permit conditions.

ES.1.3. CPUC Conclusion Regarding Environmentally Superior Alternative

As described briefly in Section ES.8 of this Executive Summary and in detail in Section 4 of the EIR, the ~~Draft~~ EIR evaluates four alternatives that would remove existing segments of the 115 kV lines ~~east of Estates Drive~~ and install them underground between Manzanita Drive and Estates Drive. The ~~Draft~~ EIR also evaluates the "no project" alternative under which the existing Moraga–Oakland X 115 kV lines would not be replaced.

Section 15126.6 of the State CEQA Guidelines requires an EIR to identify an "environmentally superior" alternative among the alternatives studied. If the "no project" alternative is the environmentally superior alternative, then the EIR must identify which of the other alternatives is environmentally superior.

In accordance with section 15126.6 of the State CEQA Guidelines, the ~~Draft~~ Final EIR concludes that the proposed Project would be the Environmentally Superior Alternative. This is because the proposed Project would result in substantially less disruptive construction impacts compared to underground construction of four 115 kV circuits in steep, narrow, and/or winding roadways. The analysis in the ~~Draft~~ EIR also demonstrates that no significant and unavoidable impacts of the proposed Project would be eliminated by the underground alternatives and that the proposed Project offers a major improvement over the existing setting by reducing the wildfire risk associated with the older existing 115 kV lines.

ES.2. Description of PG&E's Proposed Project

ES.2.1. Project Location

The Project would be located within the city of Orinda, unincorporated Contra Costa County, as well as the cities of Oakland and Piedmont in Alameda County. The existing land uses in the Project area include a utility facility and a school with outdoor recreation facilities in the city of Orinda, open space and parks in unincorporated Contra Costa County, and residential, commercial, parks, places of worship and schools within the cities of Oakland and Piedmont.

ES.2.2. Project Summary

The proposed Moraga–Oakland X 115 kV Rebuild Project would upgrade approximately 5-miles of four overhead 115 kV power lines between the Moraga and Oakland X Substations. The two existing parallel double-circuit power lines (4 circuits total) are located within existing PG&E land rights, and the Project would rebuild the four overhead lines into four hybrid lines, with both overhead (approximately 4 miles) and underground (approximately 1 mile) segments. See Figure ES-1.

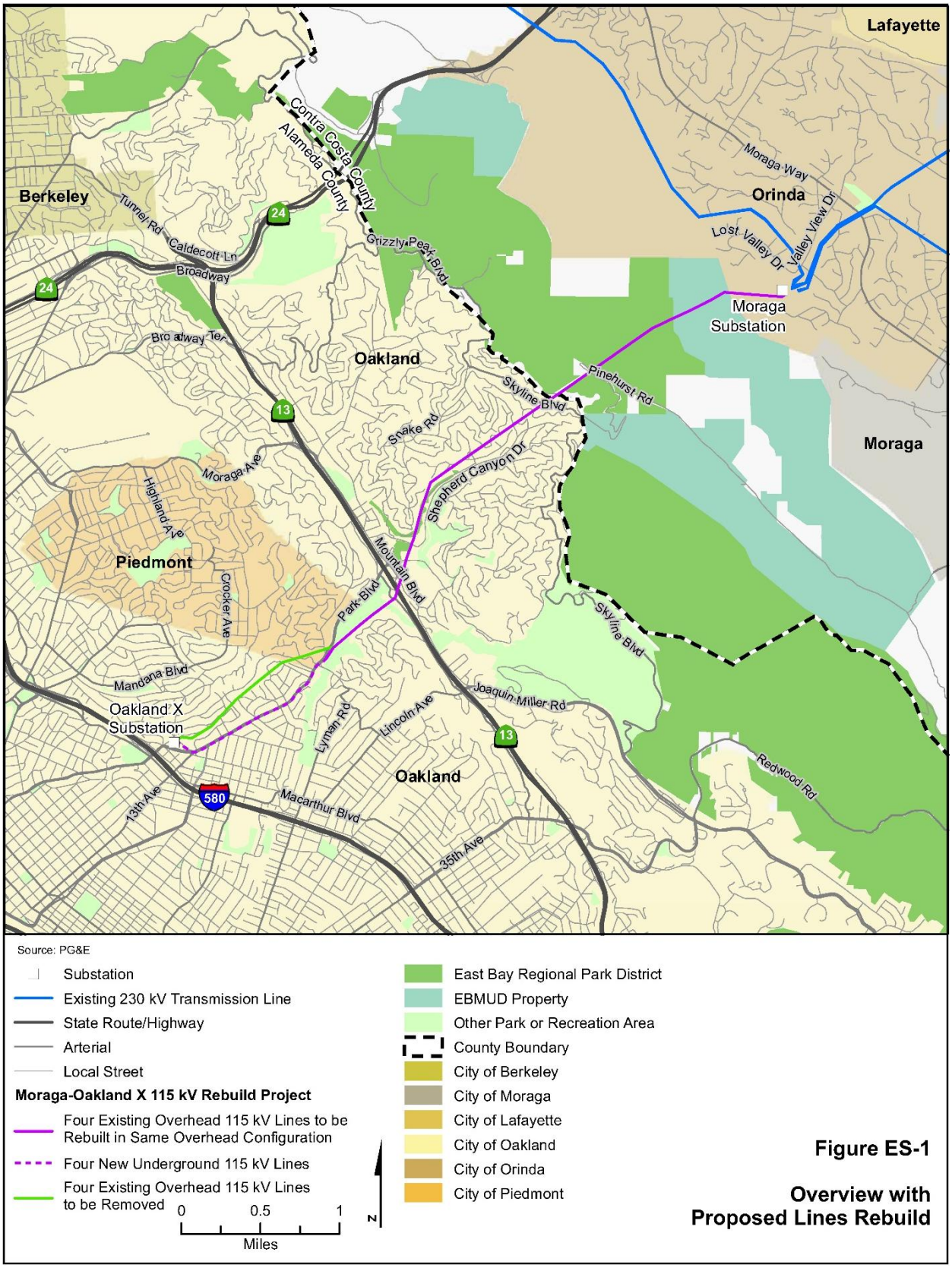
Existing towers, poles and conductors would be replaced either with overhead rebuild or underground components, and minor modifications would occur within the existing substations. Some recently replaced power line structures would be reused or reused with some modification. Single-circuit transition structures would support the connection between the overhead and underground portions of each line. Double-circuit transition structures would be used to connect the underground portion to existing overhead line terminals at Oakland X Substation. Additionally, the rebuild would include the installation of optical ground wire (OPGW) on aboveground structures with a communication cable continuing within the underground portion.

ES.3. Project Objectives

PG&E-identified Project objectives, which have been considered by the CPUC in developing a reasonable range of alternatives, are:

1. Provide lifecycle updates of Moraga–Oakland X 115 kV four circuit power line path by removing and replacing four circuits to avoid future reliability issues while maintaining safe operations.
2. Replace four project power line circuits using a larger size conductor that will accommodate the region's reasonably foreseeable future energy demands.
3. Ensure the project at completion meets power line reliability and safety requirements, and industry standards.
4. Construct a safe, economical, and technically feasible project that minimizes environmental and community impacts.

Figure ES-1. Overview with Proposed Lines Rebuild



ES.4. Summary of Public Involvement Activities

ES.4.1. Notice of Preparation

In compliance with State CEQA Guidelines Section 15082, a Notice of Preparation (NOP) was issued for publication of the Draft EIR on February 25, 2025 (State Clearinghouse Number 2025-02-0944). The NOP briefly described the proposed Project, its location, the environmental review process, potential environmental effects, and opportunities for public involvement. The NOP solicited input regarding the scope and content of the environmental information to be included in the EIR. The CPUC mailed and emailed over 7,200 notices to public agencies and members of the public.

ES.4.2. CEQA Public Scoping

The public scoping period commenced on February 25, 2025, with the issuance of the NOP, which summarized the proposed Project and requested comments from interested parties.

The CPUC conducted two virtual public scoping meetings on March 13, 2025, to inform the public about the Project, provide information regarding the environmental review process; and gather public input regarding the scope and content of the Draft EIR.

There were 30 and 34 attendees at the afternoon and evening meetings, respectively. Attendees at these virtual meetings included residents and representatives from Contra Costa County and the California State Assembly. A total of 17 oral comments were taken during the virtual scoping meetings.

The CPUC also contacted and/or met with 11 agencies and local jurisdictions during the scoping process. A total of 59 written comment letters were submitted by email during the scoping period. A form letter was submitted by several community members.

ES.4.3. Native American Consultation under Assembly Bill 52

The CPUC notified one Native American Tribe about the project in accordance with the requirements of Assembly Bill 52 (AB 52). The CPUC mailed the AB 52 notification letter on December 13, 2024. A request for formal consultation under AB 52 was not received.

Additionally, per CPUC's internal tribal consultation policy, courtesy tribal outreach letters were sent to the individual contacts listed in the Native American Heritage Commission (NAHC) contact list provided by the NAHC on January 7, 2025. Courtesy tribal outreach letters were emailed to those contacts where an email address was provided on January 13, 2025. On January 14, 2025, a hard copy of the outreach letter was sent via USPS Certified Mail to those contacts where an email address was not provided. The CPUC did receive one response to their tribal courtesy outreach effort from the Confederate Villages of Lisjan Nation.

The consultation process is described further in EIR Section 3.16 (Tribal Cultural Resources).

ES.4.4. Areas of Controversy/Public Scoping Issues

Concerns expressed by the public and agencies at the scoping meeting and during the public scoping period were regarding these resource topics: wildfire risk, noise, aesthetics, recreation, transportation and traffic, utilities and service systems, cultural resources, tribal cultural resources, biological resources, geology and soil, alternatives, environmental review and CPUC decision-making processes, project need and project description, among other issues. A scoping summary report is provided in EIR Appendix C. Public scoping comments are summarized in the individual resource topics addressed in Section 3 (Environmental Analysis).

ES.4.5. Review of Draft EIR

A Notice of Completion (NOC) was filed with the State Clearinghouse to begin the 45-day public review period (Public Resources Code [PRC], Section 21161) for the Draft EIR on August 12, 2025, with the review period ending on September 26, 2025. Pursuant to PRC Section 21092.3 and State CEQA Guidelines Section 15087(c), a notice of availability of the Draft EIR was posted in the Alameda and Contra Costa County Clerks' offices. The Draft EIR was distributed directly to agencies, organizations, and interested individuals, and made publicly available for review and comment in accordance with Section 15087 of the CEQA Guidelines and PRC 21092(b)(3).

The CPUC held two virtual public meetings on September 3, 2025, at 2:00 p.m. and 5:30 p.m. to provide information about the proposed Project, CEQA process, and provide an opportunity to submit verbal comments on the Draft EIR.

Comments received during the Draft EIR comment period include: 5 from agencies, 1 from businesses/ organizations, 1 from tribes, and 16 from individuals in addition to comments received at the two public meetings. Issues raised included concerns about wildfire risk, health effects, biological resources, transportation (evacuation), underground power lines, and alternatives. All significant environmental issues raised in comments received during the public review period for the Draft EIR have been responded to in this Final EIR (see Appendix J).

EIR revisions in this Final EIR are noted with ~~strikeout~~ for deletions of text and in underline for new text in sections of the Draft EIR. None of the revisions or additions to the EIR rise to the level of "significant new information" as that term is used in CEQA Guidelines Section 15088.5, and therefore, recirculation of the EIR for additional public review is not necessary.

ES.5. Applicant Proposed Measures

As part of the Project, the Applicant proposes to implement Applicant Proposed Measures (APMs) to ensure that the Project would occur with minimal environmental impacts and in a manner consistent with applicable rules and regulations. These measures would be implemented during the design, construction, and operation of the Project. APMs are considered part of the Project and are considered in the evaluation of environmental impacts (see Section 3, Environmental Analysis). Project approval would be based upon the Applicant adhering to the Project as described in this document, including the project description and the APMs, as well as any mitigation measures that may be imposed by the CPUC.

The full text of PG&E's APMs are included in EIR Section 2.9 (Applicant Proposed Measures).

ES.6. Environmental Impacts

Section ES.10 (Summary of Impacts) lists the identified environmental impacts and recommended mitigation measures for the MOX Project. Detailed descriptions of impacts of proposed Project are provided in Section 3, along with a discussion of cumulative impacts in Section 5. The impact analysis in the EIR was prepared by topic area and presents an assessment of the identified direct and indirect impacts and discloses the level of significance for each impact. The analysis also identifies mitigation measures to reduce or avoid significant impacts of the proposed Project and the alternatives.

A significant impact is defined under CEQA as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project" (CEQA Guidelines § 15382). The categories of potential effects are provided below.

Direct Effects	Effects caused by the proposed Project that occur at the same time and place as the proposed Project

Indirect Effects	Effects caused by the proposed Project that occur later in time, or further in distance, but are still reasonably foreseeable
Residual Impacts	Impacts that still meet or exceed significance criteria after application of mitigation and, therefore, remain significant
Cumulative Impacts	Impacts resulting from the proposed Project when combined with similar effects of other past, present, and reasonably foreseeable future projects, regardless of which agency or person undertakes such projects (cumulative impacts could result from individually insignificant but collectively significant actions taking place over time)
Short-Term Impacts	Impacts expected to occur during construction or decommissioning that do not have lingering effects for an extended period after the activity is completed
Long-Term Impacts	Impacts that would persist for an extended period of time

The significance of each impact is determined based on an analysis of the impact, compliance with any recommended mitigation measure, and the level of impact remaining compared to the applicable significance criteria relevant to a particular resource. Impacts are classified as one of the five categories listed below.

Significant and Unavoidable	A substantial or potentially substantial adverse change from the environmental baseline that meets or exceeds significance criteria, where either no feasible mitigation can be implemented, or the impact remains significant after implementation of mitigation measures
Less than Significant with Mitigation	A substantial or potentially substantial adverse change from the environmental baseline that can be avoided or reduced to below applicable significance thresholds
Less than Significant	An adverse impact that does not meet or exceed the significance criteria of a particular environmental issue area and, therefore, does not require mitigation
Beneficial	An impact that would result in an improvement to the physical environment relative to baseline conditions
No Impact	A change associated with the Project that would not result in an impact to the physical environment relative to baseline conditions

ES.6.1. Environmental Effects of the Project

Based on the analysis in EIR Chapter 3, the EIR has identified five ***significant and unavoidable*** impacts of the proposed Project to Transportation (see Section 3.15) and one ***significant and unavoidable*** impact to Wildfire (see Section 3.18) during construction of the proposed Project. These impacts are briefly described below.

- **Impact T-1:** Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.
- **Impact T-4:** Result in inadequate emergency access.
- **Impact T-5**: Create potentially hazardous conditions for residents, people walking, bicycling, or driving or for public transit operations.
- **Impact T-6:** Interfere with walking or bicycling accessibility.

- **Impact T-7:** Substantially delay public transit.
- **Impact WF-1**: Substantially impair an adopted emergency response plan or emergency evacuation plan.

Per GO 131-E, power lines are lines designed to operate between 50 and 200 kV, such as those involved in the proposed Project. Power lines can be a source of human-caused wildfire ignitions. As described in Section 3.18.1.3, a study of historical data found that ignitions per 100 miles are nearly three times more for electric distribution lines[1] compared with high voltage transmission lines (PG&E, 2019).[2] This is because higher voltage lines are on taller structures and are more widely spaced, which limits their contact with other flammable debris and vegetation and reduces the chances of electrical arcs (Taylor & Roald, 2022; BLM, 2015). Taller, high-voltage transmission or power lines are also typically constructed of fire-resistant steel.

The proposed Project is a maintenance project needed to replace older existing 115 kV power line equipment that has reached the end of its useful life. Upon completion of construction, the aging structures currently in place would be replaced with stronger, safer, more fire-resistant structures and conductors. Overall, the operation of new overhead and underground power lines and structures would reduce the risk of wildfire compared to existing conditions. Impacts would be ***beneficial***.

Likewise, the overhead power line removal between Estates Drive and Oakland X Substation would include removing existing structures out of a seismically active area and areas with localized liquefaction potential. Therefore, this Project component would result in ***beneficial*** geology and soils impacts since this portion of the Project area would no longer include any structures that would be susceptible to adverse effects or create adverse effects.

The EIR has determined that all other potential direct, indirect, and cumulative environmental impacts of the proposed Project would be ***less than significant*** or ***less than significant with the implementation of mitigation measures***. These impacts are described in detail in Section 3 of the Draft EIR.

See Section ES.10 for a summary of impacts.

ES.7. Cumulative Scenario and Impacts

ES.7.1. Cumulative Projects

Under CEQA, "a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts" (CEQA Guidelines §15130(a)(1)). Cumulative impacts can result from "individually minor but collectively significant projects taking place over a period of time" (CEQA Guidelines §15355). An EIR must discuss cumulative impacts if the incremental effect of a project, combined with the effects of other projects is "cumulatively considerable" (CEQA Guidelines §15130(a)). Such incremental effects are to be "viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects" (CEQA Guidelines §15164(b)(1)). Together, these projects comprise the cumulative scenario for the cumulative analysis. Table 5-1, Cumulative Projects in the Project Vicinity, in Chapter 5 shows 19 cumulative projects, all of which are in an approximately 2-mile radius of the proposed Project.

[1] A distribution line is a low voltage power line, operating under 50 kV, that delivers electricity from a substation to individual consumers, like homes and businesses.

[2] A transmission line is a line that operates at or above 200 kV.

ES.7.2. Cumulative Impacts of the Proposed Project and Alternatives

ES.7.2.1. Proposed Project

A detailed analysis of the cumulative effects of the proposed Project is presented in EIR Chapter 5 (Cumulative Scenario and Cumulative Impacts Analysis), including a discussion for each of the 17 disciplines. Each environmental issue area has determined that the proposed Project's contribution to cumulative impacts would not be cumulatively considerable, and therefore cumulative impacts would be less than significant with implementation of mitigation measures, as described in EIR Chapter 5.

ES.7.2.2. Alternatives

All of the retained alternatives would involve similar types of construction activities as the underground power line segment proposed Project. Different roadways would be impacted by the alternative routes, but they would be in the general geographic area of the proposed Project. The same list of cumulative projects that could potentially combine with the proposed Project to result in a cumulative adverse effect (see Table 5-1 and Figure 5-1, Cumulative Projects) would also apply to all of the retained alternatives. Therefore, the cumulative analysis presented above for the proposed Project would also apply to all of the alternatives, and the adverse cumulative effects that are described for the proposed Project would also occur with all of the alternatives.

ES.8. Alternatives

ES.8.1. CEQA Requirements for Alternatives

CEQA Guidelines Section 15126.6(a) states that:

> *An EIR shall describe a reasonable range of alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.*

CEQA Guidelines Section 15364 defines feasibility as:

> *…capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.*

Consideration of a No Project Alternative is a requirement of CEQA Guidelines section 15126.6(3). The No Project Alternative, which is a scenario developed to define the actions that may be implemented if the Proposed Project is not approved or constructed, is analyzed fully in the EIR.

ES.8.2. Alternatives Fully Evaluated in the EIR

Numerous public ~~and agency~~ scoping comments requested that all of the overhead 115 kV lines be removed and installed underground. One agency comment expressed support for undergrounding power lines. Therefore, the EIR team evaluated multiple routing options for underground installation of the 115 kV lines east of Estates Drive (see EIR Chapter 4). The following alternatives were determined to have the potential to avoid or substantially lessen significant effects of the proposed Project and to be potentially feasible. ~~They~~ are analyzed in this EIR and are illustrated in Figure ES-2:

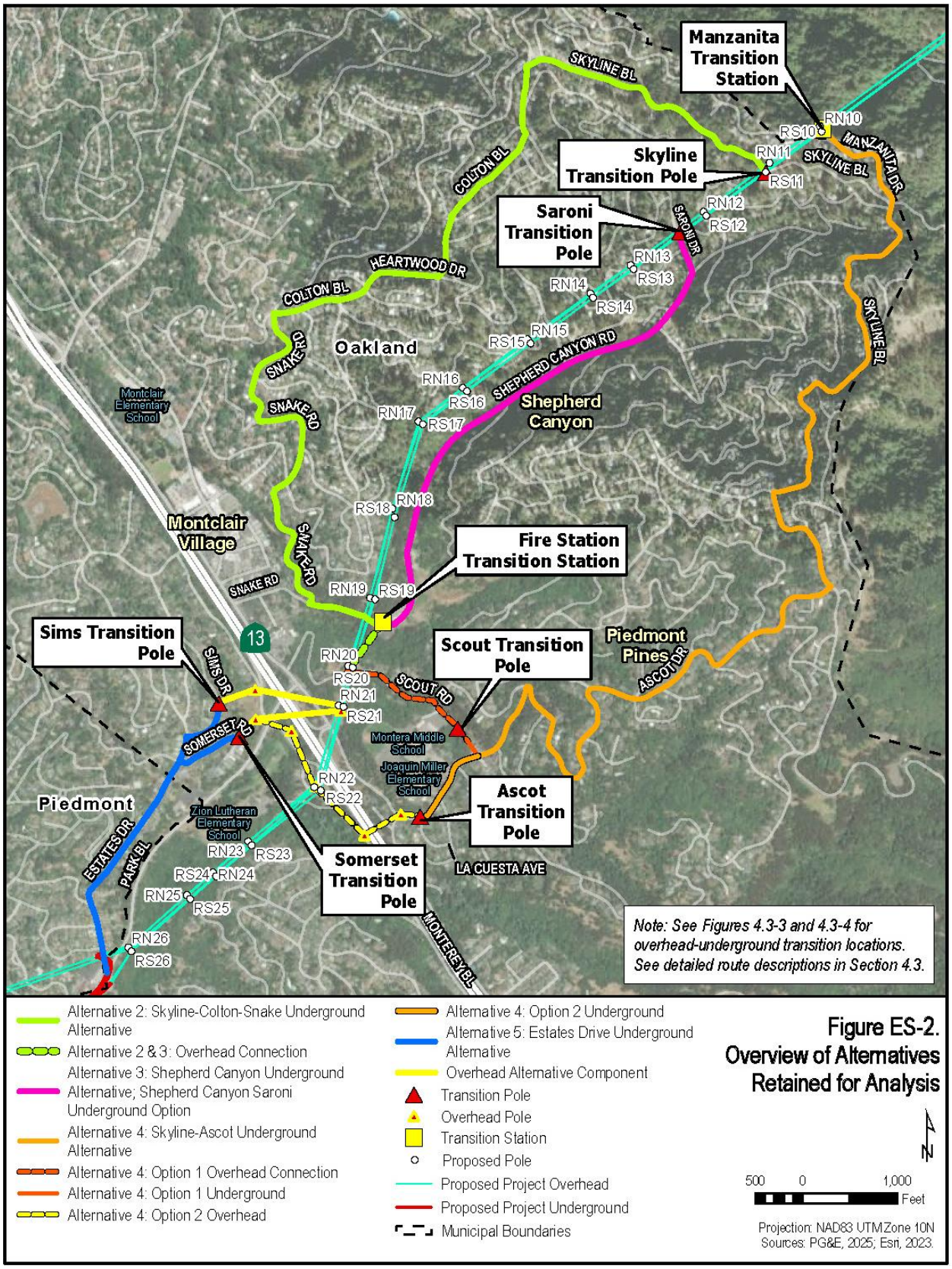
- **Alternative 2**: Skyline-Colton-Snake Underground Alternative: Section 4.3.3
- **Alternative 3:** Shepherd Canyon Underground Alternative: Section 4.3.4
- **Alternative 4:** Skyline-Ascot Underground Alternative: Section 4.3.5
- **Alternative 5**: Estates Drive Underground Alternative: Section 4.3.6

Due to the steep, narrow, and sharply winding roads in the Oakland Hills,[3] placing all four circuits underground in one road may not be feasible due to the width required for two separate double-circuit duct banks. Therefore, each of the three underground alternatives between Manzanita Drive and SR-13 is assumed to support two 115 kV circuits. Installing the four circuits in two different underground roadways would also increase reliability in the event of an outage within one of the roadways since the other two circuits would not be affected.

While four underground alternatives are evaluated in the EIR, it is not possible to confirm the engineering feasibility of these alternatives without much more detailed study and design. If an underground route is selected, further investigation would be required before its feasibility could be confirmed and a design developed. Each underground power line segment would also require construction of transition poles or stations at each point where the lines would transition from overhead to underground or underground to overhead.

[3] The Oakland Hills is an informal term for the area that extends along the eastern side of the City of Oakland, rising from the flatlands to an elevation of about 1,500 feet near Skyline Boulevard and Manzanita Drive.

Figure ES-2. Overview of Alternatives Retained for Analysis



ES.8.2.1. Significant Environmental Effects of the Alternatives

Based on the alternatives analysis in EIR Chapter 4, the EIR has identified ***significant and unavoidable*** construction impacts from the underground alternatives to Transportation and Wildfire, similar to the proposed Project (see Section ES.6.1), except Impact T-7 would be reduced to less than significant with mitigation under Alternatives 3 and 4.

All four underground alternatives are located in areas with known unstable slopes and mapped landslides. PG&E has committed to implementation of APM GEO-3 (Site Specific Landslide Assessment). With this APM, PG&E would identify and implement appropriate design measures if specific the underground power line routes were found to result in the potential for on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. However, there is the potential that the geotechnical investigation may identify unstable slopes that were not visible at the road surface. For the most severe of these conditions, the protective design measures could create offsite impacts to private property or adjacent residences, or extend the construction timeframe by many months. Due to the uncertainty about the extent of the slope stability impacts and the well-known instability of the Oakland Hills, this impact is considered to be ***significant and unavoidable.***

An additional ***significant and unavoidable*** impact to Aesthetics has been identified for Alternative 4. No feasible mitigation has been identified to reduce the following impacts to a less than a significant level.

- **Alternative 4: Skyline-Ascot Underground Alternative (Manzanita Transition Station).** The Moderate to High level of overall visual change that would be experienced from Manzanita Drive as a result of the presence of the Manzanita Transition Station would result in an Aesthetics impact that would be ***significant and unavoidable***. There is no feasible mitigation; any effective screening of the transition station facility from Manzanita Drive would also result in the substantial screening of the dramatic views of ridges and hill slopes now visible to the east from Manzanita Drive.

Significant and unavoidable impacts of the proposed Project and alternatives are summarized in Table ES-1.

Table ES-1. Summary of Significant and Unavoidable Impacts for the Proposed Project and Alternatives

Project/Alternative	Significant Unavoidable Impacts
Proposed Project	Construction ■ Wildfire Impact WF-1 ■ Transportation Impacts T-1, T-4, T-5, T-6, and T-7
Alternative 2: Skyline-Colton-Snake Underground Alternative	Construction ■ Wildfire Impact WF-1 ■ Transportation Impacts T-1, T-4, T-5, T-6, and T-7 O&M ■ Geology/Soils Impact GEO-3
Alternative 3: Shepherd Canyon Underground Alternative	Construction ■ Wildfire Impact WF-1 ■ Transportation Impacts T-1, T-4, T-5, and T-6 O&M ■ Geology/Soils Impact GEO-3
Alternative 4: Skyline-Ascot Underground Alternative	Construction ■ Wildfire Impact WF-1 ■ Transportation Impacts T-1, T-4, T-5, and T-6 O&M ■ Aesthetics Impact AES-3 (Manzanita Transition Station) ■ Geology/Soils Impact GEO-3

Project/Alternative	Significant Unavoidable Impacts
Alternative 5: Estates Drive Underground Alternative	Construction ■ Wildfire Impact WF-1 ■ Transportation Impacts T-1, T-4, T-5, T-6, and T-7 O&M ■ Geology/Soils Impact GEO-3

The EIR has determined that all other potential direct, indirect, and cumulative environmental impacts of the alternatives would be less than significant or less than significant with the implementation of mitigation measures.

Note that additional mitigation measures would be applicable to the underground alternatives, but not to the proposed Project. Specifically, in order to reduce daily NOx emissions to below thresholds and eliminate the significant impact under Impact AQ-2 for any of the underground alternatives, MM AQ-2a (Construction Activity Management Plan) is required. MM AQ-2a would ensure that Project construction is scheduled such that emissions do not exceed Bay Area Air Quality Management District (BAAQMD) thresholds. With the implementation of MM AQ-2a, the air quality emissions impact of any of the underground alternatives would be less than significant.

Also, if Alternatives 2, 4, and/or 5 are selected, implementation of MM T-7a (Implement Alternative Transit Routes) would require PG&E to post signage and coordinate with AC Transit to develop alternate routes for bus transit.

ES.8.3. Alternatives Eliminated from Further Consideration

In addition to the alternatives evaluated in the EIR, alternatives were considered and eliminated by a screening process. Reasons for elimination include (a) inability to meet most basic Project objectives, (b) infeasibility due to economic, environmental, legal, social, technological, or regulatory reasons, or (c) inability to reduce overall environmental impacts in comparison to the proposed Project. These alternatives include those defined in PG&E's PEA (including the PEA alternatives retained and eliminated), as well as other alternatives developed by the EIR team as potential options. Each potential alternative and the rationale for elimination are described in EIR Section 4.4.

PG&E Alternatives Analyzed in PEA but Eliminated in EIR (EIR Section 4.4.1)

- PG&E Alternative A. Moraga–Oakland X 3-Circuit Replacement with Moraga–Claremont Reconductoring and Park Boulevard/Lincoln Avenue Underground
- PG&E Alternative B. Manzanita Drive-Colton Boulevard-Estates Drive Underground
- PG&E Alternative D. All Overhead Replacement in Existing Alignment
- PG&E Alternative E. Proposed Project with Campground Overhead Option
- PG&E Alternative F. Conceptual South Overhead Alignment
- PG&E Alternative G. Distribution Energy Resources
- PG&E Alternative H. Energy Storage

PG&E Alternatives Eliminated in PEA (EIR Section 4.4.2)

- PG&E Water Tank Underground Alternative
- PG&E Pinehurst Underground Alternative
- PG&E Snake Road Underground Alternative
- PG&E Redwood Peak Tunnel Alternative
- PG&E Park Boulevard Underground (between SR-13 and Estates Drive) Alternative
- PG&E Trestle Glen Road Underground Alternative

EIR Team Alternatives Considered and Eliminated (EIR Section 4.4.3)

- Redwood Canyon Underground Alternative
- Underground Crossing of SR-13 (Across the Hayward Fault) Alternative
- Shepherd Canyon Underground East of Saroni Drive Alternative
- HVDC Alternative

ES.8.4. No Project Alternative

CEQA Guidelines Section 15126.6(e) requires evaluation of the effects of not implementing the proposed project, known as the No Project Alternative. The analysis of the No Project Alternative must discuss the existing conditions at the time the Notice of Preparation was published [February 25, 2025], as well as: "what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services" (CEQA Guidelines Section 15126.6(e)(2)). In other words, the scenario evaluates the outcomes or actions that likely would take place without the Project.

Under the No Project Alternative, the existing Moraga–Oakland X 115 kV lines would not be replaced. Lifecycle updates of line would not be completed. Lifecycle updates would occur in a piecemeal fashion for years, as needed based on regular inspections that identify maintenance issues, including additional aging structure replacement. The North American Electric Reliability Corporation (NERC)[4] recommendations to the industry for clearance and wildfire risk reduction would be applied to each structure, and they would be replaced over an undefined period of time, as needed. Undergrounding of the Project's western segment of the lines would not occur, and replacement structures would be constructed at or near each existing location as needed. The reduction of wildfire risk gained by the underground segment would not occur.

ES.9. Summary Comparison of the Proposed Project and Alternatives

ES.9.1. Methodology for Alternatives Comparison

The following methodology was used to compare alternatives in this EIR:

- **Step 1: Identification of Alternatives.** A screening process (described in Chapter 4) was used to identify alternatives to the proposed Project. A No Project Alternative was also identified. This range of alternatives is sufficient to foster informed decision-making and public participation. No other feasible alternatives meeting most of the Project objectives were identified that would lessen or alleviate significant impacts.
- **Step 2: Determination of Environmental Impacts.** The environmental impacts of the proposed Project are identified in Chapter 3, and the environmental impacts of the alternatives are presented in Section 4.5, including the potential impacts of power line construction and operation. ***Significant and unavoidable*** impacts for either construction or operation are listed in Table ES-1.

  A summary of the significant impacts that cannot be mitigated are described in Section ES.6.1 for the proposed Project and Section ES.8.2 for alternatives. Highlighting these areas of significant impacts that the proposed Project cannot avoid identifies the impact of concern when considering whether there is an alternative that would be capable of reducing these effects to a less than significant level compared to the proposed Project, and whether an alternative would create new significant impacts. This simplifies identification of the environmentally superior alternatives while considering all issue areas equally.

[4] NERC stands for the North American Electric Reliability Corporation, a non-profit organization tasked with ensuring the reliability and security of North America's bulk power system.

- **Step 3: Comparison of Proposed Project and Alternatives**. The environmental impacts of the proposed Project were compared to those of each alternative to determine the environmentally superior alternative. The environmentally superior alternative was then compared to the No Project Alternative.

Because each MOX alternative would replace only part of the proposed Project, the alternatives comparison is completed using the following steps:

- **Step 1:** Compare the 3 Oakland Hills underground alternatives (Alternatives 2, 3, and 4) to each other and identify the 2 alternatives with least severe impacts.
  - **Step 1A:** If the Skyline-Ascot Underground Alternative is one of the least impactful alternatives, compare Skyline-Ascot Option 1 with Skyline-Ascot Option 2 to define the option with the least severe impacts.
- **Step 2:** Compare the 2 underground alternatives with the least severe impacts with the proposed Project.
- **Step 3:** Compare Alternative 5 (Estates Drive Underground Alternative) with the proposed Project segment that it would replace.
- **Step 4:** Define the overall least impact combination of alternatives
- **Step 5:** If the least impact combination of alternatives is not the proposed Project, compare the overall least impact combination of alternatives with the proposed Project.
- **Step 6:** Compare the overall least impact combination of alternatives with the No Project Alternative.
- **Step 7:** If the No Project Alternative is determined to have fewer impacts than the assembled least-impact combination of proposed Project and alternatives, identify the alternative with the next least impacts.

Determining an environmentally superior alternative requires balancing many environmental factors. In order to identify the environmentally superior alternative, the most important impacts in each issue area were identified and compared in Section 4.8. Although this EIR identifies an environmentally superior alternative, it is possible that the decision-makers could balance the importance of each impact area differently and reach different conclusions. In other words, the lead agency is not required to select the environmentally superior alternative. CEQA's "substantive mandate" only requires the selection of one alternative over others if that alternative is feasible, based on a list of statutory factors, and if it will avoid one or more significant effects on the environment compared to other alternatives, while not creating its own significant effects.

ES.9.2. Comparison of the Environmentally Superior Alternative with the No Project Alternative

Section 15126.6 of the State CEQA Guidelines requires an EIR identify an "environmentally superior" alternative. If the "no project" alternative is the environmentally superior alternative, then the EIR must identify which of the other alternatives is environmentally superior.

As described in Section 4.7.5.5, the No Project is not the environmentally superior alternative. The most serious result of the No Project Alternative is that the proposed Project's benefit of reduction of wildfire risk would not occur. The Draft EIR concludes that the proposed Project is environmentally superior to the five underground alternatives evaluated in Section 4.5. The components of the proposed Project are illustrated in Figure ES-3, as well as in Figure 2.1-1a and in detail in Figure 2.1-2 (25 pages) in EIR Appendix A.

Figure ES-3. Environmentally Superior Alternative

ES.10. Summary of Impacts

This summary of impacts identifies the impact statements addressed for each resource topic and presents the conclusions regarding the significance of the impacts during both construction and O&M. Where mitigation measures apply, these are identified. In instances where the level of significance would vary (e.g., depending on location of a viewer of the Project) the worst case is used. The cause and nature of the impacts and the details on what is included in the mitigation measures are provided in the individual resource discussions in EIR Section 3, organized by resource topic. Decommissioning activities and potential impacts would be similar to the activities and resulting potential impacts during construction and structure removal.

The summary of impacts and mitigation measures applies to the proposed Project and alternatives, except where noted under Impacts AES-3, AQ-2, GEO-3, T-1, and T-7. Potential impacts from the MOX Project would be eliminated under the No Project Alternative and no mitigation would be implemented.

Aesthetics

Applicant Proposed Measures:	APM AE-1	Aesthetics Impact Reduction During Construction
	APM AE-2	Use of Dulled Galvanized Finish or Corten Steel on Replacement Structures and Non-Specular Conductors

Impact AES-1: Result in a substantial adverse effect on a scenic vista.

Construction and O&M: Less Than Significant

Impact AES-2: Substantially damage scenic resources within a state scenic highway.

Construction and O&M: Less Than Significant

Impact AES-3: In non-urban areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings.

Construction:		Less Than Significant with Mitigation
O&M:		Less Than Significant
O&M (Alt 4: Manzanita Transition Station only):		***Significant and Unavoidable***
Mitigation Measure:	MM AES-3a:	Screen construction activities from view.

Impact AES-4: Conflict with applicable zoning and other regulations governing scenic quality.

Construction and O&M:		Less Than Significant with Mitigation
Mitigation Measure:	MM AES-3a:	Screen construction activities from view.

Impact AES-5: Create a new source of substantial light or glare that would adversely affect daytime or nighttime views.

Construction and O&M: Less Than Significant

Cumulative Impacts for Aesthetics

Mitigation Measure:	MM AES-3a:	Screen construction activities from view

With implementation of mitigation, the Project's incremental contribution to visual impacts would not be cumulatively considerable.

Air Quality

Applicant Proposed Measures:	APM AQ-1	Dust Control During Construction
	APM AQ-2	Asbestos Management
	APM AQ-3	Minimize Construction Equipment Exhaust

Impact AQ-1: Conflict with or obstruct implementation of an applicable air quality plan.

Construction and O&M: Less Than Significant

Impact AQ-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

Construction and O&M (Proposed Project): Less Than Significant
Construction (Underground [UG] Alternatives): Less Than Significant with Mitigation
Mitigation Measure (UG Alternatives only): MM AQ-2a: Construction Activity Management Plan (Alternatives 2, 3, 4, and/or 5).

Impact AQ-3: Expose sensitive receptors to substantial pollutant concentrations.

Construction and O&M: Less Than Significant

Impact AQ-4: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Construction and O&M: Less Than Significant

Cumulative Impacts for Air Quality

Mitigation Measure (UG Alternatives only): MM AQ-2a: Construction Activity Management Plan (Alternatives 2, 3, 4, and/or 5).

The Project's incremental contribution to air quality impacts would not be cumulatively considerable.

Biological Resources

Applicant Proposed Measures:	APM BIO-1	Preconstruction Surveys and Biological Monitoring
	APM BIO-2	Crotch's Bumble Bee and Monarch Butterfly
	APM BIO-3	Foothill Yellow-legged Frog
	APM BIO-4	Northwestern Pond Turtle
	APM BIO-5	Nesting Birds
	APM BIO-6	San Francisco Dusky-footed Woodrat

Additional APMs include:
Bay Area Habitat Conservation Plan (BAHCP) Field Protocols (FPs)
BAHCP Avoidance and Minimization Measures (AMMs)
Bay Area O&M Project Incidental Take Permit (ITP)
Bay Area O&M ITP Final Environmental Impact Report (FEIR)

Impact BIO-1: 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.

Construction:		Less Than Significant with Mitigation
O&M:		Less Than Significant with Mitigation
Mitigation Measures:	MM BIO-1a:	Special-Status Plants Avoidance and Minimization
	MM BIO-1b:	Crotch's Bumble Bee Avoidance and Minimization
	MM BIO-1c:	Monarch Avoidance
	MM BIO-1d:	Northwestern Pond Turtle Avoidance
	~~MM BIO-1e:~~	~~Eagle Avoidance~~

Impact BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

Construction and O&M:	Less Than Significant

Impact BIO-3: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

Construction:		
Overhead Power Line Rebuild/Removal:		Less Than Significant with Mitigation
Underground Power Line:		No Impact
O&M:		Less Than Significant
Mitigation Measures:	MM BIO-3a:	Ephemeral Channel Protection and Restoration.

Impact BIO-4: 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.

Construction:		
Overhead Power Line Rebuild/Removal:		Less Than Significant with Mitigation
Underground Power Line:		Less Than Significant
O&M:		Less Than Significant
Mitigation Measures:	MM BIO-1b:	Crotch's Bumble Bee Avoidance and Minimization
	MM BIO-1c:	Monarch Avoidance
	MM BIO-1d:	Northwestern Pond Turtle Avoidance
	~~MM BIO-1e:~~	~~Eagle Avoidance~~

Impact BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Construction:		Less Than Significant with Mitigation
O&M:		Less Than Significant
Mitigation Measures:	MM BIO-5a:	Tree Trimming and Removal Requirements

Impact BIO-6: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Construction and O&M: No Impact

Impact BIO-7: Create a substantial collision or electrocution risk for birds or bats.

Construction:
Overhead Power Line Rebuild: Less Than Significant
Overhead Power Line Removal: No Impact
Underground Power Line: No Impact
O&M: Less Than Significant ~~with Mitigation~~
~~*Mitigation Measures:* MM BIO-7a: Bird and Bat Collision Reduction~~

Cumulative Impacts for Biological Resources

Mitigation Measures:
MM BIO-1a: Special-Status Plants Avoidance and Minimization
MM BIO-1b: Crotch's Bumble Bee Avoidance and Minimization
MM BIO-1c: Monarch Avoidance
MM BIO-1d: Northwestern Pond Turtle Avoidance
~~MM BIO-1e: Eagle Avoidance~~
MM BIO-3a: Ephemeral Channel Protection and Restoration
MM BIO-5a: Tree Trimming and Removal Requirements
~~MM BIO-7a: Bird and Bat Collision~~

With implementation of mitigation, the Project's incremental contribution to biological resources impacts would not be cumulatively considerable.

Cultural Resources

Applicant Proposed Measures*:*
APM CUL-1 Workers Environmental Awareness Program
APM CUL-2 Discovery of Unanticipated Cultural Resources
APM CUL-3 Unanticipated Discovery of Human Remains

Impact CUL-1: Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5.

Construction: Less Than Significant with Mitigation
O&M: No Impact
Mitigation Measure: MM N-2a: Vibration Assessment and Control

Impact CUL-2: Cause a substantial adverse change in the significance of unique archaeological resources or archaeological resources as defined in State CEQA Guidelines Section 15064.5.

Construction: Less Than Significant
O&M: No Impact

Impact CUL-3: Disturb human remains, including those interred outside of formal cemeteries.

Construction: Less Than Significant
O&M: No Impact

Cumulative Impacts for Cultural Resources

Mitigation Measure: MM N-2a: Vibration Assessment and Control.

With implementation of mitigation, the Project's incremental contribution to cultural resources impacts would not be cumulatively considerable.

Energy

Impact EN-1: Result in wasteful, inefficient, or unnecessary consumption of energy.

Construction: Less Than Significant
O&M: No Impact

Impact EN-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Construction: Less Than Significant
O&M: No Impact

Cumulative Impacts for Energy

The Project's incremental contribution to energy impacts would not be cumulatively considerable.

Geology and Soils

Applicant Proposed Measures:
- APM GEO-1: Development of Seismic Design Criteria and Appropriate Seismic Safety Design Measures Implementation
- APM GEO-2: Site-Specific Landslide Assessment
- APM GEO-3: Appropriate Design Measures Implementation
- APM HAZ-3: Shock Hazard Safety Measures
- APM HYD-1: Prepare and Implement a SWPPP
- APM AIR-1: Dust Control During Construction

Impact GEO-1: Directly or indirectly cause or exacerbate potential substantial adverse effects, including the risk of loss, injury, or death, due to rupture of a known earthquake fault, seismic ground shaking, or liquefaction.

Construction: Less Than Significant
O&M:
- *Overhead Rebuild:* Less Than Significant
- *Underground Power Line:* Less Than Significant
- *Overhead Power Line Removal:* Beneficial

Impact GEO-2: Result in substantial soil erosion or loss of topsoil.

Construction and O&M: Less Than Significant

Impact GEO-3: Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off- site landslide, lateral spreading, subsidence, liquefaction, or collapse.

Construction:	Less Than Significant
O&M:	
Overhead Rebuild:	Less Than Significant
Underground Power Line:	Less Than Significant
Overhead Power Line Removal:	Beneficial
Alternatives 2, 3, 4, and 5:	***Significant and Unavoidable***

Impact GEO-4: Be located on expansive soil, creating substantial direct or indirect risks to life and property.

Construction and O&M:	Less Than Significant

Cumulative Impacts for Geology and Soils

The Project's incremental contribution to geology and soils impacts would not be cumulatively considerable.

Greenhouse Gas Emissions

Applicant Proposed Measures:	APM GHG-1	PG&E Minimize GHG Emissions
	APM GHG-2	PG&E Minimize SF6 Emissions

Impact GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

Construction and O&M:	Less Than Significant

Impact GHG-2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing greenhouse gas emissions.

Construction and O&M:	Less Than Significant

Cumulative Impacts for Greenhouse Gas Emissions

The Project's incremental contribution to greenhouse gas emissions impacts would not be cumulatively considerable.

Hazards, Hazardous Materials, and Public Safety

Applicant Proposed Measures:	APM HAZ-1:	Development and Implementation of Hazardous Material and Emergency Response Procedures
	APM HAZ-2:	Emergency Spill Supplies and Equipment
	APM HAZ-3:	Shock Hazard Safety Measures
	APM HAZ-4:	Worker Environmental Awareness Training Program
	APM HAZ-5:	Potentially Contaminated Soil or Groundwater
	APM AIR-2:	Asbestos Management

Impact HH-1: Create a significant risk to the public or the environment from the routine use, transport, storage, and disposal of hazardous materials.

Construction:		
Overhead Power Line Rebuild/Removal:		Less Than Significant
Underground Power Line:		Less Than Significant with Mitigation
O&M:		Less Than Significant
Mitigation Measure:	MM HH-1a:	Prepare and Implement a Soil Management Plan

Impact HH-2: Create a significant risk to human health and the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials.

Construction and O&M:	Less Than Significant

Impact HH-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

Construction:		
Overhead Power Line Rebuild/Removal:		Less Than Significant
Underground Power Line:		Less Than Significant with Mitigation
O&M:		Less Than Significant
Mitigation Measure:	MM HH-1a:	Prepare and Implement a Soil Management Plan

Impact HH-4: Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

Construction and O&M:	Less Than Significant

Impact HH-5: Create a significant hazard to air traffic from the installation of new power lines and structures.

Construction:	
Overhead Transmission Line Rebuild:	Less Than Significant
Overhead Transmission Line Removal:	No Impact
Underground Transmission Line:	Less Than Significant
O&M:	Less Than Significant

Impact HH-6: Create a significant hazard to the public or environment through the transport of heavy materials using helicopters.

Construction:		
Overhead Transmission Line Rebuild:		Less Than Significant with Mitigation
Overhead Transmission Line Removal:		No Impact
Underground Transmission Line:		No Impact
O&M:		
Overhead Transmission Line Rebuild:		Less Than Significant
Underground Transmission Line:		No Impact
Mitigation Measure:	MM HH-6a:	Prepare and Implement a Helicopter Safety Plan

Impact HH-7: Expose workers or the public to excessive shock hazards.

Construction and O&M: Less Than Significant

Cumulative Impacts for Hazards, Hazardous Materials, and Public Safety

Mitigation Measures:
MM HH-1a: Prepare and Implement a Soil Management Plan
MM HH-6a: Prepare and Implement a Helicopter Safety Plan

With implementation of mitigation, the Project's incremental contribution to hazards, hazardous materials, and public safety impacts would not be cumulatively considerable.

Hydrology and Water Quality

Applicant Proposed Measures:
APM HYD-1 Prepare and Implement a SWPPP
APM HYD-2 Worker Environmental Awareness Program
APM HYD-3 Project Site Restoration
APM HAZ-1 Development and Implementation of Hazardous Material and Emergency Response Procedures
APM HAZ-2 Emergency Spill Supplies and Equipment
APM HAZ-4 Worker Environmental Awareness Training Program
APM HAZ-5 Potentially Contaminated Soil or Groundwater
APM AIR-1 Dust Control During Construction
Field Protocol FP-12
Field Protocol FP-15
AMM Plant-01

Impact HW-1: Violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.

Construction: Less Than Significant with Mitigation
O&M: Less Than Significant
Mitigation Measure: MM HH-1a: Prepare and Implement a Soil Management Plan

Impact HW-2: Substantially decrease groundwater supplies or interfere with groundwater recharge such that the Project may impede sustainable groundwater management of the basin.

Construction and O&M: Less Than Significant

Impact HW-3: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion, flooding, or excessive runoff.

Construction and O&M: Less Than Significant

Impact HW-4: Risk release of pollutants due to Project inundation in flood hazard, tsunami, or seiche zones.

Construction and O&M: Less Than Significant

Impact HW-5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Construction:		Less Than Significant with Mitigation
O&M:		Less Than Significant
Mitigation Measure:	MM HH-1a:	Prepare and Implement a Soil Management Plan

Cumulative Impacts for Hydrology and Water Quality

Mitigation Measure:	MM HH-1a:	Prepare and Implement a Soil Management Plan

With implementation of mitigation, the Project's incremental contribution to hydrology and water quality impacts would not be cumulatively considerable.

Noise

Applicant Proposed Measures*:* [*Superseded by MMs N-1a and N-1b]*	APM NOI-1	General Construction Noise Management
	APM NOI-2	Noise Minimization with Portable Barriers
	APM NOI-3	Noise Minimization with Quiet Equipment
	APM NOI-4	Noise Minimization through Direction of Exhaust
	APM NOI-5	Nighttime Noise Disruption Minimization through Residential Notification
	APM NOI-6	Helicopter Noise Minimization Measures
	APM NOI-7	Noise Minimization Equipment Specification
	APM NOI-8	Incorporate Vibration Assessment into Project Construction [*Superseded by MM N-2a]*

Impact N-1: Expose persons to or generate a substantial temporary or permanent increase in noise levels in excess of established standards.

Construction:		Less Than Significant with Mitigation
O&M:		Less Than Significant
Mitigation Measures:	MM N-1a:	General Construction Noise Management
	MM N-1b:	Construction Notification

Impact N-2: Expose persons to or generate excessive groundborne vibration.

Construction:		Less Than Significant with Mitigation
O&M:		Less Than Significant
Mitigation Measures:	MM N-2a:	Vibration Assessment and Control

Cumulative Impacts for Noise

Mitigation Measures:	MM N-1a:	General Construction Noise Management
	MM N-1b:	Construction Notification
	MM N-2a:	Vibration Assessment and Control

With implementation of mitigation, the Project's incremental contribution to noise impacts would not be cumulatively considerable.

Paleontological Resources

Applicant Proposed Measures:	APM PAL-1	Retain a Qualified Paleontological Principal Investigator
	APM PAL-2	Worker Environmental Awareness Training
	APM PAL-3	Paleontological Resource Monitoring for Select Construction Activities
	APM PAL-4	Unanticipated Paleontological Discovery.

Impact PAL-1: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Construction:		
Overhead Power Line Rebuild:		Less Than Significant
Overhead Power Line Removal:		No Impact
Underground Power Line:		Less Than Significant
O&M:		No Impact

Cumulative Impacts for Paleontological Resources

The Project's incremental contribution to paleontological resources impacts would not be cumulatively considerable.

Public Services

Applicant Proposed Measures:	APM TRA-1	PG&E Temporary Traffic Controls
	APM WFR-1	Construction Fire Prevention Plan
	APM WFR-2	Fire Prevention Practices

Impact PS-1: Result in substantial adverse impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, or healthcare facilities.

Construction:		Less Than Significant with Mitigation
O&M:		Less Than Significant
Mitigation Measures:	MM N-1b:	Construction Notification
	MM T-1a:	Traffic Management Plan and Safe Transport

Cumulative Impacts for Public Services

Mitigation Measures:	MM N-1b:	Construction Notification
	MM T-1a:	Traffic Management Plan and Safe Transport

With implementation of mitigation, the Project's incremental contribution to public services impacts would not be cumulatively considerable.

Recreation

Applicant Proposed Measures:	APM R-1	Coordination with Park and Open Space Management and Signage [*Superseded by MM REC-3a*]
	APM NOI-1	General Construction Noise Management [*Superseded by MM N-1a*]

	APM NOI-2	Noise Minimization with Portable Barriers
	APM NOI-3	Noise Minimization with Quiet Equipment
	APM AIR-1	Dust Control During Construction
	APM AIR-3	Minimize Construction Equipment Exhaust
	APM TRA-1	PG&E Temporary Traffic Controls
	APM HYD-3	Project Site Restoration

Impact REC-1: Increase the use of existing parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

Construction and O&M:		Less Than Significant

Impact REC-2: Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Construction:		Less Than Significant with Mitigation
O&M:		No Impact
Mitigation Measure:	MM N-1a:	General Construction Noise Management

Impact REC-3: Reduce or prevent access to a designated recreation facility or area.

Construction:		Less Than Significant with Mitigation
O&M:		Less Than Significant
Mitigation Measures:	MM N-1b:	General Construction Noise Management
	MM REC-3a:	Coordinate with Park and Open Space management and provide signage, barriers, and monitors to ensure safety of trail and park users.

Impact REC-4: Substantially change the character of a recreational area by reducing the scenic, biological, cultural, geologic, or other important characteristics that contribute to the value of recreational facilities or areas.

Construction and O&M:		Less Than Significant

Impact REC-5: Damage recreational trails or facilities.

Construction:		Less Than Significant with Mitigation
O&M:		Less Than Significant
Mitigation Measure:	MM REC-5a:	Coordinate with recreation facility owners or managers to identify feasible alternatives and address damage to recreation assets.

Cumulative Impacts for Recreation

Mitigation Measures:	MM N-1a:	General Construction Noise Management
	MM N-1b:	General Construction Noise Management
	MM REC-3a:	Coordinate with Park and Open Space management and provide signage, barriers, and monitors to ensure safety of trail and park users.
	MM REC-5a:	Coordinate with recreation facility owners or managers to identify feasible alternatives and address damage to recreation assets.

With implementation of mitigation, the Project's incremental contribution to recreation impacts would not be cumulatively considerable.

Transportation

Applicant Proposed Measures:	APM TRA-1	Temporary Traffic Controls
	APM TRA-2	Repair of Damaged Transportation Infrastructure
	APM WFR-1	Construction Fire Prevention Plan
	APM WFR-2	Fire Prevention Practices
	Field Protocol FP-12	

Impact T-1: Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

Construction:		***Significant and Unavoidable***
O&M:		Less Than Significant
Mitigation Measures:	MM T-1a:	Traffic Management Plan and Safe Transport
	MM N-1b:	Construction Notification

Impact T-2: Conflict or be inconsistent with State CEQA Guidelines Section 15064.3(b) regarding vehicle miles traveled.

Construction and O&M:	Less Than Significant

Impact T-3: Substantially increase hazards due to a geometric design feature or incompatible uses.

Construction:		Less Than Significant with Mitigation
O&M:		Less Than Significant
Mitigation Measures:	MM T-1a:	Traffic Management Plan and Safe Transport
	MM N-1b:	Construction Notification
	MM WF-1c:	School Construction Timing Restriction

Impact T-4: Result in inadequate emergency access.

Construction:		
Overhead Power Line Rebuild:		***Significant and Unavoidable***
Overhead Power Line Removal:		Less Than Significant with Mitigation
Underground Power Line:		Less Than Significant with Mitigation
O&M:		Less Than Significant
Mitigation Measures:	MM T-1a:	Traffic Management Plan and Safe Transport
	MM N-1b:	Construction Notification.
	MM WF-1c:	School Construction Timing Restriction

Impact T-5: Create potentially hazardous conditions for residents, people walking, bicycling, or driving or for public transit operations.

Construction:	
Overhead Power Line Rebuild:	***Significant and Unavoidable***
Overhead Power Line Removal:	Less Than Significant with Mitigation
Underground Power Line:	Less Than Significant with Mitigation
O&M:	Less Than Significant

Mitigation Measures:	MM T-1a:	Traffic Management Plan and Safe Transport
	MM N-1b:	Construction Notification
	MM WF-1c:	School Session Construction Timing Restriction

Impact T-6: Interfere with walking or bicycling accessibility.

Construction:		
Overhead Power Line Rebuild:		***Significant and Unavoidable***
Overhead Power Line Removal:		Less Than Significant with Mitigation
Underground Power Line:		Less Than Significant with Mitigation
O&M:		Less Than Significant
Mitigation Measures:	MM T-1a:	Traffic Management Plan and Safe Transport
	MM N-1b:	Construction Notification
	MM WF-1c:	School Session Construction Timing Restriction

Impact T-7: Substantially delay public transit.

Construction:		
Proposed Project, Alternatives 2 and 5:		***Significant and Unavoidable***
Alternatives 3 and 4:		Less Than Significant with Mitigation
O&M:		Less Than Significant
Mitigation Measures:	MM T-1a:	Traffic Management Plan and Safe Transport
	MM N-1b:	Construction Notification
	MM T-7a:	Implement Alternative Transit Routes (for Alternatives 2, 4, and/or 5 only).

Cumulative Impacts for Transportation

Mitigation Measures:	MM T-1a:	Traffic Management Plan and Safe Transport
	MM N-1b:	Construction Notification
	MM WF-1c:	School Session Construction Timing Restriction
	MM T-7a:	Implement Alternative Transit Routes (for Alternatives 2, 4, and/or 5 only).

With implementation of mitigation, the Project's incremental contribution to transportation and traffic impacts would not be cumulatively considerable.

Tribal Cultural Resources

Applicant Proposed Measure*:*	APM TCR-1	Undiscovered Potential Tribal Cultural Resources

Impact TCR-1: Cause a substantial adverse change in the significance of a Tribal Cultural Resource 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).

Construction and O&M:	No Impact

Impact TCR-2: Cause a substantial adverse change in the significance of a Tribal Cultural 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 § 5024.1.

Construction:		Less Than Significant with Mitigation
O&M:		No Impact
Mitigation Measures:	MM TCR-2a:	Native American Monitoring
	MM TCR-2b:	Unanticipated Discovery of Tribal Cultural Resources
	MM TCR-2c:	Unanticipated Discovery of Human Remains

Cumulative Impacts for Tribal Cultural Resources

The Project's incremental contribution to tribal cultural resources impacts would not be cumulatively considerable.

Utilities and Service Systems

Impact US-1: Require or result in relocated, new, or expanded water, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects.

Construction:		Less Than Significant with Mitigation
O&M:		Less Than Significant
Mitigation Measures:	MM N-1b:	Construction Notification
	MM US-1a:	Underground Utilities Accident Response Plan

Impact US-2: Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.

Construction and O&M:	Less Than Significant

Impact US-3: 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 and comply with federal, state, and local management and reductions statues and regulations related to solid waste.

Construction and O&M:	Less Than Significant

Impact US-4: Increase the rate of corrosion in nearby pipelines

Construction:	No Impact
O&M:	Less Than Significant

Cumulative Impacts for Utilities and Service Systems

Mitigation Measures:	MM N-1b:	Construction Notification.
	MM US-1a:	Underground Utilities Accident Response Plan

With implementation of mitigation, the Project's incremental contribution to utilities and service systems impacts would not be cumulatively considerable.

Wildfire

Applicant Proposed Measures:	APM TRA-1	Temporary Traffic Controls
	APM WFR-1	Construction Fire Prevention Plan
	APM WRF-2	Fire Prevention Practices

Impact WF-1: Substantially impair an adopted emergency response plan or emergency evacuation plan.

Construction:		
Overhead Power Line Rebuild:		Significant and Unavoidable
Overhead Power Line Removal:		Less Than Significant with Mitigation
Underground Power Line:		Less Than Significant with Mitigation
O&M:		Less Than Significant
Mitigation Measures:	MM T-1a:	Traffic Management Plan and Safe Transport
	MM N-1b:	Construction Notification
	MM WF-1a:	Prepare Emergency Evacuation Plan
	MM WF-1b:	Limit Full Road Closures
	MM WF-1c:	School Session Construction Timing Restriction

Impact WF-2: Exacerbate wildfire risk and thereby expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildfire or the uncontrolled spread of a wildfire.

Construction and Maintenance:	Less Than Significant
Operation:	Beneficial

Impact WF-3: Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Construction and O&M:	Less Than Significant

Cumulative Impacts for Wildfire

Mitigation Measures:	MM T-1a:	Traffic Management Plan and Safe Transport
	MM N-1b:	Construction Notification
	MM WF-1a:	Prepare Emergency Evacuation Plan
	MM WF-1b:	Limit Full Road Closures
	MM WF-1c:	School Session Construction Timing Restriction

With implementation of mitigation, the Project's incremental contribution to wildfire impacts would not be cumulatively considerable.

ES.11. References

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Taylor & Roald, 2022. A framework for risk assessment and optimal line upgrade selection to mitigate wildfire risk, Electric Power Systems Research, Volume 213, 2022, 108592, ISSN 0378-7796. https://www.sciencedirect.com/science/article/abs/pii/S0378779622006794#:~:text=For%20example%2C%20per%20mile%20of%20power%20line%2C,fires%20and%20fire%20spread%20is%20readily%20available. Accessed March 26, 2025.

1. INTRODUCTION

On November 15, 2024, Pacific Gas and Electric Company (PG&E or the Applicant) submitted Application A.24-11-005 to the California Public Utilities Commission (CPUC), seeking a Permit to Construct (PTC) for the Moraga-Oakland X 115 Kilovolt (kV) Rebuild Project (proposed Project, Project, or MOX Project).

The CPUC is lead agency under the California Environmental Quality Act (CEQA) and has prepared this Environmental Impact Report (EIR) to inform the public and to meet the needs of local, State, and federal permitting agencies. The EIR evaluates the impacts of the proposed Project and Project alternatives.

This EIR evaluates and presents the environmental impacts that are expected to result from construction and operation of PG&E's proposed MOX Project, and presents recommended mitigation measures that, if adopted, would avoid or minimize any of the significant environmental impacts identified. In accordance with CEQA requirements, this EIR also identifies alternatives to the proposed Project (including the No Project Alternative) that could avoid or minimize significant environmental impacts associated with the Project as proposed by PG&E, and evaluates the environmental impacts associated with these alternatives. Based on this environmental impact report, as well as the relative sensitivities of impacts in the study region, this EIR identifies the Environmentally Superior alternative as required by CEQA.

This EIR does not make a recommendation regarding the approval or denial of the proposed Project or any alternative; it is purely informational and will be used by the CPUC in considering whether to approve the proposed Project or an alternative analyzed in this EIR.

The CPUC's CEQA process has incorporated outreach and notification to Native American tribes in the Project area consistent with Assembly Bill 52, as further described in Section 1.5. In addition, the contents of this EIR reflect input by government officials, agencies, nongovernmental organizations, and members of the public during the EIR scoping period following the CPUC's publication of the Notice of Preparation (NOP) of an EIR. The NOP was issued on February 25, 2025, and the scoping comment period ended on March 27, 2025. To obtain input on the Project, its impacts, and potential alternatives, several public involvement activities were completed: distribution of the NOP, mailing of a postcard with scoping meeting information, two newspaper ads announcing the NOP and scoping meetings, two virtual public scoping meetings, meetings with a number of affected local jurisdictions, and publication of a Scoping Report.

The remainder of this section provides an overview of the proposed Project and explains the purpose and objectives of the proposed Project. It describes agency use of the EIR, summarizes the Native American consultation process, and summarizes scoping comments. The public review period for the Draft EIR is explained, and a Reader's Guide to this EIR is presented, explaining how the EIR is organized and defining CEQA and Project terminology.

1.1. California Environmental Quality Act

Under CEQA, as amended (Public Resources Code Section 21080(a)), an environmental review document must be prepared, reviewed, and certified by the decision-making body before action is taken on any non-exempt discretionary project proposed to be carried out or approved by a State or local public agency in the State of California. Following CEQA review, the CPUC, as the lead agency, has the authority to act first on the Project before any of the responsible agencies take action on the Project (see Section 1.4.3, Anticipated Permits and Approvals). The CPUC Administrative Law Judge (ALJ) and Commissioners will use the EIR for decision-making regarding the proposed Project. If the proposed Project is approved by all required permitting agencies, the CPUC would be responsible for reviewing and approving all CEQA-related pre-construction compliance plans and ensuring that the proposed Project modifications and operations are conducted in accordance with the mitigation measures and other permit conditions.

1.1.1. Purpose of the EIR

This EIR is an informational disclosure document for the CPUC, responsible agencies, and other interested parties. According to Section 15121(a) of the State CEQA Guidelines:

> *"[An EIR] will inform public agency decision-makers and the public generally of the significant environmental effect of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project. The public agency shall consider the information in the EIR along with other information which may be presented to the agency."*

Section 15151 of the State CEQA Guidelines provides the following standards for EIR adequacy:

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

This EIR has been distributed for review to responsible agencies, trustee agencies with resources affected by the Project, and other interested agencies and individuals. The CPUC will consider the Draft EIR, comments received on the Draft EIR, responses to those comments, and any changes to the Draft EIR, before deciding whether to certify the Final EIR as complying with CEQA and taking action on the proposed Project.

Comments on the Draft EIR should focus on the adequacy of the document in identifying and analyzing the potential environmental effects, determination of significance, and effectiveness of mitigation measures.

1.2. Purpose and Need

PG&E's stated purpose and need for the Project are to provide lifecycle updates of structures, address 2010 North American Electric Reliability Corporation (NERC) recommendations (R-2010-10-07-01) to industry and California Public Utilities Commission (CPUC) General Order (GO) 95 requirements by rebuilding the four-circuit Moraga–Oakland X path, and reconductor existing project power lines to accommodate the future energy needs in the north Oakland area. Circuits 1 and 2 were installed circa 1908, and Circuits 3 and 4 were installed circa 1931. The entire path requires replacement for safe operation of the power lines. PG&E has stated that inspections found corrosion of some of the steel structures and instances of inadequate ground to conductor clearances that have been corrected through maintenance activities in recent years. The proposed Project is intended to replace power line equipment on the path that has reached the end of its useful life and ensure ongoing adequate line clearances between the ground or land use once replaced.

The north Oakland area is supplied with electric power via a 115 kV system from Moraga and Sobrante substations. The four Moraga–Oakland X 115 kV lines are one of the 115 kV paths that deliver power into the north Oakland area. The path is part of a local 115 kV system that delivers power to six PG&E substations with distribution facilities in the north Oakland area (Claremont K, Oakland D, Oakland L, Oakland C, Oakland X and Oakland J substations). Customers in the cities of Oakland, Piedmont, Berkeley, Emeryville, Alameda, unincorporated Contra Costa County, as well as the Port of Oakland municipal electric utility, the Schnitzer Steel plant, and the City of Alameda's Cartwright Substation, are served by the six distribution substations.

1.2.1. California Independent System Operator Consideration of the Project

The electricity industry includes utilities, private power plant owners, and state and federal agencies, each playing a distinct role. The California Independent System Operator (CAISO), a nonprofit public-benefit corporation, is charged with ensuring the safe and reliable transportation of electricity on the power grid serving 80 percent of California and a small part of Nevada. As the impartial grid operator, CAISO does not have a financial interest in any individual segment, ensuring fair and transparent access to the transmission network and market transactions.

The CAISO conducts an annual transmission planning process (TPP) that uses engineering tools to identify grid modifications necessary to maintain reliability, lower costs, or meet future infrastructure needs based on public policies. CAISO engineers design, run, and analyze complex formulas and models that simulate power grid use under wide-ranging scenarios, including high-demand days and contingencies for various types of outages. The CAISO TPP includes evaluating proposals submitted for study into the interconnection queue to determine their viability and impact to the grid (PG&E, 2024).

PG&E submitted, in September 2019, a proposal to rebuild the four Moraga–Oakland X 115 kV lines with three lines for CAISO to review in the 2019-2020 TPP. The Northern Oakland Area Reinforcement project that was evaluated in the 2019-2020 TPP included the following (CAISO, 2020):

1. Rebuild Moraga–Oakland X 115 kV four-line path with three lines with conductor rated for 1,100 amperes (amps) or higher summer emergency rating.
2. Reconductor Moraga-Claremont circuits 1 and 2 115 kV lines with conductor rated for 1,100 amps or higher summer emergency rating.
3. Build a new 115 kV line from Oakland X to Oakland L substation with conductor rated for 1,100 amps or higher summer emergency rating.
4. Upgrade Moraga 230 kV Bus (add sectionalizing breakers and a bus tie breaker to Moraga 230 kV bus).

In the final 2019-2020 TPP (p. 107), approved by the CAISO Board in March 2020, CAISO summarized its position on the Northern Oakland Area Reinforcement as follows:

> *Out of the four scopes mentioned above, the ISO has separately recommended approval of the Moraga 230 kV bus upgrade as this project also provides benefit and mitigates overloads identified in the Diablo division.*
>
> *Building of a new 115 kV line from Oakland X to Oakland L substation could address long-term need of serving growing load at Oakland D & L substations beyond what has been identified in this year's assessment. As such, the ISO will continue to monitor need for this part of the scope in future cycle.*
>
> *Rebuilding of Moraga-Oakland X 115 kV four-line path with three lines and reconductoring of the Moraga-Claremont #1 & #2 115 kV lines are primarily driven by CPUC GO-95 compliance and the work will be performed under PG&E's maintenance budget. The ISO reviewed and concurs with the proposed scope of work.*

CASIO concurred with the proposal to rebuild the four Moraga–Oakland X 115 kV lines with three lines as being primarily driven by CPUC General Order (GO) 95 compliance, and that work would be performed under PG&E's maintenance budget (PG&E, 2024).

The proposal to rebuild the Moraga–Oakland X 115 kV four-line path with three lines, as described in the 2019-2020 TPP has been modified since PG&E's 2019 submittal to the CAISO. In the proposed Project that is the subject of this CEQA review, PG&E would now rebuild Moraga–Oakland X 115 kV four-line path with four circuits that each have conductor rated for 1,212 amps or higher summer emergency rating.

Rebuilding all four lines would help to resolve overloads identified by CAISO in 2026 summer conditions (PG&E, 2025a). Additional transmission upgrades for the area were also proposed by PG&E as part of a new North Oakland Reinforcement Project for evaluation in the CAISO 2024-2025 TPP cycle, and these additional upgrades were approved by the CAISO Board on May 30, 2025 (CAISO, 2025). The North Oakland Reinforcement Project as approved in 2025 by the CAISO Board is included as part of the cumulative scenario in EIR Chapter 5.

Relative to the rebuild that was considered previously in the CAISO 2019-2020 TPP, the currently proposed Project modifies that proposal and would increase transmission capacity in the north Oakland area, where significant load growth is expected (PG&E, 2025a). PG&E's proposed MOX Project modifies the previously described project by rebuilding the four existing lines with a four-line path and higher capacity conductors instead of the previous proposal of three lines. While the additional capacity provided by the proposed MOX Project would help accommodate load growth, the proposed MOX Project would not necessitate the use of this capacity by North Oakland Reinforcement Project. PG&E anticipates the North Oakland Reinforcement Project would proceed, even if the MOX Project is not approved as proposed (PG&E, 2025c).

The proposed Project was not part of a CAISO competitive bid process because the work would be performed under PG&E's maintenance budget. PG&E plans to ~~submit as-built information on the MOX Project to~~ inform CAISO after receiving project approval and a Permit to Construct from the CPUC (PG&E, 2025c). As built information would not be available until project construction is completed.

1.2.2. Project Objectives

PG&E-identified Project objectives, which have been considered by the CPUC in developing a reasonable range of alternatives, are:

1. Provide lifecycle updates of Moraga–Oakland X 115 kV four circuit power line path by removing and replacing four circuits to avoid future reliability issues while maintaining safe operations.
2. Replace four project power line circuits using a larger size conductor that will accommodate the region's reasonably foreseeable future energy demands.
3. Ensure the project at completion meets power line reliability and safety requirements, and industry standards.
4. Construct a safe, economical, and technically feasible project that minimizes environmental and community impacts.

Economic Characteristics of the Project. CEQA Guidelines Section 15124(c) requires that an EIR describe the Project's technical, economic, and environmental characteristics, considering its principal engineering proposals and any supporting public service facilities.

The CPUC's purpose for the Project is to ensure compliance with safety standards, allowing continued provision of safe and reliable electric service. As stated in PG&E's 2024 PTC Application, the estimated capital cost of the MOX Project is approximately $276.8 million in 2024 constant dollars[3].

The environmental characteristics of the project are described in EIR Section 3 (Environmental Analysis for the proposed Project) and EIR Section 5 (Cumulative Scenario and Cumulative Impact Analysis).

[3] PG&E's Preliminary EMF Field Management Plan estimates a Project cost of $440 million, which PG&E states represents the "worst case" for total Project cost. The worst case would realize all Project risks. The expected Project cost at completion, which incorporates some level of risk, is $276.8 million. This is the cost used in PG&E's PTC Application (PG&E, 2024; PG&E, 2025b).

1.3. Project Overview

1.3.1. Project Applicant

PG&E is the project Applicant for the proposed Project and will modify its existing PG&E facilities for all components of the proposed Project. Communication equipment owned by AT&T located on two PG&E structures will be relocated by AT&T.

PG&E provides natural gas and electric service to approximately 16 million people throughout a 70,000 square-mile service area in northern and central California. The PG&E service area stretches from Eureka in the north to Bakersfield in the south, and from the Pacific Ocean in the west to the Sierra Nevada Range in the east. Electric interconnected transmission lines cover approximately 18,466 circuit miles to serve approximately 5.5 million electric customer accounts. The MOX Project is within PG&E's Bay Area Region, which serves approximately 1.8 million electric customers in Contra Costa, Alameda, San Francisco, and San Mateo counties. Approximately 27,200 electric and gas line miles are in the Bay Area Region. The Project's four-line 115 kV path is one of the 115 kV paths that serve customers in the eastern counties of the Bay Area Region, including the cities of Oakland, Piedmont, and Alameda.

The Project is part of a local 115 kV system that delivers power to six PG&E distribution substations in the north Oakland area, which serve approximately 200,000 customers, as well as the Port of Oakland's municipal electric utility, the Schnitzer Steel plant, and the City of Alameda's Cartwright Substation. The north Oakland area serves customers in the cities of Oakland, Piedmont, and Alameda.

1.3.2. Summary of Proposed Project

The proposed Moraga–Oakland X 115 kV Rebuild Project would upgrade approximately 5-miles of four overhead 115 kV power lines between Moraga and Oakland X Substations. The lines are in the City of Orinda, unincorporated areas of Contra Costa County, and the cities of Oakland and Piedmont within Alameda County. The two existing parallel double-circuit power lines (4 circuits total) are located within existing PG&E land rights, and the Project would rebuild the four overhead lines into four hybrid lines, with both overhead (approximately 4 miles) and underground (approximately 1 mile) segments. See Figure 2.2-1 in EIR Appendix A.

Existing towers, poles and conductors would be replaced either with overhead rebuild or underground components, and minor modifications would occur within the existing substations. Some recently replaced power line structures would be reused or reused with some modification. Single-circuit transition structures would support the connection between the overhead and underground portions of each line. Double-circuit transition structures would be used to connect the underground portion to existing overhead line terminals at Oakland X Substation. Additionally, the rebuild would include the installation of optical ground wire (OPGW) on aboveground structures with a communication cable continuing within the underground portion.

1.3.3. Land Ownership and Right-of-Way Requirements

Project components include existing facilities within existing PG&E land ownership, rights-of-way (ROW) and easements, some of which would be modified to accommodate rebuild power line segments. Project work at PG&E's Moraga and Oakland X substations would occur within the existing substation properties, which are owned in fee by PG&E. The underground portion of the Project would be located on PG&E property owned in fee, franchise rights in city streets and one new easement from the City of Oakland. PG&E would establish temporary construction easements or seek encroachment permits or easements for construction project components.

Land rights issues are not part of this regulatory proceeding in which the CPUC is considering whether to grant or deny PG&E's PTC application to upgrade existing electrical facilities. Rather, any land rights issues would be resolved in subsequent negotiations and/or condemnation proceedings in the proper jurisdiction, following the decision by the CPUC on PG&E's application.

1.4. Agency Use of this EIR

1.4.1. CPUC Use of this EIR

Pursuant to Article XII of the Constitution of the State of California, the CPUC is charged with the regulation of investor-owned public utilities, including PG&E. The CPUC is the lead agency for CEQA review of this project. The CPUC Energy Division has directed the preparation of this EIR. This EIR will be used by the Commission, in conjunction with other information developed in the Commission's formal record, to act on PG&E's application for a PTC for construction and operation of the proposed Project. The CPUC has exclusive authority to approve or deny PG&E's application or an alternative; however, various permits from other agencies may also need to be obtained by PG&E to build the proposed Project. If the CPUC issues a PTC, it would provide overall project approval and certify compliance of the Project under CEQA.

The CPUC has assigned an Administrative Law Judge (ALJ) to oversee the hearings on the proposed Project, and an Assigned Commissioner for the PTC application. After publication of the Final EIR, the ALJ will facilitate the general proceeding to deliberate the issues of the case and will issue a Proposed Decision.

1.4.1.1. Permit to Construction Requirements

Electric public utilities must receive authorization from the Commission for the construction of electric power line facilities by issuance of a PTC in accordance with the provisions of General Order (GO) 131. GO 131 governs the MOX Project, as it would include power line facilities designed to operate over 50 kV. In January 2025, the CPUC approved GO 131-E to streamline the electric transmission permitting process. GO 131-E supersedes GO 131-D. However, because PG&E's PTC application was submitted in November 2024 prior to GO 131-E approval, the MOX Project is subject to GO 131-D.

The requirements for applying for and issuing a PTC are defined in GO No. 131, Rules Relating to the Planning and Construction of Electric Generation, Transmission/Power/Distribution Line Facilities and Substations Located in California. The application for a PTC must include a description of the project, a map, reasons for the location selected, and a list of government agencies consulted. An application for a PTC need not include either a detailed analysis of purpose and necessity, a detailed estimate of cost and economic analysis, a detailed schedule, or a detailed description of construction methods beyond that required for CEQA compliance.

If the CPUC approves a project with significant and unavoidable impacts, under CEQA it must state why in a "Statement of Overriding Considerations," which would be included in the Commission's decision on the application.

1.4.2. State and Trustee Responsible Agencies

Several other agencies will rely on information in this EIR to inform them in their decisions regarding issuance of specific permits related to Project construction or operation. In addition to the CPUC, permits would be required from State agencies such as the California Department of Transportation and the Bay Area Regional Water Quality Control Board, as well as local agencies such as Contra Costa County, the Cities of Orinda, Piedmont, and Oakland, and the East Bay Regional Park District.

1.4.3. Other Anticipated Permits and Approvals

Table 1-1 summarizes the other permits or approvals from State or regional and local agencies that may be needed for the Project.

Table 1-1. Permits that May Be Required for the MOX Project

Permit/Authorization	Agency	Purpose
Federal		
None		
State		
National Pollutant Discharge Elimination System – General Construction Stormwater Permit	Bay Area Regional Water Quality Control Board	Stormwater discharges associated with construction activities disturbing more than 1 acre of land
Encroachment Permit	California Department of Transportation	Installation of temporary guard structures in Caltrans right-of-way and netting across SR 13 during construction
Local		
Encroachment Permit	Contra Costa County City of Orinda City of Piedmont	Conductor installation over/along county or city roads, including traffic controls; temporary construction areas
Temporary Park Access Permit	East Bay Regional Park District	Minor modifications to and use of existing fire roads; temporary construction areas, including helicopter landing zones
Excavation Permit	City of Oakland	Potholing and trenching/ excavation in city streets

1.5. Native American Consultation under Assembly Bill 52

The CPUC notified one Native American Tribe about the project in accordance with the requirements of Assembly Bill 52 (AB 52). The CPUC mailed the AB 52 notification letter on December 13, 2024. A request for formal consultation under AB 52 was not received.

Additionally, per CPUC's internal tribal consultation policy, courtesy tribal outreach letters were sent to the individual contacts listed in the Native American Heritage Commission (NAHC) contact list provided by the NAHC on January 7, 2025. Courtesy tribal outreach letters were emailed to those contacts where an email address was provided on January 13, 2025. On January 14, 2025, a hard copy of the outreach letter was sent via USPS Certified Mail to those contacts where an email address was not provided. The CPUC received one response to their tribal outreach effort from the Confederate Villages of Lisjan Nation.

The consultation process is described further in EIR Section 3.16 (Tribal Cultural Resources).

1.6. Public Scoping

1.6.1. Notice of Preparation

The CPUC released a Notice of Preparation (NOP) on February 25, 2025, by filing it with the State Clearinghouse in the Governor's Office of Land Use and Climate Innovation. The NOP was posted on the CPUC's project website and mailed to multiple agencies and Native American tribes that are near the Project. The agencies that were contacted include the Alameda County Fire Department, CAL FIRE Santa Clara Unit, Contra Costa County Fire Protection District, East Bay Municipal Utility District, East Bay Regional Park District, Oakland Department of Transportation, Oakland Fire Department, and Oakland

Planning Department. The Cities of Piedmont and Orinda also received the NOP. A postcard notice was mailed to landowners along the Project route, as noted below.

- 38 NOPs were distributed via U.S. Mail.
- 100 NOPs were distributed via email.
- 7,134 postcard notices were distributed by U.S. Mail.

1.6.2. Public and Agency Scoping Meetings

Scoping was conducted from February 25, 2025, to March 27, 2025. Two virtual public scoping meetings were held on Thursday March 13, 2025, one in the afternoon and one in the evening. Oral comments were received from the public during both meetings and documented in the Scoping Report.

There were 30 and 34 attendees at the afternoon and evening meetings, respectively. Attendees at these virtual meetings included residents and representatives from Contra Costa County and the California State Assembly. A total of 17 oral comments were taken during the virtual scoping meetings.

The CPUC also contacted and/or met with the following agencies during the scoping process:

- Alameda County Fire Department
- California Department of Forestry & Fire Protection (CAL FIRE), Santa Clara Unit
- City of Oakland, Department of Transportation
- City of Oakland Fire Marshal
- City of Oakland Planning Department
- City of Orinda
- City of Piedmont
- Contra Costa County, Fire Protection District
- East Bay Municipal Utilities District
- East Bay Regional Park District
- Moraga-Orinda Fire District

1.6.3. Scoping Comments

A total of 59 written comment letters were submitted by email during the scoping period. A form letter was submitted by several community members and is included in the summary below.

The Scoping Report (EIR Appendix C) summarizes issues of concern based on written and oral comments from agencies, organizations, and members of the public. Comments are summarized in Section 4 of the Scoping Report and primarily focus on concerns regarding wildfire, emergency access, and underground alternatives.

Copies of the original comment letters received during the NOP scoping period are found in the Scoping Report.

1.7. Public Review and Comment

A Notice of Completion (NOC) has been filed with the State Clearinghouse to begin the public review period (Public Resources Code [PRC], Section 21161) for the Draft EIR. Pursuant to PRC Section 21092.3 and State CEQA Guidelines Section 15087(c), a notice of availability of the Draft EIR was posted in the Alameda and Contra Costa County Clerks' offices.

The Draft EIR has been distributed directly to agencies, organizations, and interested individuals, and made publicly available for review and comment in accordance with Section 15087 of the CEQA Guidelines and PRC 21092(b)(3). In compliance with CEQA Guidelines Section 15129, a list of federal, State, and local agencies and other organizations contacted in preparation of this Draft EIR is provided in EIR Section 8 (List of Preparers).

The Draft EIR is available for review online at:

https://ia.cpuc.ca.gov/environment/info/aspen/moraga-oakland/moraga-oakland.htm

Organizations and interested members of the public are invited to comment on the information presented in this Draft EIR during the 45-day public review period.

Comments on the Draft EIR may be sent by email to MOX@aspeneg.com.

All significant environmental issues raised in comments received during the public review period for the Draft EIR will be responded to in the Final EIR.

1.8. Document Organization and Reader's Guide

The EIR is organized as follows:

Executive Summary. A summary description of the proposed Project, the alternatives, their respective environmental impacts, and the Environmentally Superior Alternative.

Section 1, Introduction. This discussion of the history, purpose and need for the project, and the public agency use of the EIR.

Section 2, Project Description. Detailed description of the proposed Project, including a list of Applicant Proposed Measures.

Section 3, Environmental Analysis for the proposed Project. A comprehensive analysis and the assessment of impacts and mitigation measures for the proposed Project by each environmental discipline. Each environmental discipline subsection describes the environmental setting and impacts of the proposed Project as related to the individual discipline. Section 3 begins with a description of the environmental disciplines that are not analyzed, and a discussion about why these were not included (see Section 3.1). Recommended mitigation measures are included at the end of each discipline's section, as applicable.

Section 4, Alternatives. Description of each alternative, the alternative's evaluation process, and the description of alternatives considered but eliminated from further analysis and the rationale thereof. This section includes the analysis of the impacts of each alternative, addressing the same environmental disciplines as Section 3. Finally, Section 4 identifies the CEQA Environmentally Superior Alternative and presents a discussion of the relative advantages and disadvantages of the proposed Project and alternatives that were evaluated.

Section 5, Cumulative Scenario and Cumulative Impact Analysis. A discussion of the cumulative scenario and impacts with regard to the proposed Project and alternatives.

Section 6, Other CEQA Considerations. This section presents an analysis of the Project's growth-inducing impacts and other CEQA requirements, irreversible commitment of resources, significant and unavoidable impacts and energy conservation.

Section 7, Mitigation Monitoring and Reporting Plan. A discussion of the CPUC's mitigation monitoring and reporting program requirements for the project as approved by the CPUC.

Section 8, List of Preparers.

Appendix A: Figures and Maps

Appendix B: Project Description Supporting Tables

Appendix C: Scoping Report

Appendix D: Federal Aviation Administration Determinations

Appendix E: Aesthetics

Appendix F: Biological Resources

Appendix G: PG&E's Preliminary EMF Field Management Plan

1.8.1. Terminology Used in this Document

CEQA documents include the use of specific terminology. To aid the reader in understanding terminology and language used throughout this document, the following CEQA terms are defined below and discussed in greater detail in Section 3.1 (Introduction to Environmental Analysis):

Project: The whole of an action that has the potential to result in a direct or indirect physical change in the environment.

Environment: The baseline physical conditions that exist in the area before commencement of the proposed Project and that the proposed Project would potentially affect or alter. The environment is where significant direct or indirect impacts could occur as a result of Project implementation, and it includes such elements as air, biological resources (i.e., flora and fauna), land, ambient noise, mineral resources, water, and objects of aesthetic or cultural significance.

Direct impacts: Impacts that would result in a direct physical change in the environment as a result of Project implementation. Direct impacts would occur at the same time and place as the Project.

Indirect or secondary impacts: Impacts that would result from proposed Project implementation but that may occur later in time or farther removed in distance.

Significant impact on the environment: A substantial, or potentially substantial, adverse change in physical conditions that is the result of proposed Project implementation. This can include substantial or potentially substantial adverse changes to such factors as air, biological resources (flora or fauna), land, water, minerals, ambient noise, and objects of cultural or aesthetic significance. An economic or social change may factor in an assessment of whether a physical impact is significant, but it not itself a significant impact on the environment.

Mitigation measures: Project-specific actions that, if adopted, avoid or substantially reduce the proposed Project's significant environmental effects. Effective mitigation measures can:

- avoid the impact altogether;
- minimize the impact by reducing the degree or magnitude of the action and its implications;
- rectify the impact by repairing, rehabilitating, or restoring the affected environment;
- reduce or eliminate the impact over time by preservation and maintenance operations during the life of the action; or
- compensate for the impact by replacing or providing substitute resources or environments.

Applicant Proposed Measures (APMs): Measures that avoid, minimize, or reduce impacts, which are distinguished from mitigation measures in this EIR because the Applicant commits to complying with these measures to reduce potential impacts during construction and operation. Any APMs discussed in the EIR are inherently part of the proposed Project and are not additional mitigation measures proposed as a result of the significance findings from the CEQA environmental review process.

Best Management Practices (BMPs): Measures that avoid, minimize, or reduce impacts, which are distinguished from mitigation measures because BMPs are: (1) requirements of existing policies, practices, and measures required by law, regulation, or local policy; (2) ongoing, regularly occurring practices; and (3) not specific to this proposed Project. Any BMPs discussed in the EIR are inherently part of the proposed Project and are not additional mitigation measures proposed as a result of the significance findings from the CEQA environmental review process.

Cumulative impacts: Two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts (State CEQA Guidelines Section 15355). The following statements also apply when considering cumulative impacts:

- The individual impacts may be changes resulting from a single project or a number of separate projects.

- The cumulative impact from several projects is the change in the environment that results from the incremental impact of the Project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over time.

Section 15130 of the State CEQA Guidelines provides further direction on the definition of cumulative impacts:

> *(a)(1) As defined in Section 15355, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts [emphasis added].*
>
> *(b)…The discussion of cumulative impacts shall…focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact [emphasis added].*

For example, if another project contributes only to a cumulative impact upon natural resources, its impacts on public services need not be discussed as part of cumulative impact analysis. Taken together, these elements define what counts for the practitioner and help to focus the evaluation upon other actions that are closely related in terms of impact on the resource — not closely related project types.

Terms used in this document to describe the level of significance of adverse impacts are defined as follows:

- **No Impact:** An impact on a specific environmental resource would not occur.
- **Less than significant:** An impact that is adverse but that falls below the defined thresholds of significance and does not require mitigation.
- **Less than significant with mitigation:** An impact that exceeds the defined thresholds of significance but is reduced to a less than significant level through the incorporation of mitigation measures.
- **Significant:** An impact that exceeds the defined thresholds of significance. A significant impact would or could potentially cause a substantial adverse change in the environment and would require incorporation of feasible mitigation measures to eliminate the impact or reduce it to a less-than-significant level.
- **Significant and unavoidable:** An impact that cannot be eliminated or lessened to a less-than-significant level through incorporation of mitigation measures.

Finally, in this EIR various technical terms are used to describe the MOX Project (see EIR Section 2):

- "**Lines**" typically describes the path of the power lines in the same general corridor. The singular term "line" is used to refer to one of the double-circuit power lines or circuits.
- "**Line structure**" or "**structure**" are general terms used when no specific type of power line support structure is discussed. The existing lines use four types of structures: lattice steel tower (LST), lattice steel pole (LSP), tubular steel pole (TSP), and light-duty steel pole (LDSP).
- "**Transition structure**" (also called a riser) refers to a tubular steel pole that supports a line as it transitions between an overhead and underground configuration.
- "**Conductor**" is a bundle of wires or other materials that allows electrical current to flow through them. Conventional conductors are typically made of aluminum, reinforced with steel. PG&E proposes to use an advanced conductor, the3M 477-T13 "Flicker" Aluminum Conductor Composite Reinforced (ACCR)-TW conductor with a non-specular finish for the proposed overhead power lines. PG&E proposes to use copper cross-linked polyethylene (XLPE) cables for underground installation.
- "**Circuit**" refers to a single power line consisting of three conductors.

- The existing MOX Project "**circuits**" are numbered 1 through 4, with Circuits 1 and 2 on the northern power line and Circuits 3 and 4 on the southern power line. Two power lines on a single structure constitute a "**double-circuit**" power line.
- Overhead power lines structures are numbered sequentially beginning with the eastern-most structures at Moraga Substation and ending with the highest-numbered structures at Oakland X Substation.
  - Individual structures are identified in EIR figures and tables by their location as being on either the northern (N) or southern (S) line and as being either existing (E) or rebuilt (R) structures. For example, existing north structure 1 (EN1) and existing south structure 1 (ES1) and rebuilt structure north 1 (RN1) and rebuilt structure south 1 (RS1).
  - New transition structures (T) will also be installed. TN refers to structures on the northern (N) line and TS refers to new transition structures on the southern (S) line.

1.9. References

CAISO (California Independent System Operator), 2020. Board Approved 2019-2020 Transmission Plan. March 25.

_____, 2025. Board Approved 2024-2025 Transmission Plan. May 30.

PG&E (Pacific Gas and Electric Company), 2024. Proponent's Environmental Assessment for Pacific Gas and Electric Company's Moraga–Oakland X 115 kV Rebuild Project. Application A.24-11-005. November 15. https://ia.cpuc.ca.gov/environment/info/aspen/moraga-oakland/moraga-oakland.htm.

PG&E (Pacific Gas and Electric Company), 2025a. PG&E Response Letter to CPUC Review of Proponent's Environmental Assessment and Data Request #1 (A.24-11-005). January 31.

_____. 2025b. PG&E Response Letter to CPUC Data Request #8 (A.24-11-005). April 29.

_____. 2025c. PG&E Response Letter to CPUC Data Request #10 (A.24-11-005). June 18.

2. DESCRIPTION OF THE PROPOSED PROJECT

2.1. Proposed Project Overview

The Pacific Gas and Electric Company's (PG&E's) proposed Moraga–Oakland X (MOX) 115 kV Rebuild Project (Project) would upgrade approximately 5 miles of overhead 115 kV power lines between Moraga Substation and Oakland X Substation. The Project would be within multiple jurisdictions: City of Orinda; an unincorporated area of Contra Costa County; City of Oakland; and City of Piedmont as shown in Figure 2.1-1a (Overview with Existing Lines). (NOTE: Figures are in EIR Appendix A.) PG&E's existing overhead lines between the substations consist of two parallel power lines, each with two 115 kV power lines (creating a double-circuit line). The two double-circuit lines are located within existing PG&E land rights, as generally would be those of the proposed Project. The Project would rebuild four overhead lines as hybrid lines, with both overhead and underground segments. Most of the existing line structures and all existing conductors would be replaced. Existing structures replaced in the past 10 years are expected to be reused with modification. The most notable change between existing conditions and the proposed Project would be the undergrounding of a portion of 115 kV lines in roadways in Oakland and Piedmont and the removal of no longer needed support structures and overhead lines in this segment.

Geographically, the Project is in three sections. The eastern section extends from Moraga Substation southwest to the crest of the Oakland Hills[4] near Manzanita Drive and Skyline Blvd.; the central section extends from the crest to State Route (SR-) 13; and the western sections extends from SR-13 to Oakland X Substation. The overhead rebuilt lines in the eastern and central sections of the Project would use support structures similar to the existing configuration, where the four parallel lines are on paired sets of structures. The western section would include overhead structures to Park Boulevard, near where transition structures would move the overhead lines to new underground conduits in city streets. These conduits would conduct the lines to Oakland X Substation, where they would transition overhead on vertical double-circuit transition structure to enter the substation. The Project also would include installation of a static ground wire (SW) and an optical ground wire (OPGW) on either side of the top arm of each power line structure. The grounding of the electrical system and the communication path would continue in the underground segment as well. AT&T telecommunication equipment located on two existing structures would be removed by AT&T and may be relocated to another AT&T location. Minor equipment modifications and upgrades would occur within the two substations.

Moraga Substation is approximately 2.5 miles southeast of SR-24. The existing parallel double-circuit lines progress generally southwest from the substation, crossing through unincorporated Contra Costa County to the top of the Oakland Hills. The land in this segment of the Project is primarily hilly open space and park land owned by East Bay Regional Park District (EBRPD) and East Bay Municipal Utility District (EBMUD). At the hill crest, the lines enter the City of Oakland in Alameda County. In this central section, the land use changes to predominantly residential with some recreational areas. The existing parallel double-circuit lines continue southwest down the western side of the Oakland Hills, crossing Skyline Boulevard and paralleling the general alignment of Shepherd Canyon Road to SR-13. The western section of the Project extends from SR-13, and the existing parallel lines match the general alignment of Park Boulevard to Oakland X Substation. Approximately 0.25 mile of the existing alignment is within the City of Piedmont. Oakland X Substation is approximately 0.10 mile east of Interstate 580 (I-580).

In the eastern, central, and beginning one-third of the western sections, the overhead rebuild would be in PG&E's existing line right-of-way (ROW) for approximately 4 miles. In the remaining two-thirds (approximately 1 mile) of the western section, the lines are proposed to be rebuilt in an underground alignment to the south of the existing overhead alignment. Installing this segment underground would result in

[4] The Oakland Hills is an informal term for the area that extends along the eastern side of the City of Oakland, rising from the flatlands to an elevation of about 1,500 feet near Skyline Blvd. and Manzanita Drive.

approximately 15 existing parallel double-circuit structures no longer being needed. These existing structures and overhead lines would be removed after the lines are installed underground and put into service.

The underground portion would be mainly in Park Boulevard from the intersection of Estates Drive and Park Boulevard to Park Boulevard Way near Oakland X Substation. The northern set of double-circuit lines would transition underground in the City of Piedmont on the north side of the intersection of Estates Drive and Park Boulevard. The southern set of double-circuit lines would transition underground in the City of Oakland on the south side of the intersection of Estates Drive and Park Boulevard. Each set of underground lines would be in opposite sides of Park Boulevard heading toward Oakland X Substation, turning onto Park Boulevard Way to enter the eastern side of the Oakland X Substation property.

Project elevation ranges from approximately 650 feet above sea level at the Moraga Substation to approximately 1,370 feet above sea level when the lines crest the Oakland Hills and then descends to approximately 140 feet above sea level at Oakland X Substation. Major geographic features in the Project area include the hilly open space and regional park land in the eastern section, with Moraga Substation adjacent to the upper reaches of Moraga Creek. The topography in this area includes rolling hills, vegetated canyons, and higher elevations in the eastern and central sections of the Project. In the central section, the hilly area is on the northwestern side of Shepherd Canyon with its intermittent daylighted sections of Shephard Creek. The Hayward Fault bisects the Project's central and western sections, with its location generally along SR-13. Shephard Creek feeds into Sausal Creek west of SR-13 and continues southwest in the City of Oakland's Dimond Canyon Park south of Park Boulevard. A more gradual slope with less topographical variation occurs in the western portion of the Project.

The Project has no distribution, renewable energy, or energy storage component. An overview of the existing system components (alignment of parallel power lines and substations) is included on Figure 2.1-1a (Overview of Existing Lines) in EIR Appendix A. A view of the substations with individual existing overhead double-circuit power line structures is included on Figures 2.1-1b (Existing lattice Steel Towers, Tubular Steel Pole, and Lattice Steel Pole) and 2.1-1c (Existing Tubular Steel Pole Types) in Appendix A.

2.1.1. Terminology

In this EIR various terms are used:

- "**Lines**" typically describes the path of the power lines in the same general corridor. The singular term "line" is used to refer to one of the double-circuit power lines or circuits.
- "**Line structure**" or "**structure**" are general terms used when no specific type of power line support structure is discussed. The existing lines use four types of structures: lattice steel tower (LST), lattice steel pole (LSP), tubular steel pole (TSP), and light-duty steel pole (LDSP).
- "**Transition poles**" (also called a riser) refers to a tubular steel pole that supports a line as it transitions between an overhead and underground configuration.
- "**Conductor**" is a bundle of wires or other materials that allows electrical current to flow through them. Conventional conductors are typically made of aluminum, reinforced with steel. PG&E proposes to use an advanced conductor, the3M 477-T13 "Flicker" Aluminum Conductor Composite Reinforced (ACCR)-TW conductor with a non-specular finish for the proposed overhead power lines. PG&E proposes to use copper cross-linked polyethylene (XLPE) cables for underground installation.
- "**Circuit**" refers to a single power line consisting of three conductors.
- The existing MOX Project "**circuits**" are numbered 1 through 4, with Circuits 1 and 2 on the northern power line and Circuits 3 and 4 on the southern power line. Two power lines on a single structure constitute a "**double-circuit**" power line.

- Overhead power lines structures are numbered sequentially beginning with the eastern-most structures at Moraga Substation and ending with the highest-numbered structures at Oakland X Substation.
  - Individual structures are identified in EIR figures and tables by their location as being on either the northern (N) or southern (S) line and as being either existing (E) or rebuilt (R) structures. For example, existing north structure 1 (EN1) and existing south structure 1 (ES1) and rebuilt structure north 1 (RN1) and rebuilt structure south 1 (RS1).
  - New transition structures (T) will also be installed. TN refers to structures on the northern (N) line and TS refers to new transition structures on the southern (S) line.

2.1.1.1. Moraga–Oakland X Circuits 1 and 2 and Circuits 3 and 4

Circuits 1 and 2 on the northern Moraga–Oakland X line were installed over a century ago, circa 1908. These circuits are on 39 structures. Circuits 3 and 4 on the southern Moraga-Oakland X line were installed circa 1931 in a parallel alignment immediately south of Circuits 1 and 2. Circuits 3 and 4 are installed on a total of 36 structures. Details on these structures are provided in Table 2.1-1 (Double-Circuit Line Structure Components Upgrade, Approximate Metrics) (see EIR Appendix B). Figures 2.1-1b (Existing Lattice Steel Towers, Tubular Steel Poles, and Lattice Steel Pole) and 2.1-1c (Existing Tubular Steel Pole Types) in EIR Appendix A provide images of existing structure types. The existing and proposed overhead power line structures support a double-circuit configuration, meaning each structure has two circuits, one on each side of the structure. Each single circuit consists of three conductor wires or phases. Each structure has three arms on each side, with each arm supporting a conductor wire (phase). On the Moraga-Oakland X lines, each circuit is approximately 5 miles long, resulting in approximately 20 circuit-miles to be rebuilt under the proposed Project. These circuits transmit power from Moraga Substation to Oakland X Substation, from where it is sent to six other PG&E substations.

2.1.1.2. Moraga Substation

Moraga Substation is an open-air substation on Lost Valley Drive near Don Gabriel Way in the City of Orinda. Moraga Substation was constructed between 1946 and 1948. The existing substation includes 230 kV as well as 115 kV facilities, along with telecommunication and supervisory control and data acquisition (SCADA) facilities, and a small retention basin, and parking, storage, or laydown areas.

2.1.1.3. Oakland X Substation

Oakland X Substation is an enclosed substation on Park Boulevard near I-580 in the City of Oakland. The substation is a reinforced concrete building built in 1908. The substation's existing distribution and 60 kV facilities are not part of the Project. Areas for parking, storage, or laydown are adjacent to the substation building. A separate fenced area extends east of the substation building and the main substation yard. The separate fenced area includes the westernmost spans of the existing Moraga-Oakland X power lines.

2.1.1.4. System Users, Area, and Local and Regional Systems

The 115 kV system delivers power from Oakland X Substation to six PG&E distribution substations, which serve approximately 200,000 customers in the cities of Oakland, Piedmont, and Alameda, as well as Port of Oakland facilities, the Schnitzer Steel plant, and the City of Alameda's Cartwright Substation. A schematic diagram illustrating PG&E's existing East Bay transmission system is provided in Figure 2.2-1 (Existing and Anticipated Modified and New Easements), which includes Moraga and Oakland X substations and the four power lines between the substations.

The Port of Oakland has a municipal electric utility that provides electricity to Oakland International Airport, the majority of the Oakland Seaport, and some land areas along the shoreline, which includes major industrial and commercial customers. The Port of Oakland procures power in wholesale and retail markets, which may be sourced from PG&E. The Port of Oakland receives its power through PG&E power

lines. The City of Alameda's Alameda Municipal Power is a municipal electric utility with approximately 38,000 customers.

The four Moraga–Oakland X 115 kV path is part of a local system that delivers power to six PG&E substations that distribute power in the north Oakland area (Claremont K, Oakland D, Oakland L, Oakland C, Oakland X and Oakland J substations). There is no difference between the existing system and the proposed system in terms of ~~capacity,~~ distribution substations, and customers served.

2.1.2. Proposed Project System

The proposed Project system would remain the same as the existing system but would operate with upgraded components. The existing alternating current (AC) power lines would be upgraded by replacing or removing most of the existing line structures and replacing all conductors in the overhead portion and installing the underground portion. Collocated PG&E telecommunication lines would be installed on the overhead rebuild portion and within the duct bank of the underground portion and would connect into Moraga and Oakland X substations. An overview of the existing system components with the Project in its proposed rebuild alignment is included on Figure 2.1-1a (Overview with Existing Lines) in Appendix A, Figures. Line equipment, communication equipment, and control systems to support operation of the rebuilt lines would be upgraded or installed within the existing substations.

2.1.2.1. Proposed Facilities Expected Capacities and Proposed System Changes

The conductor on the rebuilt lines would accommodate a summer coastal emergency rating of approximately 1,212 amps compared to the existing conductor with a summer emergency rating of approximately 406 amps. Replaced substation equipment connecting with the lines would have the same rating as existing equipment except for an Oakland X Substation 115 kV bus upgrade.

Moraga Substation's equipment that connects to the power lines includes 115 kV circuit breakers rated for 3,000 amps and 115 kV air switches rated for 2,000 amps. The equipment ratings are not intended to change as part of the proposed Project. Oakland X Substation's equipment that connects to the lines includes 115 kV circuit breakers rated for 2,000 amps and a 115 kV bus rated for 703 amps. The circuit breaker equipment ratings are not proposed to change as part of the proposed Project. The 115 kV bus is proposed to be upgraded to 1,181 amps.

According to the Proponent's Environmental Assessment (PEA), the Project does not include line rerating although the MOX Project will increase transmission capacity in the north Oakland area (PG&E, 2025b).

Separately, PG&E found that the MOX Project alone would not eliminate the need for local generation, and in 2024, PG&E submitted to CAISO a proposal for a new North Oakland Reinforcement Project (PG&E, 2025b). With the CAISO Board Approved 2024-2025 Transmission Plan, CAISO determined that additional upgrades are needed to mitigate reliability concerns, and the CAISO Board approved the North Oakland Reinforcement Project to further upgrade the capacities of existing 115 kV lines and substations to serve the local area (CAISO, 2025). The CAISO Board-approved North Oakland Reinforcement Project is included as part of the cumulative scenario in EIR Chapter 5.

2.1.3. Preliminary Design and Engineering

The Project is at the 60 percent design stage, which provides the preliminary design and engineering for the physical, civil, and outdoor components. The final design and engineering would focus on adding design detail for construction, including substation system protection schemes and indoor components. The following figures in EIR Appendix A provide preliminary design drawings for the Project:

- Figure 2.1-2 (Proposed Project, Detailed Overview),
- Figure 2.1-4a (Lattice Steel Tower, Typical),
- Figure 2.1-4b (Lattice Steel Pole, Typical),

- Figure 2.1-4c (Modified Tubular Steel Pole with a Drilled Pier Foundation, Typical),
- Figure 2.1-4d (Tubular Steel Pole with a Micropile Foundation, Typical),
- Figure 2.1-5a (Vertical Single Transition Structure Tubular Steel Pole, Typical),
- Figure 2.1-5b (Vertical double Circuit Transition Structure Tubular Steel Pole, Typical),
- Figure 2.1-5c (H-Frame Double Circuit Transition Structure Tubular Steel Pole, Typical),
- Figure 2.1-6 (Underground Duct Bank Cross Sections, Preliminary Drawing),
- Figure 2.1-7 (Underground Vault Details, Preliminary Drawing).

2.1.4. Segments, Components, and Phases

Power line components include an overhead upgrade (involving replacement of structures with somewhat taller structures and upgraded conductor), overhead-to-underground transition structures, underground construction (placing western line segments underground), installation of collocated telecommunication lines, and removal of conductor and overhead structures where not replaced with components). A single Project buildout or phase is planned for the construction activities. Table 2.1-2 (Construction Components, Phases, and Timing, Approximate Metrics) summarizes the construction components of the overhead and underground components of the Project, including substation and telecommunication upgrades.

Table 2.1-2. Construction Components, Phases, and Timing (Approximate Metrics)

Construction Phase & Timing	Components
Rebuild overhead lines Q2 2029 to Q3 2031	■ Rebuild the two existing double-circuit 115 kV power lines from Moraga Substation to the transition-to-underground structures located near the intersection of Estates Drive and Park Boulevard. ■ Replace, reuse, or remove existing structures, including installing transition structures. ■ Install PG&E ground (SW) and telecommunication (OPGW) lines on the overhead rebuild. ■ Test, commission, and place double-circuit 115 kV hybrid lines in service with underground rebuild portions constructed. ■ Where the underground portion replaces existing overhead lines and after the rebuilt hybrid lines are in service, remove existing unneeded line structures from near the intersection of Estates Drive and Park Boulevard to Oakland X Substation.
Rebuild western portion underground Q3 2028 to Q1 2030	■ Construct two double-circuit duct banks, one for the northern line and one for the southern line, with in-road vaults in Estates Drive, Park Boulevard, and Park Boulevard Way. Design of the underground portion includes grounding. ■ Install PG&E telecommunication lines within each underground duct bank, with separate telecommunication vaults and access covers. ■ Test, commission, and place 115 kV hybrid lines in service with overhead rebuild portion constructed.
Moraga Substation modification Q3 2029 to Q1 2030	■ Replace two 115 kV circuit breakers and two 115 kV air switches in Moraga Substation. ■ Review and update Moraga Substation system protection scheme within the existing control enclosure and telecommunication system associated with the rebuilt lines. ■ No permanent modifications outside of or to the existing substation fenceline are planned.
Oakland X Substation modification Q3 2029 to Q1 2030	■ Replace three 115 kV air switches and upgrade one 115 kV bus in Oakland X Substation. ■ Review and update Oakland X Substation system protection scheme within the control room and telecommunication system associated with the rebuilt lines. ■ No building modification is planned. No permanent modifications outside of or to the existing substation fenceline are planned.

Q1 = Quarter 1; Q2 = Quarter 2; Q3 = Quarter 3; Q4 = Quarter 4

2.1.5. Existing Facilities

The proposed Project would modify, replace, and remove facilities, as summarized in Table 2.1-3.

Table 2.1-3. Types of Existing Facilities to be Removed or Modified, Approximate Metrics

Component	Facilities Removed	Facilities Modified
Moraga–Oakland X 115 kV Circuit 1 and Circuit 2, northern line	Conductor, 2 circuits, 1.13 miles each (western section) 12 double-circuit structures 4 in central section 8 in western section	■ Reuse 3 towers (eastern section with minor modifications) and 1 TSP (with moderate modifications, central section). ■ Replace 22 structures (total for all sections), including 2 single-circuit structures (TN27A/B), to transition each line between overhead and underground portions (western section). ■ Reconductor 2 circuits, 3.93 miles each (primarily eastern and central sections). ■ Install underground cable, 2 circuits, 1.24 miles each, in a double-circuit duct bank and 5 to 10 vaults (western section). ■ Install 2 double-circuit transition structures (TN28, TN29) to connect the underground line portion to the existing terminals at Oakland X Substation.
Moraga–Oakland X 115 kV Circuit 3 and Circuit 4, southern line	Conductor, 2 circuits, 1.13 miles each (western section) 10 double-circuit structures 1 in eastern section (H-frame LDSP at ES8 A and B) 2 in central section 7 in western section	■ Reuse 3 towers (with minor modifications, eastern section) and 1 TSP (with moderate modifications, central section). ■ Replace 22 structures (total for all sections) and add 2 single-circuit structures (TS27A/B) to transition each line between overhead to underground portions (western section). ■ Reconductor 2 circuits, 3.94 miles (primarily eastern and central sections), and add new parallel spans from RS26 to transition structures TS27A/B. ■ Install underground cable, 2 circuits, 1.20 miles each, in a double-circuit duct bank and 5 to 10 vaults (western section). ■ Install 1 double-circuit transition structure (TS28) to connect the underground line portion to the existing terminals at Oakland X Substation.
Grounding and Communication SW and OPGW	None	■ Install 1 OPGW and 1 SW on each of the new overhead structures to provide grounding and data communication. OPGW would transition from overhead to underground as a fiber communication cable in a conduit in each double duct bank that would also have grounding installed. ■ Install a telecommunication vault near each underground power line vault.
Third-Party (AT&T) Cellular Antennas	Antennas on ES26 and on EN29; AT&T may choose to relocate its equipment elsewhere.	None
Moraga Substation	None	■ Replace two 115 kV circuit breakers and two air switches. ■ Review and update system protection scheme and telecommunication facilities associated with lines. The OPGW on each double-circuit line structure would be connected into the substation.
Oakland X Substation	None	■ Replace three 115 kV air switches and upgrade one bus. ■ Review and update system protection scheme and telecommunication facilities associated with lines. The telecommunication line in each double-circuit duct bank would be connected into the substation.

EN = existing structure northern line
ES = existing structure southern line
RN = rebuild structure northern line

2.1.5.1. Overhead Upgrades

Table 2.1-4 (Power Line Facilities Design Summary, Approximate Length) summarizes the overhead upgrades, as well as the underground relocation portion and overhead structure and conductor removal. After construction, each of the two northern circuits (1 and 2) would be approximately 5.17 miles long. Each of the two southern circuits (3 and 4) would be approximately 5.14 miles long. Overall, approximately one-quarter of the rebuilt lines would be located underground in roadways, and their corresponding existing overhead structures removed.

Table 2.1-4. Power Line Facilities Design Summary, Approximate Length

Power Line Facilities Design Summary	Approximate Length
Overhead Upgrade – Rebuild	
Moraga–Oakland X 115 kV Circuits 1 and 2 (Moraga Substation to TN27A and TN27B at Estates Drive near Park Boulevard)	3.93 miles (x2)
Moraga–Oakland X 115 kV Circuits 3 and 4 (Moraga Substation to TS27A and TS27B at Park Boulevard near Estates Drive, includes new overhead spans to southern line single-circuit transition structures from ES30)	3.94 miles (x2)
Total Approximate Length of Overhead Circuit Rebuild (parallel lines)	15.74 miles
Relocation Underground	
Moraga–Oakland X 115 kV Circuits 1 and 2 (within Estates Drive, Park Boulevard, and Park Boulevard Way to TN27A and TN27B at Oakland X Substation)	1.24 miles (x2)
Moraga–Oakland X 115 kV Circuits 3 and 4 (within Park Boulevard and Park Boulevard Way to TS27A and TS27B at Oakland X Substation)	1.20 miles (x2)
Total Approximate Length of New Underground Circuit Components	4.88 miles
Existing Overhead Removal	
Moraga–Oakland X 115 kV Circuit 1 (existing northern line, TN27A to Oakland X Substation)	1.13 miles
Moraga–Oakland X 115 kV Circuit 2 (existing northern line, TN27B to Oakland X Substation)	1.13 miles
Moraga–Oakland X 115 kV Circuit 3 (existing southern line, ES30 to Oakland X Substation)	1.20 miles
Moraga–Oakland X 115 kV Circuit 4 (existing southern line, ES30 to Oakland X Substation)	1.20 miles
Total Approximate Length of Existing Overhead Circuit Removed and Not Replaced	4.66 miles

ES = existing structure southern line
RN = rebuild structure northern line
RS = rebuild structure southern line

The proposed rebuild design includes structure type, height, and foundation type changes from the existing design. These changes reflect the current regulatory requirements and industry standards for new structures. Some structures in the existing double-circuit lines have been replaced within the last 10 years and would be reused with some modification. The proposed conductor type is a larger size than the existing conductor to accommodate reasonably foreseeable regional load growth and would require structures to be approximately 5 to 10 feet taller than existing structures to hold the heavier conductor.

The proposed design includes removing and not replacing some existing double-circuit power line structures. These structures are referred to as “interset” structures when the structures to either side are replaced. Proposed structure height changes also typically occur where adjacent interset structures are

removed, electromagnetic field (EMF[5]) mitigation is applied, or the rebuilt structure's ground elevation differs. Proposed structures are taller to achieve the requisite distance between the conductor and the ground where adjacent structures are removed. With the implementation of EMF mitigation, the replaced overhead double-circuit power line structures in the central and western sections are 10 feet taller. In addition, elevation changes between the existing structure locations and the proposed structure locations contributes to a net height change of a replaced structure. Feasible power line structure rebuild locations within the alignment are limited by existing residential structures within and adjacent to the alignment, geological conditions, and considerations to minimize potential environmental impact, given the hilly terrain and safe access.

Structure and foundation types were informed primarily by construction access constraints. For example, LSPs and micropile foundations often are proposed for locations where the larger LST or TSP would not fit, or where there is not ground access for a drill rig, resulting in use of a helicopter or a crane to lift equipment or structure pieces to and from the work area. Construction helicopter activity is anticipated to occur only in the eastern section of the Project.

The existing Moraga–Oakland X 115 kV lines are supported on 75 existing structures. In total, the existing structures include 67 LSTs, 4 LSPs, 3 TSPs, and 1 LDSP. Existing structures currently range from approximately 53 to 142 feet tall. Of these 75 structures, 45 would be replaced with new structures; 8 would be reused with some modifications; and 22 would be removed and not replaced either through design changes that require fewer supporting structures or through relocating the circuits underground. Five of the seven transition structures would be in a new structure location. Typical design detail for the expected overhead line structure types is shown on the following figures in EIR Appendix A:

- Figures 2.1-4a (Lattice Steel Tower, Typical),
- Figure 2.1-4b (Lattice Steel Pole, Typical),
- Figure 2.1-4c (Modified Tubular Steel Pole with a Drilled Pier Foundation, Typical), and
- Figure 2.1-4d (Tubular Steel Pole with a Micropile Foundation, Typical).

Figures 2.1-5a (Vertical Single Circuit Transition Structure Tubular Steel Pole, Typical), Figure 2.1-5b (Vertical Double Circuit Transition Structure Tubular Steel Pole, Typical), and Figure 2.1-5c (H-Frame Double Circuit Transition Structure Tubular Steel Pole, Typical) provide typical design detail for transition structure types.

Figure 2.1-8 (Example Single Circuit and Double Circuit Transition Structure Tubular Steel Poles) provides example single-circuit and double-circuit transition structure images.

Detailed Table 2.1-1, Double-Circuit Line Structure Components Upgrade, Approximate Metrics, (in EIR Appendix B) identifies anticipated structure replacement, reuse, and removal details and shows the changes in the heights of the structures and the changes structure base elevations. The table also shows the net change in height based on the structure height and elevation changes in both feet and percent change from the existing structure height. The table also indicates which structures have a height increase

[5] Recognizing that there is public interest and concern regarding potential health effects from exposure to electric and magnetic fields (EMF) from power lines, this document provides some general background information in EIR Appendix G [Exhibit D: Preliminary EMF Field Management Plan, included in PG&E's PTC application] regarding EMF. The CPUC has repeatedly recognized that EMF is not an environmental impact to be analyzed in the context of CEQA because (1) there is no agreement among scientists that EMF creates a potential health risk, and (2) there are no defined or adopted CEQA standards for defining health risk from EMF. Refer to, for example, CPUC Decision No. 04-07-027 (July 16, 2004); Delta DPA Capacity Increase Substation Project Final Mitigated Negative Declaration and Supporting Initial Study (November 2006), A.05-06-022, Section 2.1.14.1, page B-31, adopted in Decision 07-03-009 (March 1, 2007).

Section X(A) of the CPUC's General Order 131-D, CPUC Decision No. D.06-01-042 ("EMF Decision"), and PG&E's EMF Design Guidelines prepared in accordance with the EMF Decision, require PG&E to prepare a Field Management Plan that indicates the no-cost and low-cost EMF measures that will be installed as part of the final engineering design for the project. The Field Management Plan will evaluate the no-cost and low-cost measures considered for the project, the measures adopted, and reasons that certain measures were not adopted. A copy of PG&E's Preliminary EMF Management Plan for this Project is included in EIR Appendix G.

to address EMF residential mitigation and to accommodate removal of adjacent structures (see also EIR Appendix G, PG&E's Preliminary EMF Field Management Plan).

Existing steel structures range from approximately 61 to 142 feet tall, with the LDSP at approximately 53 feet tall. Replacement structures and single-circuit transition structures would range from approximately 76 to 168 feet tall. Double-circuit transition structures on Oakland X Substation property would be approximately 63 to 68 feet tall.

Structures would be shifted from the existing centerline within the alignment to allow the replacement structure to be safely constructed or to support safe construction, operation, and maintenance access. In most cases, replacement is anticipated to be within approximately 10 to 80 feet of the existing structures' locations. Replaced structures on the northern and the southern lines typically would be spaced at least 55 feet apart to meet current standards.

Final heights will depend on span lengths and ground clearance requirements, which change with land uses (such as open space, vegetation, residential development, roadways, and highways), topography, electrical clearances, and other design considerations). Exact structure type, configuration, and dimensions would be determined based on CPUC requirements, final engineering, and other factors and are subject to change.

Replacement structures would include LSTs, LSPs, TSPs, and transition structure types. Refer to Figure 2.1-4a (Lattice Steel Tower, Typical), Figure 2.1-4b (Lattice Steel Pole, Typical), and Figure 2.1-4c (Modified Tubular Steel Pole with a Drilled Pier Foundation, Typical) for typical designs. LSTs would have four concrete pier-type foundations. The legs on existing LSTs create a base width of approximately 15 to 25 feet. The existing LSPs and TSPs are approximately 4.5 feet and 6 feet in diameter at the base, respectively. Replaced LST footprints would be approximately 16 to 28 feet wide. LSP and TSP footprints would be, approximately 4.5 feet and 6 feet in diameter, respectively. Two existing TSP foundations are expected to be reused; the top sections of the poles at these locations would be replaced with TSP sections designed to support the upgraded lines. Replacement LSP and TSP foundations would be either a series of micropile caissons with a pile cap, or a single drilled-shaft reinforced concrete caisson. Embedded steel foundation types would be designed considering the corrosion potential over the design life of the structure. Transition structures will use a TSP type with double-circuit transition structures using a vertical TSP or with H-cross framing between each TSP.

On existing structures, three arms extend approximately 6.5 to 7 feet from each side of the structures. Arms on replaced TSPs, LSTs, and LSPs would extend approximately 7 feet from each side. Arm modification is a minor modification allowing reuse of the recently replaced LSTs (EN4, EN5, EN6, ES5, ES4, and ES6). The TSPs have an additional small arm on each side to support OPGW installation. Vertically, arms (and conductors suspended from the arms) are approximately 10 feet apart. The new structures would meet current raptor safety requirements. Specifically, PG&E would minimize the potential for electrocution or accidental line collision by rebuilding the electric lines in accordance with avian-safe construction standards and would implement the processes and procedures outline in PG&E's Avian Protection Plan (PG&E, 2018). Conductors and ground wires would be spaced sufficiently apart so that raptors would not be electrocuted and all power line and substation facilities for the Project would be designed to be avian safe, as appropriate and feasible, following the intent of Suggested Practices for Avian Protection on Power Lines, the State of the Art in 2006 (APLIC, 2006) and Reducing Avian Collisions with Power Lines, the State of the Art in 2012 (APLIC, 2012). Some existing structures have PG&E meteorological equipment attached. The equipment is likely to be moved to the rebuilt structure or another existing PG&E facility as needed. Existing structures are galvanized steel that is dull gray or green in color, except for two of the existing TSPs (Structures EN19 and ES21) that are Corten steel and are dark brown in color. The replaced top sections of Structures EN19 and ES21 would also be Corten steel. Other replacement structures typically would be galvanized steel and are expected to weather to a dull gray patina in 2 to 5 years.

The existing conductors would be replaced with a 3M 477-T13 "Flicker" Aluminum Conductor Composite Reinforced (ACCR)-TW conductor with a non-specular finish. Insulators would be hung in an I-string configuration, seen as a single line of insulators. An OPGW and static steel ground wire would be added in a position above the conductors where the lines are overhead.

The lengths of existing spans between structures average approximately 670 feet, with a range of approximately 130 to 1,740 feet. Rebuilt spans are expected to have an average span length of approximately 750 feet and a range of approximately 100 to 1,770 feet. Longer or shorter spans may be required in certain locations based on final design and engineering. The overhead spans out of Moraga Substation would be reconductored. The minimum ground conductor clearance (MGCC) would be designed in accordance with PG&E's Overhead Transmission Line Design Criteria (Document 068177, revision 15). The applicable criterion specifies an MGCC of 28 feet when the wire is at emergency conditions (464 degrees Fahrenheit [°F]) and 31 feet at normal conditions (60°F). The PG&E design standard for MGCC includes the 30 feet, as specified in General Order (GO) 95, for normal clearance. In some conditions, the designed conductor ground clearance would exceed the minimum.

Seven transition structures, between the overhead and underground portions of the line, would be installed:

- Two transition structures would be installed northwest of the intersection of Park Boulevard and Estates Drive to route Circuits 1 and 2 underground. These two single-circuit transition structures would be located to the west of the existing structures and would replace the existing two double-circuit power line structures near Estates Drive.
- Two single-circuit transition structures would be installed south of Park Boulevard at Estates Drive to route Circuits 3 and 4 underground. These two single-circuit transition structures would be located to the west of the double-circuit ES30 and new single-circuit spans would connect the replacement double-circuit RS26 to the southern single-circuit transition structures, TS27A and TS27B.
- Three additional transition structures would be located near Park Boulevard Way on the east side of Oakland X Substation, within the substation property approximately 100 feet west of EN37 and ES38.

The four transition structures near Estates Drive and Park Boulevard would be single-circuit tubular steel poles (refer to Figure 2.1-5a, Vertical Single Circuit Transition Structure Tubular Steel Pole, Typical).

The transition structures near Park Boulevard Way would be double-circuit tubular steel poles with either a vertical or H-frame configuration (refer to Figure 2.1-5b, Vertical Double Circuit Transition Structure Tubular Steel Pole, Typical, and Figure 2.1-5c, H-Frame Double Circuit Transition Structure Tubular Steel Pole, Typical).

2.1.5.2. Underground Relocation

Preliminary design cross sections of underground duct banks with telecommunication facilities are shown on Figure 2.1-6 (Underground Duct Bank Cross Section, Preliminary Drawing). Details of underground vaults are provided on Figure 2.1-7 (Underground Vault Details, Preliminary Drawing).

The underground component of the rebuilt power lines would include installation of vaults, duct banks, and a cable system in city streets using open trench construction. Table 2.1-4 (Power Line Facilities Design Summary, Approximate Lenth) summarizes the underground relocation segments and Figure 2.1-3 (Overview with Proposed Lines Rebuild) and Figure 2.1-2 (Proposed Project Detail Map) show the location of the underground portion. Circuits 1 and 2 would transition to underground from their respective transition structures near the intersection of Estates Drive and Park Boulevard. These circuits would continue in one double duct bank in Estates Drive, Park Boulevard, and Park Boulevard Way to Oakland X Substation. Circuits 3 and 4 would transition to underground from their respective transition structures on the south side of Park Boulevard near Estates Drive. These circuits would continue in one double duct bank in Park Boulevard and Park Boulevard Way, on the other side of the roadway from Circuits 1 and 2, toward

Oakland X Substation. Transition structures on substation property would raise the underground lines to the existing connection points on the east side of the substation building.

Each of the two duct banks would use two 10-inch high-density polyethylene (HDPE) conduits, one for each circuit. Each duct bank would be approximately 4 feet wide. The conduits would be placed on sandbags and would be encased in thermal concrete at least 1.5 feet thick. The concrete would be covered by a non-bonding agent/barrier and would be a minimum of 3 feet below the road surface. The space between the agent/barrier and the road surface would consist of a fluidized thermal backfill. Fiber optic lines for system protection and telecommunication would be installed in two 4-inch-diameter HDPE conduits within each duct bank and between the two electric conduits. The underground 115 kV cable would be copper cross-linked polyethylene (XLPE) triplex type, consisting of three XLPE-insulated copper conductors, one conductor per phase, with integrated ground continuity conductor and distributed temperature-sensing fiber optics. At each vault, two 115 kV circuits' cables would be spliced. Cable splices would be constructed inside of explosion-proof housings.

A typical cross section of a duct bank is shown on Figure 2.1-6 (Underground Duct Bank Cross Sections, Preliminary Drawing). Typical dimensions may vary depending on soil stability and the presence of existing underground structures. The duct bank may need to transition vertically or horizontally to maintain clearance from other existing facilities. The need to relocate utilities would be made during final engineering. Underground utilities would be identified during final design and would either be avoided or be relocated in coordination with the utility owner.

Vaults (approximately 22 feet by 12 feet and 10 feet tall) would be located where sections of the underground cable line lengths are pulled through the duct banks and spliced. Details of a typical vault are shown on Figure 2.1-7 (Underground Vault Details, Preliminary Drawing). Vaults are used to access the line for operations and maintenance. Spacing of vaults is expected to be approximately 1,250 feet or less. The first vault downstream of a line's transition structure would be within approximately 200 feet of the transition structure. Approximately 5 to 10 vaults are expected to be installed. The duct banks would widen to approximately 5.5 feet approaching and departing the vaults. The vaults would be precast concrete and would be placed on a crushed aggregate base. When installed, the duct bank would be under the surface of the restored roadway and would not be visible. Each of the power line vaults would have three utility access covers level with the road surface. An illustration of the utility cover is shown on Figure 2.1-7 (Underground Vault Details, Preliminary Drawing). The approximately 39-inch diameter vault access covers are expected to be cast iron.

A telecommunication vault or box (approximately 4 feet wide by 6 feet long and at least 3 feet deep) would be installed within approximately 40 feet of each power line vault. Each telecommunication vault or box cover would consist of two aluminum lids installed level with the adjacent road surface. Final design would determine the size of the telecommunication lids, which typically are 5 to 6 inches larger than the telecommunication box dimensions.

2.1.5.3. Overhead Removal

When existing overhead power line components are no longer needed, the conductors would be removed from the existing structures one span at a time, and then unneeded existing structures would be removed. Approximately 4.66 circuit miles (1.13 to 1.20 miles per circuit) would be removed where the power line is replaced underground as listed in Table 2.1-4 (Power Line Facilities Design Summary, Approximate Length). Approximately 22 existing structures supporting overhead lines would be removed and not replaced as listed in Table 2.1-1, Double-Circuit Line Structure Components Upgrade, Approximate Metrics (in Appendix B). Fifteen of the removed structures would be as a result of the underground portion of the Project. No existing structures are expected to be abandoned in place. Foundations are expected to be removed up to 3 feet below grade in coordination with landowner preferences. Direct-bury poles would be removed entirely.

2.1.5.4. Substation Upgrades

The permanent fenced areas of Moraga and Oakland X substations, approximately ~~1.31~~15.80 acres and approximately ~~15.80~~1.31 acres, respectively, would not change as part of the Project. The location of the substations is shown on Figure 2.1-1a (Overview with Existing Lines) and Figure 2.1-2 (proposed Project Detail Map).

Upgrades at Moraga and Oakland X substations are needed to align with the connecting rebuilt lines. Modifications are expected to include replacing 115 kV substation components and updating system protection schemes, including telecommunication upgrades. No building or enclosure modifications are anticipated at either substation. Fences may need to be temporarily removed to facilitate safe construction and would be replaced in the original location.

Moraga Substation. Two 115 kV air disconnect switches and two 115 kV circuit breakers at Moraga Substation are expected to be replaced. Air disconnect switches open or close an electrical circuit by disconnecting or connecting the circuits in the air. The existing air switches are rated for approximately 2,000 amps and would be replaced with circuit breakers with the same rating. The existing circuit breakers are rated for approximately 3,000 amps and would be replaced with circuit breakers with the same rating. Types of circuit breakers differ based on the method used to extinguish electrical arcs and interrupt current. The two existing circuit breakers connecting to the Project lines use oil or sodium hexafluoride (SF6).

One circuit breaker is insulated with pure mineral oil (approximately 3,450 gallons) and the other circuit breaker is insulated with SF6 gas (approximately 132 pounds (lbs)). Both existing circuit breakers would be replaced with SF6 insulated breakers (each with approximately 132 lbs of SF6) that would accommodate the higher conductor rating capacity. The higher rating would align with standards at the time of construction and may require breaker foundations to be replaced. PG&E may use a different technology for the SF6 breakers within substations if, during final design, available technology would allow a reduction in additional SF6 use. No transformer banks would be added or modified as part of the Project. No modifications to the existing Moraga Substation fenceline are planned. The system protection scheme for the lines would be reviewed and likely replaced in kind within the control enclosure of Moraga Substation. The existing substation telecommunication equipment would be modified within the control enclosure to connect with the OPGW communication path installed on the rebuilt lines. The overhead spans into Moraga Substation from RN1 and RS1 would be reconductored.

Oakland X Substation. Oakland X Substation's three 115 kV air switches and one 115 kV bus within the substation building are expected to be replaced. The air switches are each rated for approximately 2,000 amps and would be replaced with air switches with the same rating. The bus is rated for approximately 703 amps and would be replaced with a bus rated at approximately 1,181 amps. The higher bus rating would be installed to align with the replaced conductor at 1,212 amps. No building modifications are planned. The system protection scheme would be reviewed for the lines and likely replaced in kind within the control room of Oakland X Substation. The existing substations' telecommunications equipment would be modified within the substation control area to connect with the communication path installed with the rebuilt lines. No modifications outside of or to the existing Oakland X Substation fenceline are planned. The four existing external Moraga–Oakland X 115 kV line connections would be disconnected from EN37 and ES38 and connected to the rebuilt lines from the new transition structures, TN28 and TS29.

2.1.6. Potentially Required Facilities, Expansions, and Equipment Lifespans

The Project does not anticipate the need to relocate (temporary or permanent), modify, or replace unconnected utilities or other types of infrastructure by PG&E or any other entity. PG&E has completed notification of the Federal Aviation Administration (FAA) concerning the expected heights of its rebuilt 115 kV structures. No lighting or marking is required by FAA. Refer to EIR Appendix D, FAA Determinations.

The Project does not anticipate a need to address site conditions or slope stabilization issues, such as pads and retaining walls.

Ongoing inspections of the existing overhead structures and lines will continue while the proposed Project is being considered by the CPUC. If ongoing inspections find issues that are best remedied by replacing or eliminating existing structures, PG&E will follow the appropriate process to address those issues to enable continued safe line operation.

There are no current or reasonably foreseeable plans for expansion or future phases of development.

Substation facility life is indefinite. Substations typically have room for future expansions depending on future capacity increase or reliability needs. Substation and power line structures and foundations have a typical lifespan of approximately 75 years. Major power components within a substation typically have a lifespan of approximately 20 years. Power line conductors/cables typically have a lifespan of approximately 50 years.

2.2. Land Ownership, Rights-of-Way, and Easements

Project components would be located within PG&E property owned in fee, existing or modified easements, or within franchise. At public roadway crossings, the lines use PG&E franchise agreements with the appropriate local jurisdiction. The lines crossing SR-13 use a Caltrans encroachment agreement.

Where the lines are not located on property owned in fee by PG&E or existing rights are not sufficient to accommodate the rebuilt power lines, then perfected, modified, or new rights-of-way (ROW) and other land rights would be required. Project work at Moraga and Oakland X substations would occur within the existing substation properties, which are owned in fee by PG&E.

In most cases the existing power line structures are expected to be replaced within the existing easements and near existing structure locations. Transition structures would be located on PG&E property or as a new easement on City of Oakland property. Underground portions of the rebuild are expected to be placed in city-owned roadways per a franchise agreement with the City of Piedmont and the City of Oakland, respectively, where not on PG&E property or a City of Oakland easement.

New and modified permanent easements are expected to be required at the approximate locations shown in Table 2.2-2, Existing, Modified and New Land Rights or Easements, Approximate Dimensions (in EIR Appendix B). New or modified easements are needed to rebuild the lines to standards such as structure relocations, blow out of the conductor at high wind conditions and for the single new span to transition structures along Park Boulevard near Estates Drive. Existing easement restrictions are expected to be compatible with the proposed rebuild of the overhead lines. Existing easements with private or public entities are anticipated to be perfected. Easement perfection is the process where ongoing terms of easement use in practice are formalized in the easement agreement. Approximately 2 new permanent easements, approximately 43 modified easements, and modified use of existing franchise rights in approximately 22 locations, are expected to be acquired or modified, respectively, as described in Table 2.2-2 Existing, Modified and New Land Rights or Easements, Approximate Dimensions, (in Appendix B) and shown in detail on 18 sheets of Figure 2.2-1, Existing and Anticipated Modified and New Easements (in Appendix A. The proposed easement changes are required to maintain safe distances between PG&E facilities and any future encroachments.

Relocation or demolition of commercial or residential property or structures is not expected.

When the final Project alternative is approved by the CPUC, PG&E would finalize design and develop new or modified easement documents for landowner review and negotiation. After PG&E and the landowners come to terms with the easement language and compensation, the document would be signed by both parties and recorded with the Contra Costa or Alameda County Assessor Offices.

The underground portion would be located on PG&E property owned in fee, use existing franchise rights with the City of Oakland or the City of Piedmont, or obtain a new easement from the City of Oakland on Assessor Parcel Number (APN) 029A-1330-013-01. The new connecting overhead span between RS26 and TS27A and TS27B would cross portions of APN 029A-1330-12-5 and APN 029A-1330-013-01. A new PG&E easement, an area of approximately 70 feet by 100 feet and an area of approximately 430 feet by 100 feet, would be requested from the City of Oakland as listed in Table 2.2-2 (Existing, Modified and New Land Rights or Easements, Approximate Dimensions) in EIR Appendix B.

Temporary construction easements would be required for work areas, access, tension pull sites, potential staging areas, and landing zones/staging areas (LZ/SA) identified on Figure 2.1-2 (Proposed Project Detail Map) that are outside of existing PG&E land rights. Most temporary areas and access are expected to be within or adjacent to the existing alignment wherever reasonably feasible. Potential staging areas available at the time of construction are described in Section 2.5.2.

PG&E would acquire the necessary land rights to accommodate all anticipated construction work areas and access associated with the proposed Project and would obtain ministerial encroachment permits to conduct work in public rights-of-way in accordance with municipal requirements. As well, PG&E would rent any necessary space or acquire temporary construction easements from private or public landowners to stage materials and equipment during construction, as needed.

When the final Project alternative is approved by the CPUC, PG&E would finalize design and develop temporary construction easement documents for landowner review and negotiation.

2.3. Construction

The following sections provide a description of the Project's construction activities regarding access, staging areas, work areas, site preparation, work activities at Project components, management of materials and waste, and other typical construction methods.

2.3.1. Construction Access

Access for construction equipment would be work-location specific along this corridor. Topography and grade within the existing alignment do not allow for continuous linear access by construction equipment or vehicles along the line's alignment. The existing access to the overhead lines would serve as the primary construction access. No new temporary access routes, new permanent access routes or overland access are anticipated for construction or operation and maintenance of the proposed Project. Unexpected conditions during construction or operations and maintenance may require additional unplanned access for safety reasons.

2.3.1.1. Existing Access Roads

Most work areas would be accessed directly from adjacent paved roads or existing dirt access roads. Some work areas without a road would be accessed by foot with equipment and materials placed in the work area by crane or helicopter. Construction-related helicopter activity is anticipated to occur only in the eastern section of the Project. Where the lines are rebuilt underground in city streets access would be from the paved road itself. The existing network of public and private roads, existing dirt or fire roads and walking paths or trails is expected to be used to access structure work areas, tension pull sites, and staging areas as mapped on Figure 2.1-2 (Proposed Project Detail Map). When not on paved roads, most of the existing access roads for the existing power lines are double-track dirt roads. These fire roads are within EBRPD and EBMUD areas and are accessed regularly for park and open space use and for operations and maintenance (O&M) activities. Existing paved roads that are planned for use during construction total 1.28 miles. As no ground disturbance would occur, these roads are not included in Table 2.3-1 (Vehicular Access Roads).

Table 2.3-1 (Vehicular Access Roads) summarizes the types and area of vehicular Project unpaved access roads and expected improvements. In addition to the roads listed in Table 2.3-1 (Vehicular Access Roads), existing public paved roads throughout the area would be used to access the Project site.

Table 2.3-1. Vehicular Access Roads

Road Type	Description	Area (acres)
Existing Dirt or Fire Road	Typically, these are double-track roads and oftentimes have been graded previously. No other preparation would be required, although a few sections may need to be regraded and have crushed rock applied in limited areas for traction.	5.05
Existing Dirt or Fire Road Improvement	Typically, these are double-track roads and oftentimes have been graded previously. Grading or slide repair is required to allow construction vehicle access.	3.77

Figure 2.1-2 (Proposed Project Detail Map) illustrates the proposed Project components in detail on 25 sheets. Each sheet identifies the network of existing roads planned for use during construction, along with improvements anticipated. Modification of existing roads would occur on some unpaved roads, areas of steep topography or dense vegetation growth, at certain intersections or road curves, and during the winter months. Some surface contouring may be required to level existing unpaved access roads. Some of the existing fire roads to be used as temporary access would require widening by up to 8 feet, from an average existing 12 feet, to accommodate construction equipment that may be larger than the typical fire vehicle. Where roads intersect at angles that cannot accommodate the turn radius of construction equipment (such as tractor-trailers hauling structure sections), curve improvements at existing access road intersections would be necessary. Unpaved roads may need to be winterized to accommodate heavy loads in winter or improved in areas of steep topography. Winterizing or improvement of the existing roads may include blading, compaction, rocking, and aggregate placement. If the access road is used in the wet season, construction matting or aggregate base may be laid down over geotextile fabric as needed and removed after construction.

Minimal surface contouring may be required to level the access road following vegetation or tree removal or trimming. The access road improvement would use typical road construction equipment, including bulldozers and graders. Any aggregate added to existing roads would be left in place, unless otherwise specified in landowner agreements. If incidental damage occurs to dirt roads during construction, PG&E would return the road to the condition specified in landowner agreements.

Aside from improvements to existing access roads, no new access roads are proposed for construction, and no associated temporary or permanent gates for access roads are needed. No overland access routes are proposed for construction.

A temporary gate is expected to be installed in existing PG&E substation fencing if the fence is temporarily removed for access to immediately adjacent construction work areas from the adjacent Moraga or Oakland X substation.

2.3.1.2. Watercourse Crossings

The lines span watercourses, including San Leandro Creek, Shephard Creek, Cobbledick Creek, Palo Seco Creek, and Sausal Creek. No vehicles or equipment would be required to cross these watercourses other than where already bridged or culverted. As needed, culverts would be plated to cross. Construction areas and access routes would avoid watercourses, and no impacts to any watercourses are expected during Project activities. No bridge or culvert replacement is expected.

2.3.1.3. Helicopter Access

Construction helicopter activity is anticipated to occur only in the eastern section of the Project. Light-duty helicopters (Hughes MD 500, 505 Bell, or equivalent) and a medium-duty helicopters (Bell 407 Long

Ranger, Sikorsky UH-60 Black Hawk, or equivalent) are expected to be used. The helicopter type would depend on availability at the time of construction.

In the eastern section of the Project, helicopters would be used for conductor-stringing and to support construction survey staking; lifting or transporting of structure components; crew transport to structures; and potentially lifting of equipment for installation of micropile foundations. A medium-duty helicopter typically is used to lift equipment and line structure components. A light-duty helicopter is used to lift and transport lighter loads such as crew members or other light loads. To assist with conductor stringing, a light-duty or medium-duty helicopter would fly a lightweight sock line and thread it through traveler pulleys affixed to structure arms. The SW and OPGW would be strung in a similar manner using a sock line.

Helicopter landing zones would be located within staging areas where feasible or would use existing nearby airstrips and commercial airports; potential landing zones are shown on Figure 2.1-2 (Proposed Project Detail Map) in EIR Appendix A. Designated areas would be identified for helicopter takeoff and landing in staging areas.

Helicopters would be staged and fueled at existing local airports, such as Oakland International Airport, Hayward Executive Airport, Livermore Municipal Airport, or Buchanan Field Airport. However, a fuel truck may be available at Project staging areas to support refueling if needed.

Helicopters carrying any suspended load would not be flown over habitable structures. Because helicopters carrying suspended loads are not anticipated to be flown over residences, it is not anticipated that residents would be required to temporarily vacate their residences. However, in the unlikely event that final construction plans require otherwise, all FAA requirements would be met, and PG&E would coordinate with potentially affected residents (providing a minimum of 30 days advance notice).

During construction, PG&E estimates that up to three medium-duty Black Hawk helicopters would be used for structure replacement for approximately 22 likely non-consecutive days with an average of 5 flight hours per day. Additionally, three light-duty helicopters and three medium-duty helicopters would be used for conductor replacement for approximately 32 days, likely non-consecutive (for an average of 5 flight hours per day) during construction, primarily supporting the activities described previously. Helicopters may land and take off approximately 50 times per day from a landing zone as they transport loads. The helicopter flight path generally would follow the power lines and would avoid flying directly over residences. Suspended loads are not allowed to be carried over occupied residences. Crew transport, equipment transport, and sock line placement typically require approximately 5 minutes of hover time at each structure; the remaining daily flight time would be between the structure sites or tension pull sites and landing zones.

A drone would provide additional aerial construction support during conductor installation and removal by carrying lighter weight lines. A drone with a 32- to 34-inch propeller would be used. It is anticipated that the drone would be used for approximately 2 calendar weeks up to 8 hours per day to pull new static and OPGW in the central and western sections and to pull and remove the sock line used to remove the existing conductor between Estates Drive and Oakland X Substation. Such drones have a flight time of up to approximately 40 minutes at which point the battery would need to be changed to resume operation. Use of a drone avoids use of a helicopter or extensive labor, which would involve multiple days walking the alignment, crossing through yards, dragging rope, and throwing rope over obstacles. The drone is battery powered and would not generate emissions. The drone is expected to generate no more than approximately 56 A-weighted decibels (dBA) at 50 feet and would be operated by an FAA-licensed operator.

2.3.2. Staging Areas

Approximately 21 staging areas totaling approximately 16 acres would be used. Most of the staging areas would be within 2 miles of work areas; however, existing PG&E facilities or other locations currently used for staging or storage may be used as needed. Staging areas may include portions of Moraga, Palo Seco,

Hollywood, Claremont K, and Oakland X substations; warehouses; ruderal, paved, or graveled sites; portions of Montclair Golf Course; or other existing commercially available offsite office, warehouse, or yard space.

Potential staging areas are identified in Table 2.3-2 (Potential Staging Areas and Landing Zones) and are shown on Figure 2.1-2 (Proposed Project Detail Map); however, identification of final staging area locations would be determined based on availability at the time of construction.

Table 2.3-2. Potential Staging Areas and Landing Zones

Staging Area (SA) Landing Zone (LZ)	Staging Area Use	Approximate Area[a] (acres)	Existing Land Cover
SA01	Receiving, construction worker parking, staging and laydown	3.48	Developed
LZ01	Helicopter landing, material staging and laydown	0.23	Grassland
LZ02	Helicopter landing, material staging and laydown	0.2	Grassland
LZ03	Helicopter landing, material staging and laydown	0.17	Grassland
LZ04	Helicopter landing, material staging and laydown	0.77	Grassland
LZ05	Helicopter landing, material staging and laydown	0.66	Grassland
LZ06	Helicopter landing, material staging and laydown	0.43	Grassland
SA02	Staging and laydown	0.07	Grassland, Oak trees
SA03	Parking, staging and laydown	0.05	Ruderal
SA04	Parking, staging and laydown	0.81	Paved
SA05	Parking, staging and laydown	0.03	Ruderal
SA06	Parking, staging and laydown	0.03	Ruderal
SA07	Parking, staging and laydown	0.05	Ruderal
SA08	Parking, staging and laydown	0.29	Ruderal
SA09	Staging and laydown	0.08	Ruderal
SA10	Parking, staging and laydown	0.87	Paved
SA11	Parking, staging and laydown	0.06	Paved
SA12	Parking, staging and laydown	2.40	Ruderal
SA13	Parking, staging and laydown	1.02	Paved
SA14	Parking, staging and laydown	0.30	Ruderal
SA15	Staging and laydown	0.13	Ruderal
SA16	Parking, staging and laydown	0.59	Paved
SA17	Staging and laydown	0.26	Ruderal
SA18	Parking, staging and laydown	0.70	Paved
SA19	Staging and laydown	0.04	Ruderal
SA20	Staging and laydown	0.08	Paved
SA21	Construction trailer, staging and laydown	0.22	Ruderal

[a] Includes total area consider for potential use; actual footprint would be refined following discussions with landowners.

Sites that are not paved or otherwise do not have a stabilized surface would require minor site preparation such as blading uneven surfaces, compacting soil, and spreading gravel or an aggregate base on the site to establish a safe work area and to control erosion. If an area is to be used in the wet season, construction matting or aggregate base (averaging 6 inches deep) may be laid down over geotextile fabric, as needed, and removed after construction. If the area was previously disturbed or graveled, newly installed gravel may be left in place, upon landowner approval. Some areas may require vegetation removal if they are

not already vacant. No grading activities are anticipated, and no slope stabilization issues are expected that may need to be addressed at staging areas.

Staging areas typically are used for office trailers, portable sanitary facilities, crew and equipment assembly areas, safety and tailboard training areas, equipment and materials storage, minor vehicle and equipment maintenance, equipment refueling, and vehicle parking.

Power would be provided to staging areas through a temporary overhead service drop if existing distribution facilities allow. If grid power is not available, portable generators may be used to provide power where needed. Portable generators (typically 2,000 watts or less) also may be used on a limited basis to provide supplemental power. It is estimated that one generator may be required per staging area if a service drop is not possible, and that this generator would be run between 4 and 6 hours per day and is included as part of the emissions estimate for construction activities. No temporary staging area lighting is anticipated to be needed.

2.3.3. Construction Work Areas

Figure 2.1-2 (Proposed Project Detail Map) shows the overhead and underground portions, substations, preliminary structure work areas, preliminary tension pull sites, potential staging areas, potential landing zones and access roads and paths. A summary of temporary work areas needed for Project construction is included in Table 2.3-3 (Temporary and Permanent Disturbance Areas) in EIR Appendix B.

Construction work areas would be required at each existing and rebuild structure along the line, at road crossings to install guard structures, at the substations, at tension pull sites, and along the underground portion of the lines. Activities at construction work areas may include vehicle and equipment parking and operation; limited equipment and vehicle maintenance and fueling; material delivery, staging, and removal; structure foundation excavation or drilling and construction; structure assembly, installation, and removal; and structure-specific activities associated with tension pull stringing or conductor removal including drone use. In addition, construction work areas would include excavation and installation of vaults, duct banks and conduits for the underground portion of the rebuild. The work site required for typical guard structure installation and removal would be approximately 5,000 square feet.

Tension pull site activities may include vehicle and equipment operation and parking, limited equipment and vehicle maintenance and fueling, material delivery and staging, tension pull equipment and reel staging, temporary structure anchor installation, stringing sock line by helicopter or drone, pulling and tensioning of the conductor and OPGW, and removal of the existing conductor. Temporary guard structures may be installed over roads, waterways, or other features during tension pull activities. Guard structure work areas would be located to either side of a road. Activities would include excavating holes to install the guard wood poles and road or feature protection. Bucket trucks may also be used to hold the protection over a road.

Most construction work areas are expected to be within the existing alignment or franchise as described in Table 2.3-3 (Temporary and Permanent Disturbance Areas). For in-line structures and dead-end structures, work sites of approximately 100 feet by 100 feet to approximately 200 feet by 200 feet typically would accommodate framing the structure on the ground and setting the structure with a crane, reducing the duration of the structure's construction. Cranes need approximately 32 feet by 40 feet to work with extend outriggers. Cranes would operate within work areas on Figure 2.1-2 (Proposed Project Detail Map).

Crane activity within roadways may require temporary road closures for up to 10 consecutive working days (approximately 2 calendar weeks), which includes all set-up, installing and removing guard structures, staging materials, crane work, and removal of all materials and equipment from a location. Crane work using mobile crane trucks would take approximately 2 days per tower. Crane trucks are not anticipated to remain within a roadway overnight.

Structure installation would occur with each piece of steel being lifted into place where the work area has insufficient space to assemble the full structure on the ground. Work areas for the structure removals in the portion of the line placed underground are expected to be smaller than average to address adjacent constraints such as residential buildings.

Approximately six tension pull sites covering approximately 3.8 acres total are expected to be used (refer to Figure 2.1-2, Proposed Project Detail Map, in EIR Appendix A). Tension pull site locations would be finalized prior to construction within areas covered by prior resource surveys and evaluation or where subsequent surveys show no unavoidable potential impacts to sensitive resources. To the greatest extent feasible, tension pull sites would be in ruderal or developed areas and would use existing roads to minimize disturbance to residences, vegetation, and sensitive habitats.

Staging, excavation, installation, and backfilling activities for each vault in the underground portion of the Project require approximately 1,500 square feet of workspace and would be located within one travel lane and one parking lane on the street. Each vault would require an excavation 42 feet long by 18 feet wide by 13 feet deep and would take approximately 2 weeks to install. When the vaults are installed, the workspace for open trenching operations to install the duct bank between the vaults may extend up to approximately 1,500 feet long by 24 feet wide. Work would be sequential. An active excavation or open trench typically 100 to 300 feet ahead of installation. The duct bank section would be installed in the open excavation as additional excavation occurs ahead of it. The installed duct bank section would be back filled and restored as the trenching advances, minimizing the amount of open trench at any one time. Temporary material staging would be nearby. Multiple crews may be installing different sections of the underground line at the same time.

Trenching work generally is expected to progress at 40 to 100 linear feet per day per crew depending on soil conditions, existing utilities, and other considerations. Overall daily progress is expected to be 300 to 400 feet per workday. In general, closure of one travel lane and one parking lane is needed during the underground power line construction, with one lane remaining open to allow traffic through. Final lane closure plans would be determined following detailed investigations into existing utilities and final construction planning. These plans would be coordinated with the local jurisdiction.

Table 2.3-3. Temporary and Permanent Disturbance Areas

Project Component	Anticipated Approximate Metrics
Permanent Structure (Pole or Tower) Diameter or Base Width	
Lattice Steel Tower (power line)	16 to 28 feet
Lattice Steel Pole (power line)	4.5 feet
Tubular Steel Pole (power line)	6 feet
Auger or Micropile Hole Depth and Width	
Wood (guard structure)	8 feet, 20-24 inches
Lattice Steel Tower (power line)	14 to 30 feet, up to 8 feet
Lattice Steel Pole (power line)	15 to 30 feet, up to 8 feet
Tubular Steel Pole (power line)	15 to 30 feet, up to 8 feet
Permanent Footprint per Structure, Up To	
Lattice Steel Tower (power line)	256 to 748 square feet
Lattice Steel Pole (power line)	64 square feet
Tubular Steel Pole (power line)	113 square feet

Project Component	Anticipated Approximate Metrics
Number of Temporary Structures	
Wood (guard structures)	29
Wood (shoo-fly)	6
Number of Replacement Structures	
Lattice Steel Tower	10
Lattice Steel Pole	14
Tubular Steel Pole	24
Transition Single Circuit or Vertical Double Circuit (single pole)	5
Transition H-frame (two pole excavations for each H-frame)	2
Number of Structures Removed and Not Replaced	
Lattice Steel Tower (power line)	20
3HP direct-bury light-duty steel pole (power line)	1
Tubular Steel Pole (power line)	1
Average Work Area around Structure	
Power line or shoo-fly work areas	14,500 sq. feet
Guard structure wood pole work areas	5,250 sq. feet
Tension Pull Site work areas	27,500 sq. feet
Average Excavation and Work Area around Vault and Duct Bank	
Vault excavation area	9,828 cubic yards
Vault excavation work area	1,500 sq. feet
Duct bank excavation	4.5 feet by 5 feet
Duct bank excavation work area	24 feet by 1,500 foot-length
Number of Vaults and Length of Duct Bank	
Vault (power line)	5-10 per line, or 10-20 total
Duct bank (power line), includes vaults lengths	2.44 miles
Total Approximate Metrics[a]	
Total Temporary Footprint for Project Work Areas[b]	**Approximately 54.51 acres**
Total Permanent Footprint Overhead Portion (aboveground structures)	**Approximately 0.27 acres**
Total Permanent Footprint for Underground Portion (duct banks with vaults)	**Approximately 2.44 miles**

[a] Total acreages estimated using Project geographic information system data.
[b] Total temporary footprint for Project work areas includes work areas outside of and within substations (approximately 47.31 acres total) and trench excavation area for both duct banks (approximately 22 feet by 2.44 miles, or approximately 7.10 acres).

2.3.3.1. Temporary Power

Portable diesel generators may be used on a limited basis to provide power at construction work areas. Portable diesel-fueled construction equipment with engines 50 horsepower or larger and manufactured in 2000 or later would be registered under the California Air Resources Board (CARB) Statewide Portable Equipment Registration Program (PERP).

2.3.4. Site Surveying and Staking

The limits of and access to each work area would be identified and clearly marked prior to construction. Surveyors would stake the work limits where existing access road improvement is needed and the locations of rebuild structures and underground components. Surveyors would mark the ground with

paint, flags, stakes, or other means. Surveyors would mark road surfaces with paint typically to identify work areas within roadways. In the central and western portions of the Project, construction survey staking would occur using ground-based access. A light-duty helicopter is expected to be used to support construction survey staking in the eastern section of the Project where access is limited.

2.3.4.1. Utilities

Prior to any excavation, PG&E would notify utility companies (via the Underground Service Alert [USA]) to locate and mark existing underground structures at line rebuild locations and any other area of ground disturbance. Additionally, PG&E would conduct exploratory excavations (potholing) to prove the locations for proposed facilities as needed. A final determination on the need to relocate utilities would be made during final engineering. Localized underground utilities would be identified and would be avoided or relocated in coordination with the facility owner. If buried utilities are identified during construction and it is not reasonably feasible to avoid the utility, PG&E would coordinate with the utility owner to relocate the facility. Construction methods would be adjusted as necessary to assure that the integrity of existing utilities is not compromised. If any utility requires relocation, PG&E would provide adequate operational and safety buffering.

During conductor installation or removal, existing PG&E power or distribution lines or third party telecommunication lines that cross the power line would be taken out of service as needed. Overhead distribution lines or third-party communication lines may need to be temporarily relocated to allow safe operation of construction equipment during certain activities such as vault installation using a crane. No outage locations are known at this time. Should distribution power line outages be required, they would be planned, and electrical power customers would be notified in advance of planned outages. Distribution line clearances are typically scheduled for up to 8 hours. However, power would be restored as soon as safe to do so. PG&E would comply with the provisions found in California Division of Occupational Safety and Health (CalOSHA) Title 8 of the CCR that are relevant to high-voltage work.

During construction, work planning includes locating and identifying electrical hazards. To avoid electrical hazards, work is located at a safe distance from the lines, or the electrical power lines can be deenergized. In situations where the potential for electrical hazards cannot be avoided, additional precautions include wearing personal protective equipment, including arc flash resistant apparel, or using nonconductive rubber matting as a nonconductive barrier between energized electrical lines and workers.

For overhead communication utilities that need to be temporarily relocated or removed, PG&E would coordinate with the facility owner to temporarily relocate or remove of the lines to create a safe work area. Typically, up to 8 hours would be requested to temporarily relocate or remove lines.

2.3.4.2. Vegetation Clearing

Trees, ornamental landscaping, shrubs, brush, and grasses or other organic matter may be trimmed or removed for to allow construction equipment or vehicles to operate safely within a work area, for clearance requirements for access needs, or for conductor clearance. PG&E would coordinate with landowners when tree, ornamental landscape, or other vegetation trimming or removal is needed. Vegetation trimming and removal would be kept to the minimum necessary.

When tree root removal is required to install underground components, adjacent tree canopy trimming or tree removal may be necessary as determined by a Project arborist if the remaining roots are deemed insufficient to maintain a healthy tree. Approximately 71 trees are expected to be removed from Park Boulevard's central median and along Park Boulevard Way where the underground portion is in adjacent lanes. Conservatively, all trees in the central median are identified for potential removal given the current design phase. As described in Section 2.5.1 (Demobilization and Site Restoration), PG&E will work with

the city to replace landscape-affected properties with vegetation that is compatible with the rebuilt PG&E facilities (PG&E, 2025).

If required, vegetation would be trimmed/removed as necessary, for safe vehicle and equipment movement and operation. Adjacent trees may be trimmed to avoid damage from construction vehicles and to maintain safe lines of sight.

Table 2.3-4 (Estimated Disturbance Within Vegetation Communities) summarizes the estimated disturbance within vegetation communities. Temporary and permanent removal of vegetation associated with structure footprint is estimated for the Project. Types of vegetation expected to be trimmed, removed, or mowed are listed in Table 2.3-5, Estimated Vegetation Management including Tree Trimming or Removal (in EIR Appendix B).

A vegetation management crew would access work areas in a line truck or pickup truck with trailer, as needed. Traffic control would guide traffic where access is temporarily blocked by vegetation or tree clearing crews. Following coordination with landowners and based on preconstruction resource surveys, vegetation would be trimmed or removed. Stumps may need to be removed to provide access. Generally, removed vegetation would be shredded in place and either spread nearby or hauled offsite to either a commercial recycling/composting facility or landfill for disposal. Larger woody branches and trunks may be cut into lengths generally less than 4 feet and left onsite. Vegetation material may be stockpiled within the footprint of Moraga Substation or a staging area and contained onsite until its removal for disposal.

Table 2.3-4. Estimated Disturbance Within Vegetation Communities

Vegetation Community Type	Temporary Disturbance (approximate acreage[a])	Permanent Disturbance (approximate acreage[a])
California Bay Forest	0.09	-
Coast Live Oak Woodland	4.93	0.01
Construction Site	1.17	-
Native Grassland	0.00	-
Non-Native Grassland	10.61	0.03
Northern Coyote Brush Scrub	1.00	0.01
Northern Maritime Chaparral	0.14	-
Park	2.05	-
Restoration Site	0.19	-
Ruderal	0.01	-
Upland Redwood Forest	0.06	-
Urban	36.84	0.01
Urban Mix	1.28	-
Valley Needlegrass Grassland	0.59	-
TOTAL	58.96	

[a] Some project components overlap in geographic information systems and the totals in this table were adjusted to avoid double counting approximate acreage. Existing roads and substation are included in the vegetation community type calculations above. However, existing roads and substations -are not considered natural vegetation communities and are not included in biological impact calculation. As such, the two calculations may differ.

Low-lying vegetation and small shrubs would be brushed using mower-type equipment. Where trees have not grown within the footprint of the Project, trees and shrubs would be trimmed without the need to remove roots and stumps. Removal of the trees would be required if a tree or portions of it interfere with the safe passage of construction equipment or if the tree has grown within the Project footprint.

During the O&M phase of the Project, vegetation management would continue as currently occurring for the existing lines. PG&E anticipates overgrowth to occasionally occur along access routes and the Project footprint and would clear brush as necessary. Clearing of vegetation would be completed according to PG&E's vegetation management practices to ensure access and line operation are safe and to minimize impacts to biological resources. No O&M vegetation management is expected to be required along the underground portion.

To ensure safe power line operation, the CPUC has issued General Order (GO) 95, which specifies the required minimum distance between the ground and conductors that must be maintained for a variety of land uses beneath power lines. Conflicts can arise when trees grow in or extend into these established clearance zones or buildings are built within these zones. Tree trimming to comply with GO 95 is not expected for the existing alignment. Table 2.3-5 (Estimated Vegetation Management including Tree Trimming or Removal) lists the numbers and species of trees and other vegetation types expected to be trimmed or removed as part of the Project.

The City of Oakland and the Contra Costa County have tree ordinances addressing native species and trees of a certain size. In Oakland, coastal live oak measuring 4 inches diameter breast height (dbh) or larger is protected and a permit is required for the removal of the trees, which is not applicable to this Project.[6]

Approximately 80 coastal live oaks measuring 4 inches dbh or larger are expected to be removed; approximately 5 coastal live oaks with a 3-inch dbh measurement or larger are expected to be removed, and approximately 47 coastal live oaks are expected to be trimmed. Any tree except eucalyptus and Monterey pine measuring 9 inches dbh or larger is protected.

In the City of Oakland, approximately 129 trees with a dbh of 9 inches or larger (other than coast live oak, eucalyptus, and Monterey pine) are expected to be removed and 2 trees with a dbh of 9 inches or larger (other than coast live oak, eucalyptus, and Monterey pine) are expected to be trimmed.

Under Contra Costa County Tree Ordinance section 816-6.6004 any of the trees listed are protected and a permit is required (although a permit would not be required for this Project) to cut down, destroy or trim by topping where the listed tree is adjacent to or part of a riparian, foothill woodland or oak savanna area, or part of a stand of four or more trees, measures 20 inches or larger in circumference (approximately 6.5 inches in diameter) as measured 4.5 feet from ground level. In Contra Costa County approximately 46 trees and 1 shrub listed as indigenous species are expected to be trimmed or removed and may be considered a protected tree. Also, approximately 35 coast live oak, 10 California bay laurel, 1 willow species and 1 Toyon shrub that are expected to be trimmed or removed may meet the county's criteria.

Tree removal is regulated in the City of Orinda pursuant to Orinda Municipal Code (OMC) Chapter 17.21 - Tree Management. Approximately 7 coastal live oak and 1 California bay laurel measuring 4 inches dbh or larger are expected to be removed; 1 California bay laurel with a 2-inch dbh measurement or larger is expected to be removed; 1 California bay laurel with a 20-inch dbh measurement or larger is expected to be trimmed, and no other native trees are expected to be trimmed or removed.

2.3.5. Power Line Construction Aboveground

For structures between EN1/ES1 and EN28/ES30 that are being replaced, PG&E would construct the replacement foundations and install the new structures, transfer the existing conductor to pulleys on the new structures, and then remove the existing structures and, as feasible, foundations. It is expected that work on the rebuilt Circuits 3 and 4 would be complete before Circuits 1 and 2. This would allow TN27A/B

[6] CPUC General Order 131-D, Section XIV.B states that "local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the Commission's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." As a public utility project that is subject to the jurisdiction of the CPUC, the proposed Project is exempt from local regulation and discretionary permits.

for Circuits 1 and 2 to be installed with ES30 of Circuits 3 and 4 removed. No longer needed structures EN29/ES31 to EN37/ES38 are expected to be removed after the new circuits are in place and operational.

Lattice Steel Towers. A crane or helicopter would lift each assembled tower section into place. (Helicopter use only be used in the eastern section of the Project.) Tower sections would be lifted into place, followed by the window, arms, and bridge (also called the head section). Motorized equipment with winches and pulleys may be used where needed based on site conditions and access. Towers in the eastern section that are proposed to be reused would have top section pieces replaced.

Lattice Steel Poles. A crane would be used to lift each assembled LSP section into place. Body sections would be lifted into place, followed by the window, arms, and bridge.

Tubular Steel Poles. Tubular steel pole installation would be conducted with typical ground-based equipment, such as cranes, flatbed trucks, and line trucks. The new TSP with attached arms would be set on the foundation and attached using anchor bolts. Two recently replaced TSPs are expected to have their top sections removed and replaced including new arms and wire attachment points. Transition structures, being a type of tubular steel pole, would be installed using the same methods.

Foundations. Single drilled-shaft reinforced concrete and micropile foundations are expected to be used. LST foundation excavations would range from 3 to 8 feet in diameter and 14 and 30 feet deep. Typical excavations for new LSP and TSP structure foundations would range from approximately 6 to 8 feet in diameter and be approximately 15 to 30 feet deep. Foundations could be larger depending on site-specific geotechnical conditions. Excavation for each transition pole is expected to be approximately 4 to 5 feet in diameter and approximately 20 to 30 feet deep.

Drill rigs would be used to install the foundations. Steel casings may be used to stabilize subsurface soils. These would be advanced by the drill rig or a vibratory hammer attached to a crane or a combination of these methods. Approximately 1.5 feet of crushed stone backfill would be placed at the bottom of each foundation excavation. Open foundation excavations would be surrounded by fencing or covered when the site is inactive.

For reinforced concrete foundations, crews would place cage support and formwork into the excavation; the steel reinforcement cage would be installed by crane. The cage may be assembled onsite or offsite at Project staging areas. A typical caisson foundation (3 to 7 feet in diameter and approximately 20 to 30 feet deep) would require approximately 32 cubic yards of concrete. Concrete from a commercial supplier would be delivered by trucks work sites. After the poured concrete has reached an acceptable strength, the cage supports can be removed and pole sections may be installed.

Alternative foundation types may be used where required by subsurface geotechnical conditions, Project schedule, or other constraints. These could include screw piles and micropiles, rock anchors, pad and pedestal or shallow foundations, and grillages.[7] If micropiles are required at a foundation location, 4 to 16 or more micropiles maybe be installed per location. Micropiles are typically reinforced with a casing or a center reinforcing bar. Each micropile is typically 12 inches in diameter or smaller and is expected to be drilled to a depth of approximately 30 feet on average. They are constructed by drilling a borehole, placing a steel rod into the hole, and then pressure grouting around the rod. Additionally, a concrete or steel cap is sometimes required to transfer the structure loads to the foundation elements. Shallow foundations may be used in areas where hard rock occurs or where conditions are otherwise difficult for excavation. Track-mounted shovels would be used for this type of excavation for shallow foundations.

The surface and subsurface earth material would be stockpiled separately and returned to their approximate locations in the soil profile or would be disposed of offsite at an approved disposal location. Excess

[7] Grillage foundations consist of one or more tiers of beams (steel or timber) superimposed at right angles to each other on a concrete layer to disperse load over an extensive area.

soils from the excavation would either be spread out and compacted onsite to avoid erosion or runoff or hauled off and disposed of at a soil-handling facility.

Material Delivery and Structure Assembly. Flatbed trucks would deliver materials to a work or assembly site. LST materials would be delivered to a site in bundles. Crews would assemble these bundles within the designated work area and use a crane or helicopter to lift them into place. LSPs and TSPs would be delivered in sections and assembled at ground level. Helicopter use is anticipated to occur only in the eastern section of the Project.

In areas where the typical construction work area is not feasible because of proximity to residences or other buildings, areas with dense vegetation cover, or in areas of steep topography, a reduced footprint may be required. This reduced footprint would likely require less-efficient construction for the structures through a process called "stick framing" of LSTs or TSPs. Stick framing requires that each section be installed in place: the first section is lifted onto the foundation or directly embedded base section; then subsequent sections and arms are set in place.

The most efficient way to install a structure is to frame and assemble the sections on the ground before lifting the entire structure in a single crane operation or pick. Depending on the available area at the site, the contractor may choose to use existing disturbed areas, such as access roads, to frame structures on the ground.

Structure arm assembly would be conducted within the structure work sites. These assemblies typically include the arms, insulators, and hardware necessary to support the conductors. Subsequently, assemblies would be lifted into place by the crane.

Arms would be attached in the horizontal position to the new structure on the ground prior to installation where feasible and safe. In situations where the new arms would be too close to the existing conductors or structures, the arms would be attached in a vertical hanging position and raised to the horizontal position after existing nearby conductors are removed.

A temporary shoo-fly may be used to keep existing power line or distribution line conductor suspended while the replacement structure is being installed, or an existing structure is removed. A shoo-fly is created by temporarily relocating existing lines to one or more temporary light-duty steel or wood poles to allow work to occur on the structure being removed or replaced.

Removal of Existing Structures. Varying approaches to removing existing structures and foundations would be used in work areas having accessibility limitations. Where helicopter or crane access is possible, disassembled structure sections would be lifted to the ground for further disassembly. Disassembled elements would be either transported to a laydown area or directly to a recycling facility. The legs or structure base would be cut off just above the foundations and removed.

In some locations, structures are expected to be cut and removed piece by piece by hand and carried out by hand. Structure pieces would be sorted into waste bins or trucks for hauling away and disposed of at an appropriate offsite location. The existing ES8A and ES8B have no foundations and are expected to be pulled out of the ground using a hydraulic jack attached to a line truck.

Existing foundations would be removed, typically to 3 feet below ground surface, unless cutting them off below ground surface would increase environmental impacts or a landowner prefers to keep the foundation in place on the property. A foundation would be removed using hand tools and jack hammers as needed. Any excavation resulting from foundation removal would be filled with compacted soils excavated from the new structure foundation sites. To the greatest extent possible, all cut materials from the overhead power line construction would be reused as fill following suitability testing. Representative samples of excess soil would be collected, analyzed, and profiled for disposal in accordance with all federal, state, and local regulations. Engineered fill material would be imported as needed to accomplish the necessary compaction and final grade.

Conductor and Cable Stringing. When conductors are strung between structures, tension pull sites are used to raise the conductors to the proper ground clearance height and to the proper conductor tension. Figure 2.3-1 (Typical Conductor Stringing Diagram) shows a typical conductor stringing diagram, including stringing equipment. Conductor stringing would proceed in discreet segments. Reel trailers with reel stands would be mounted on line trucks or semi-trucks to deliver the conductor to the tension pull site. Pullers on a line truck would install (pull) the conductor from the reels, through pulleys on the structure arms. Equipment at tension pull sites is used to raise the conductors to the proper ground clearance height and to create proper conductor tension. Prior to conductor installation, temporary guard structures would be installed as needed to protect vehicle and pedestrian crossings, railroads, waterways, and existing utilities from possible falling conductor.

The process would begin with replacing existing insulators with temporary traveler pulleys at each structure within the segment. Crews then pull a sock line through the traveler pulleys. In the eastern section, a sock line could be pulled by a light-duty helicopter and threaded through traveler pulleys affixed to structure arms. The existing conductor may be used as the sock line in some locations. A hard line is attached to the sock line and pulled through the traveler pulleys under a specified tension. The conductor then is attached to the hard line and pulled through the travelers under its specified tension. Battery-operated drones may be used to install the pulling line for the SW. After the new conductor is pulled into place, the sags between the structures are adjusted to the specified ground clearance. The conductors then would be clamped to the end of each insulator. The final step of conductor installation would be to install vibration dampers and other accessories. SW and OPGW installation are pulled into place and tensioned using a similar process.

When the replacement conductors are installed and the hybrid rebuild lines are in use, the existing conductors between EN29/EN31 and Oakland X Substation would be removed by reversing the conductor installation process. The existing conductor would be pulled onto wire reels at a tension pull site to remove it from the structures, pulling until a sock line is in place. A drone would be used to remove the sock line between EN29/EN31 and Oakland X Substation by carrying the end of the sock line between structures under the line removed to the tension pull site. The conductor lengths would be removed by truck and trailer depending on the amount and taken to an appropriate facility.

When multiple reels of conductor are pulled for a power line segment, conductor splices join the two ends of conductor together. Compression splicing is a mechanical process where two ends of a conductor are pressed together. Because compression splices generally are not pulled through conductor stringing blocks, they would be performed at structure work areas, roads, and other disturbed areas where crews and equipment can perform the compression on the ground or be lifted to the conductor level to perform the splice.

Locations of six potential tension pull sites are identified on Figure 2.1-2 (Proposed Project Detail Map). The average distance between tension pull sites is between approximately 4,000 and 8,500 feet. The area of the potential sites ranges between approximately 0.2 acre and 1.5 acre.

Telecommunications. The OPGW and SW would be installed in the top conductor positions of ~~Circuits 1 and 2 on the northern~~ each line and would transition underground at the same location as the power lines. When transitioned underground, this cable is referred to as a fiber optic cable, and it would be installed in a dedicated conduit within the duct bank for each power line. The OPGW would be strung and tensioned in a similar manner using the same equipment as the overhead conductors. Between Structures EN1 and EN10, in the eastern section of the Project, the pulling line would be installed by helicopter. Between Structures EN10 and TN27A&B, the pulling line would be installed by drone.

Guard Structures. Guard structures may be created with line trucks or wooden poles with crossbeams or netting. Where wood poles are used, an auger would excavate holes where the wood poles would be embedded. The hole is approximately 8 feet deep and 20- to 24-inches in diameter. A crane or line truck

would place the wood pole in the excavation hole. The native soils would be used to backfill the excavation and support the pole. Two vertical poles would be connected by a horizontal pole used as a beam. During installation, equipment generally would be staged from existing roadways or disturbed areas. In instances where netting is required, such as the SR-13 crossing, crews would install temporary anchors and guy wires to support H-frame structures. Netting then would be installed between two cables that are attached to each H-frame structure on either side of the crossing. Example guard structures in use on other projects are shown on Figure 2.3-2 (Example Guard Structures). For pedestrian trails, in open space areas, and at other crossings, traffic controls or flaggers may be used in place of physical structures during conductor installation. In place of using guard structures over distribution lines, existing distribution lines may be taken out of service when such line clearances, or outages, are not in conflict with customer needs or nonconductive rubber matting may be placed directly on the distribution line to protect the line. If such line clearances are necessary, they would be coordinated in advance with each customer. When guard structure poles are removed, the hole is backfilled, and the dirt is compacted.

2.3.6. Power Line Construction Underground

The first operation during construction of the duct bank and splice vault system would be excavation for the placement of the vaults along the duct bank alignment. Because these are the largest components that would be placed underground, it is typical to have the initial construction crew excavate and place the vaults prior to the trenching and duct bank installation work. This process provides fixed ends for the trenching and duct bank crews to work toward, should any minor adjustments on the location of the vaults occur during construction. When adjacent vaults are installed, trenching and duct bank installation between the vaults can begin. Cable installation would occur when the full length of the double-circuit duct bank for the power lines is installed.

The following lists underground construction activities for each double-circuit duct bank, including the approximate pace and duration per activity (PG&E, 2025).[8]

- **Vault Excavation and Installation,** including shoring, soil hauling, and backfill – 2 weeks for each vault (3 months, 60 workdays duration)
- **Duct Bank Trenching and Conduit Installation,** including shoring, soil hauling, and backfill – 40 to 100 feet/day per crew. 2-3 crews working may be 300-400 feet/day. (6 months, 120 workdays duration with 2-3 crews)
- **Cable Pulling through Conduit Installation and Cable Splicing** – 6 days to pull cable between adjacent vaults, and 20 days for splicing at a vault (5 months, 90 workdays duration with 2 crews)
- **Repaving**, including lane striping – All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible (APM AIR-1) (15 workdays duration).

Vault Installation. The vaults would be installed at approximately 800 to 1,000-foot intervals. Excavated soil, pavement, concrete and road base is estimated to be approximately 9,828 cubic yards per vault. The vault excavation requires shoring, such as with driven sheet piles or slide rail steel sheeting. When the initial excavation and shoring is installed, crushed rock would be installed to create a finished grade for vault placement.

Precast vaults would be delivered in sections on flatbed trailers. When the vault preparation steps (excavating, shoring, and finished grade leveling) are completed, precast vault sections are lifted and set using either a hydraulic or a lattice-type crane. Most vaults are expected to have three round utility covers to provide access to the cable. Separate smaller telecommunications vaults would be constructed in-line

[8] The pace and durations are approximate and may change depending on final engineering, field conditions, or other factors. Additionally, the active working days, weeks, or months required to complete the activity listed may not occur continuously or sequentially, active working days may be spread out over a longer period of time.

with the duct bank system to provide pulling and splicing locations for telecommunications cable. A telecommunication vault would be constructed within approximately 40 feet of each splice vault. Each telecommunications vault would have one utility cover to access the vault. With all sections of a vault set in place, backfilling can start when the shoring is removed. After the vault is placed and backfilled, temporary road restoration work would occur.

Trenching and Duct Bank Installation. The duct bank trench would be made by using a saw cutter to remove sections of pavement, followed by a backhoe to remove pavement base and remove underlying soil up to the trench depth. The duct bank trench would be approximately 4 feet wide by approximately 5 feet deep on average but may occasionally be deeper (up to 10 feet), depending on field conditions, the presence of other utilities, and the depth of vaults along the route. Excavated soil can be tested for contaminants prior to construction or during construction. If done prior to construction, testing of soil would require soil samples to be taken from several locations along the route. If done during construction, excavated soil would be removed and placed in storage until the soil can be tested for contaminants. If no contaminates are found, excavated ground soil may be used as backfill or disposed of at a nearby landfill. If contaminants are found, excavated soil would be disposed of at an appropriate landfill. Using an approximate total length of 2.44 miles and an average depth of 5 feet, a total of approximately 257,644 cubic yards of material (primarily soil) is expected to be removed from the trenches; of this, approximately 40 percent or 103,058 cubic yards would be used as backfill and approximately 154,589 cubic yards would be removed for disposal at an appropriate offsite facility.

Trench work typically would proceed in 150-to-300-foot segments. When final trench excavation depth is reached, trench walls are secured using shoring. When the shoring process is complete for a section, a crew would install conduit, providing a raceway for the electrical cable. The conduits would be placed on sandbags and then encased in a thermal concrete casing at least 1.5 feet thick. Thermal concrete would be poured directly from a concrete truck into the trench to encase the conduits.

Where the electrical line duct bank crosses or runs parallel to other subsurface structures that have operating temperatures at earth temperature, the preferred radial clearance is 24 inches; however, in some locations, a minimum radial clearance of 12 inches may be required depending on the existing utilities within the route. A 5-foot minimum radial clearance would be required where the new duct bank crosses another heat-radiating substructure at right angles. A 15-foot minimum radial clearance would be required between the duct bank and any parallel substructure with an operating temperature significantly exceeding the normal earth temperature. Such heat-radiating facilities may include other underground power lines, primary distribution cables (especially multiple-circuit duct banks), steam lines, or heated oil lines.

PG&E has performed subsurface utility surveys and would continue to identify utilities prior to final design. PG&E would evaluate the proximity of utilities and potential for induced current and corrosion and, in coordination with the utility system owner, would determine whether steps are necessary to reduce the potential to induce current or cause corrosion.

Conductive objects, such as ungrounded wire fences, residential rain down spouts, or other metal objects within or adjacent to the alignment, can receive sufficient electrical charge through induced current to cause a nuisance shock. During final design, PG&E would identify where induced currents from the power lines could charge conductive non-utility facilities. PG&E would use grounding methodology to manage induced currents associated with Project facilities. For example, one grounding rod (or more) would be attached to a metal fence to create a path for electrical current to travel into the ground to dissipate.

PG&E would take the necessary steps in coordination with those utility system owners to minimize any potential effects through measures such as increased cathodic protection or utility relocation. Cathodic protection is achieved through using a system the includes galvanic anodes made of metal alloy that corrodes before the metal infrastructure that it is protecting. Final design would include a cathodic protection system as part of the grounding function for the approved Project location.

The conduit casing would be covered by a non-bonding agent/barrier and would be a minimum of 3 feet below the road surface. The space between the agent/barrier and the road surface would consist of a controlled density fluidized thermal backfill that would be placed above the concrete that encases the conduit and would be compacted. Backfilling material is expected to include various types of engineered material generically referred to as flowable or controlled-density fill. Flowable thermal concrete (FTC), lime slurry, or an appropriate alternative such as sand would be used around the conduits. Controlled density fluidized thermal backfill would be above the conduits. Each material has unique properties specific to its application, while both are designed to have thermal characteristics for heat displacement. For a typical trench, the bottom 2 feet encases the conduit with FTC while the remainder of the trench is filled with diggable controlled density fill to the roadway subbase level. If lime slurry is unavailable, a low-strength thermal concrete is an alternate approved material that meets PG&E thermal backfill requirements. While the completed trench sections are being restored, additional trench lines would be opened farther down the road. This process would continue until the entire conduit system is in place.

Cable Installation. A cable consists of three individual conductors (one per electrical phase) bundled into one strand and a communication fiber optic cable. To pull each cable through the duct bank, a cable reel is placed at the end of a duct bank section behind a vault on the road surface, and a pulling rig is placed at the other end of the duct bank section in another vault. With a small rope called a fish line, a larger rope is pulled into the duct. The large rope is attached to pulling eyes on a conductor end, and the conductor is pulled into the duct. To ease pulling tensions, a lubricant is applied to the conductor as it enters the duct.

Cable Splicing and Termination. Prior to splicing, the vault is outfitted with steel racks to ensure that the cable splices are securely affixed to the vault's inner walls. After the racks have been installed, a splice trailer with a mobile power generator is positioned adjacent to the vault access. During splicing, the vaults must be kept dry to prevent water or impurities from contaminating the unfinished splices. The cable for each of the four circuits would continue underground to Oakland X Substation, where each would transition aboveground on a transition structure. The circuits then would be terminated at the existing exterior terminals on the Oakland X Substation building.

2.3.7. Substations

When PG&E determines that buses, circuit breakers and air switches require replacement, replacement equipment would be delivered on a truck and lifted into place after the old equipment is removed. Equipment structures and foundations would be reviewed as part of the equipment replacement and may be replaced as well. Wiring within the boundary of the substation may be modified and/or replaced, as needed. No changes to buildings, structures, or fencing would occur at either substation.

All work at Moraga and Oakland X substations would take place within existing PG&E property and would involve changing out equipment to be compatible with the new conductors and looping the new OPGW into existing control equipment. Upgrades would include the addition of new relays and associated mounting infrastructure.

System protection modifications may be required. Prior to placing the new power lines into service, PG&E would ensure that the components, as well as the overall system, have adequate protection from faults and other electrical abnormalities. Equipment (relays) may require adjustments to coordinate with the new equipment or may need to be upgraded or replaced. Firmware upgrades may be needed if the devices are not of the same vintage and capability. Full device replacement may be required to address the existing vintage, capability, or compatibility.

The work would occur within the control rooms of the existing facilities, and it is minor in nature. The replacement of protective relay devices is a typical operation and maintenance activity and would be performed prior to placing the new equipment into service. The trucks expected to be used for personnel

and material transport are listed in Table 2.4-1, Anticipated Construction Equipment and Workforce (in EIR Appendix B).

No civil work is required for substation modifications. The Project does not anticipate including construction of or modification to slopes, drainage, retention basins, or spill containment.

2.3.8. Public Safety and Traffic Control

2.3.8.1. Public Safety

Any personnel with access to energized electrical substations would be properly trained according to PG&E standard practices. Other potential construction hazards include the presence of high voltage, open-air conductors, which can create a high-temperature electrical arc between the electrical conductor and persons or objects. PG&E's power lines and substation facilities are designed and constructed with grounding devices, and in the event of a lightning strike on a power line, this safety feature ensures that the strike is discharged to appropriate ground, and all workers would be trained in appropriate safety procedures.

No change to the existing perimeter fence type is expected to occur at PG&E Moraga or Oakland X substations. If a portion of the fence is removed for construction access, temporary fencing or an access gate would be installed, and the fence would be replaced in kind at the completion of the construction.

All work would be completed on private land or where PG&E has permanent or temporary land rights or easement and where access is limited to qualified individuals. Signage and temporary and permanent fencing would be used to inform and protect the public near the construction site. Flaggers would be used as standard safety practices for large equipment deliveries and offloads, including safe movement of traffic on highways and streets in accordance with Section 21400 of the California Vehicle Code.

Clearly visible barriers with cautionary signage would be placed around active construction sites, especially sites on or adjacent to roadways and recreation trails. Any open excavations would be securely covered at the end of each construction day.

Prior to stringing conductors, temporary guard structures would be installed at road crossings and other locations where the new conductors may otherwise contact electrical or communication facilities, waterways, or vehicular traffic during installation. Refer to EIR Section 2.3.5 for details on guard structures.

Specific Project areas where public access may be restricted for safety purposes are expected to include some public roads and some sidewalks. Public road access may be temporarily disrupted.

2.3.8.2. Traffic Control

PG&E would follow its standard safety practices, including installing appropriate barriers between work zones and transportation facilities, posting adequate signs, and using proper construction techniques. PG&E would coordinate construction traffic access for work areas and access. PG&E is a member of the California Joint Utility Traffic Control Committee, which published the California Temporary Traffic Control Handbook (2018). PG&E would follow the recommendations in this manual regarding basic standards for the safe movement of traffic on highways and streets in accordance with Section 21400 of the California Vehicle Code. PG&E would comply with all notification requirements as prescribed by the cities of Orinda, Oakland, Piedmont and Contra Costa County, and any Caltrans encroachment permits.

Prior to construction, all traffic control and encroachment permits would be obtained, and traffic control would be implemented in keeping with Transportation Applicant Proposed Measures (APMs). A typical plan for traffic control provides detail on the temporary work locations and temporary road use restrictions and would be prepared as part of the Transportation APMs. Traffic control would be implemented during removal of the existing overhead conductor and installation of the replacement conductor where the lines cross over roads.

The appropriate traffic control configuration would be set up and in place ahead of construction activities, and may include traffic control cones, candles, electronic signage boards, and temporary fixed roadway warning signs for construction personnel prior to reaching the work area in both directions and at egress/ ingress to work areas, as well as appropriate barricades if a total road closure should be required. PG&E also would coordinate provisions for emergency vehicle and local access with the cities, Contra Costa County, or other responsible entity.

For particularly important crossings (such as highway or high-traffic roadways), it may be necessary to control traffic during critical operations at that crossing. Prior to construction, all traffic control and encroachment permits would be obtained, and traffic control would be implemented. For highway or high-traffic county roadway crossings, it may be necessary to control traffic during critical conductor-stringing activities. Any road closures outside of anticipated work areas that must occur on private, city, or county roads are not expected to exceed approximately 5 minutes in duration. For the SR-13 crossing, the California Highway Patrol and Caltrans would be contacted to organize 5-minute rolling stops. Any necessary permits would be obtained from the affected agencies.

No complete long-term road closures are expected, although one-way traffic controls and short-term road closures of up to approximately 10 consecutive working days (2 calendar weeks) would be implemented to allow for certain construction activities (anticipated for crane work activities) and to maintain public safety. Refer to Figure 2.1-2, (Proposed Project Detail Map) for work areas within roadways.

Within Park Boulevard, at least one lane of traffic in each direction is expected to remain open during vault and duct bank installation. A crane would be located within the vault work area (approximately 1,500 square feet, up to approximately 24 feet wide). The portion of the roadway not being utilized for construction, on both sides of Park Boulevard, is anticipated to be sufficient to accommodate at least one lane of traffic in either direction. Where PG&E expects a work area to encroach on a designated city parking, PG&E would apply for an encroachment permit from the City of Oakland or the City of Piedmont as appropriate. The city would review the application and include permit conditions as it deems appropriate.

All open trenches would be plated outside of work hours to allow access to driveways and street parking areas. Temporary plating would be available upon request, when there is no active work in that section of the trench and it is safe to plate the trench. (PG&E, 2025)

Cranes may be set up and operate from other work areas as well. When cranes are set up in a roadway, they are expected to be able to be set up to not block driveway access. Other than the footprint of a crane, work areas within roadways are anticipated to require temporary lane or road closure only during daily construction work hours. At the conclusion of a construction workday, a work area in a roadway would be demobilized and temporary lane or road closures would end. Other than four locations, temporary road closure locations would have ingress and egress available on both sides of the closures (refer to Table 3.18-3, in Section 3.18, Wildfire). Access to the residences at the end of these roads is expected to be maintained; however, vehicular access may be restricted, and residents may need to park their cars on the road up to approximately 200 feet away. These residents would be offered the option of safe transport to and from their residence. The other work areas shown on Figure 2.1-2 (Proposed Project Detail Map) that may require temporary road closures have secondary access; egress options are available from either side of the work areas.

During standard operations, removal of a crane truck from its work area will typically vary between approximately 5 and 45 minutes. The boom will be moved into alignment with the road before it is retracted, lowered, and secured. The outriggers will be pulled in, the outrigger pads moved to a staging area or on the crane, and the crane truck will drive away. While counterweights are typically removed before driving a crane truck, the counterweights can remain on a crane truck when it is driving. In an emergency, if a crane truck is not lifting a load, the set-up steps can occur in reverse within approximately 5 minutes.

However, if the crane is holding a load, it may take up to approximately 45 minutes to remove the crane, as the crane must first lower the load to a safe location before demobilization can occur.

Table 2.3-6 lists work locations in the central and western sections of the Project by existing and replacement structure numbers, the associated road that may be temporarily closed, alternate routes to provide ingress and egress, and the distance from the work area to the nearest intersection in both directions. One lane is expected to be maintained open on Park Boulevard between Leimert Boulevard and Estates Drive during installation of Structures TS27A/TS27B, so these structures are not included in Table 2.3-6. During construction of the underground portion of the project in Park Boulevard, at least one lane each way will be maintained open, and the underground portion of the Project also is not included in Table 2.3-6. Any closures required for installation of guard poles on residential roads will be brief, no more than a day, and are expected to maintain an open lane; these guard pole locations also are not included in Table 2.3-6. Any closures required for installation of guard poles on residential roads will be brief, no more than a day, and are expected to maintain an open lane; these guard pole locations are included in Table 2.3-6 as structures labeled with "GP."

As part of encroachment permit applications, PG&E will develop traffic control plans to detail road and lane closure, width reduction, or traffic diversion as determined by the crane truck operation needs, safety, and in compliance with encroachment permits conditions.

Table 2.3-6. Alternate Routes During Construction-Driven Temporary Road Closures

Access/Work Area Structures	Temporary Road Closure	Alternate Route	Distance to Nearest Intersection
EN10/EN11/ EN11A/RN10/RS10	Manzanita Drive	Skyline Boulevard, Pinehurst Road, and Shepherd Canyon Road to the east; Skyline Boulevard, Scout Road, and Colton Boulevard to the west	0.22 mile to the east 0.84 mile to the west
EN12/ES13/ RN11/RS11	Skyline Boulevard	Manzanita Drive, Pinehurst Road, and Shepherd Canyon Road to the east; Manzanita Drive, Scout Road, and Colton Boulevard to the west	0.26 mile to the east 0.29 mile to the west
EN13/ES15/ RN12/RS/12	East Circle	N/A; no secondary vehicle access[a]	N/A
EN14/ES16/ RN13/RS13	Sayre Drive	Saroni Drive to the north (connecting to Shepherd Canyon Road and other roads); Saroni Drive to the south/west (connecting to Heartwood Drive/Snake Road and other roads)	0.2 mile to the north 0.3 mile to the south/west
EN15/ES17/ RN14/RS14	Saroni Court	N/A; no secondary vehicle access[a]	N/A
EN16/ES18/ RN15/RS15	Balboa Drive	Access through Paso Robles Drive from the north and Asilomar Drive from the west	0.02 miles to the north 0.56 miles to the west
EN17/ES19/ RN16/RS16	West Circle	N/A; no secondary vehicle access[a]	N/A
EN18/ES20/ RN17/RS17	Cortez Court	N/A; no secondary vehicle access[a]	N/A
EN20/ES24/ RN20/RS20	Scout Road	Access through Ascot Drive and Mountain Boulevard from the west	0.28 miles to the west 0.29 miles to the east
EN24/ES26/ RN22/RS22	Monterey Boulevard	Access through next highway exit for Lincoln Avenue	0.68 miles to the south 0.14 miles to the north
EN25/ES27/ RN23/RS23	Leimert Boulevard	Access through Bywood Drive from the east and Carter Street from the south	0.03 to the east 0.17 miles to the west
EN26/ES28/ RN24/RS24	Leimert Boulevard	Access through Carter Street from the north and Park Boulevard from the west	Immediately to the south 0.92 to the west

Access/Work Area Structures	Temporary Road Closure	Alternate Route	Distance to Nearest Intersection
EN28/ES30/ RN26/RN26 (potential pull site)	Park Boulevard	Park Boulevard, Estates Drive, Leimert Boulevard to the south; Park Boulevard, Monterey Boulevard, and SR-13 to the north	0.01 mile to the south 0.54 mile to the north
EN30/ES32	Saint James Drive	Access Trestle Glen Road Access Park Boulevard	0.09 miles to the east 0.56 miles to the west
EN31/EN32/ES33	Glendome Circle	Access from Hollywood Avenue Access from El Centro Avenue	0.01 mile to the south 0.15 mile to the south
EN33/ES34	Glendora Avenue	Access through El Centro Avenue from the north	0.03 miles to the east 0.12 miles to the south
EN34/ES35	Everett Avenue/ Wellington Street	Access to either side of roadway intersection	0.01 mile from to the east 0.01 mile from to the east
EN35/ES36	Holman Road	Access through Hampel Street from the east and Bates Road from the south	0.04 miles to the east 0.18 miles to the south
EN36/ES37	Bates Road	Access through Hampel Street from the east and Holman Road from the north	0.19 miles to the east 0.51 miles to the south
EN37/ES38	Holman Road	Access through Hampel Street from the east and Bates Road from the south	0.29 miles to the east 0.03 miles to the south
EN37/ES38	Bates Road	Access through Hampel Street from the east and Holman Road from the north	0.29 miles to the east 0.03 miles to the south
GP01	Manzanita Drive	Access through Skyline Boulevard from the south	0.2 miles to the east 0.57 miles to the west
GP02, GP03	Skyline Boulevard	Access through Manzanita Drive from the north and Arrowhead Drive from the south	0.25 miles to the east 0.51 miles to the west
GP04	Arrowhead Drive	Access through Skyline Boulevard from the north	0.5 miles to the west 0.31 miles to the east
GP05	Gunn Drive	Access through Saroni Drive from the west	0.04 miles to the west
GP06	Saroni Drive	Access through Gunn Drive from the east	0.03 miles to the north
GP07, GP08, GP09, GP11	Sayre Drive	Access through Saroni Drive from the north and east	0.22 miles to the east 0.20 miles to the north
GP10	Saroni Court	N/A; no secondary vehicle access[a]	N/A
GP12	Paso Robles Drive and Woodrow Drive	Access through Saroni Drive from the east and Balboa Drive from the west	0.19 miles to the north 0.04 miles to the north
GP13	Balboa Drive	Through Asilomar Drive from the west	0.4 miles to the west
GP14	Balboa Drive, West Circle	Through Asilomar Drive from the west	0.32 miles to the west
GP15	Shepherd Canyon Drive	Through Escher Drive from the north	0.52 miles to the north
GP16	Scout Road	Through Ascot Drive from the south and Mountain Boulevard from the west	0.3 miles to the south 0.13 miles to the west
GP17	Mountain Boulevard	Access through Scout Road from the and Ascot Drive	
GP18	SR-13	N/A; California Highway Patrol and Caltrans would facilitate 5-minute rolling stops	N/A
GP19	N/A	N/A	N/A
GP20, GP21	Monterey Boulevard	N/A; no secondary vehicle access[a]	N/A
GP22	Park Boulevard	Park Boulevard, Estates Drive, Liemert Boulevard to the south; Park Boulevard, Monterey Boulevard, and SR-13 to the north	0.01 mile to the south 0.54 mile to the north

Access/Work Area Structures	Temporary Road Closure	Alternate Route	Distance to Nearest Intersection
GP23	Estates Drive	Through St. James Drive from the south, Leggett Drive and SR-13 to the north	0.50 miles to the north 0.12 miles to the south
GP24	St. James Drive	Through Park Boulevard from the south and Cambrian Avenue to the north	0.08 miles to the south 0.20 miles to the north
GP25	how	Through Park Boulevard from the south and Norwood Avenue to the west	0.14 miles to the south 0.5 miles to the west
GP26, GP27	Glendome Circle	Through Park Boulevard from the south and El Centro Avenue to the west	0.2 miles to the east 0.11 miles to the west
GP28	Norwood Avenue	Through Hampel Street to the south and Trestle Glen Road to the north	0.13 miles to the south 0.07 miles to the north
GP29	Creed Road	Through Trestle Glen Road to the north	0.09 miles to the north

[a] Work area would occupy the end of a roadway with no secondary vehicle access, for example, a court.
N/A = not applicable

2.3.8.3. Security

All construction locations where equipment or materials are left onsite overnight would enforce multiple security measures. Temporary fencing, consisting of an approximately 6- to 8-foot-tall chain-link fence with up to an additional approximately 2 feet of barbed wire, would be installed around laydown areas, equipment storage sites, and other sites as necessary. These sites would be locked at night or when construcure crews are not at the site. Security personnel may provide 24-hour surveillance at each location and remote security/cameras while in use for Project construction. Nighttime lighting and alarms may be used, at a minimum, at mobilization sites where equipment, tools, materials, and crew personal vehicles would be housed. Small, focused, downcast lights would be used to illuminate the exterior fenceline and construction trailer doorways and stairs for safety.

2.3.8.4. Livestock

Where existing fencing needs to be removed for access, a temporary gate would be installed in coordination with the landowner. If livestock are present in open space areas during construction activities, installation of five-strand barbed wire around construction work areas and staging areas may be required. Electrified fencing is not anticipated to be needed.

2.3.9. Dust, Erosion, and Runoff Controls

Construction ground-disturbing activities, including grading and vegetation clearing, have the potential to contribute to construction-related dust, erosion, and runoff. The Project would obtain coverage under the State Water Resources Control Board General Permit for Stormwater Discharges Associated with Construction Activity, Order No. 2009-0009-DWQ. Permit coverage would include developing and complying with a Project stormwater pollution prevention plan (SWPPP). In conjunction with the SWPPP, appropriate best management practices (BMPs) would be developed for each activity that has the potential to degrade surrounding water quality through erosion, sediment runoff, and other pollutants. These best practices then would be implemented and monitored throughout construction of the Project by a qualified SWPPP Practitioner.

2.3.9.1. Dust

During all phases of construction, appropriate measures would be taken to minimize the generation of fugitive dust. Water or other suitable dust suppressants would be applied to Project access roads and work areas; stockpiled materials would be covered or otherwise stabilized as needed to control fugitive dust. Stockpiled soils would be compacted, covered, or sprayed with water to prevent dust. Water would

be sprayed on an as-needed basis when noticeable dust particles are on unpaved roadways or substations yards. Use of an ecologically compatible chemical dust suppressant would be encouraged to decrease the quantity of potable water needed for dust control.

2.3.9.2. Erosion

A small, temporary stockpile of excavated soil may be located near a structure excavation to be used as backfill. Stockpiles would be located away or downgradient from waterways. Sediment and erosion control BMPs would be implemented to minimize and control erosion, including gravel bags, silt fences, and straw wattles, and post construction stabilization, including restoration of sites and reseeding where appropriate.

BMPs, including gravel bags, silt fences, and straw wattles, would be used to control dust and minimize erosion potential. Drainage and erosion control design measures include erosion control blankets and riprap. The SWPPP would include measures to limit erosion and offsite transport of pollutants from construction activities. The SWPPP would identify the measures that would be followed during construction to help stabilize disturbed areas and reduce erosion, sedimentation, and pollutant transport.

2.3.9.3. Runoff

The existing grade at construction areas and access roads would not change and the existing drainage patterns would be maintained. The Project SWPPP would include appropriate sediment and runoff control BMPs for the Project work areas. Several of the BMPs that would be employed to manage erosion also would serve to manage stormwater and minimize sediment transport in stormwater runoff. These BMPs could include installation of gravel bags, silt fences, straw wattles, and drain inlet protection at the perimeter of areas and dirt access roads. Stabilized construction access exits would be established where necessary to minimize trackout of sediment onto paved roads in compliance with the Project SWPPP.

2.3.10. Water Use and Dewatering

Water is expected to be used mainly for dust control. Dewatering may be required seasonally at some locations if groundwater is encountered or if rainfall collects in excavated areas.

2.3.10.1. Water Use

Water trucks would support Project construction activities with dust suppression. Approximately two water trucks with an approximate 4,000-gallon capacity may be used daily for dust suppression during the access road improvement or other construction activities using dirt access roads or unpaved staging areas and, as needed, during foundation construction. However, the total volume available within the trucks onsite is not expected to be used daily.

PG&E estimates that a maximum of approximately 8,000 gallons of water would be needed daily for dust suppression. It is anticipated that water would be sourced from local municipal sources close to the Project area, which obtain their water from EBMUD. Depending on availability and distance to active construction, PG&E may supplement Project water needs by using recycled water available from EBMUD's main wastewater treatment plant in West Oakland, which may only be used in EBMUD's service area.

2.3.10.2. Dewatering

Groundwater is not expected to be encountered during trenching, and dewatering is not expected to be needed. If dewatering is required, the water would be sampled and characterized prior to removal and discharge. As appropriate, the water may be pumped into containment vessels (such as Baker tanks) and tested for parameters such as turbidity and pH or as otherwise required. As permitted, groundwater or rainwater would be discharged to a local publicly owned treatment works facility, an upland location, reused for irrigation if appropriate, trucked to an appropriate treatment and/or disposal facility, or used for dust control after testing for parameters such as turbidity and pH or as otherwise required.

2.3.11. Hazardous Materials and Management

2.3.11.1. Hazardous Materials

The Project is not expected to use or store large quantities of hazardous materials. During construction, petroleum-based products such as gasoline, diesel fuel, crankcase oil, lubricants, and cleaning solvents would be used to fuel, lubricate, and clean vehicles and equipment. Refer to Table 2.3-7 for estimated types, uses, and volumes of hazardous materials expected to be used by the Project equipment and vehicles in the onboard tanks for the duration of construction activities.

Table 2.3-7. Types, Uses, and Approximate Volumes of Hazardous Materials Used in Construction

Hazardous Material	Use	Approximate Volume (gallons)
Diesel	Engine fuel	309,231
Gasoline	Engine fuel	35,422
Jet fuel	Fuel	38,119
Hydraulic Fluids/Lubricants	Engine and equipment lubrication and powering of hydraulic equipment	19,134
Other Construction Fluids (solvents)	Cleaning, lubricating hardware, etc.	957

Hazardous materials identified would not be stored onsite. All fueling and storage would occur offsite.
Diesel and gasoline fuel volumes are from PG&E, 2024 and discussed in EIR Section 3.6, Energy.
Hydraulic fluids and lubricants volumes are anticipated to be 5 percent of total fuel volumes.
Other construction fluids volumes are anticipated to be 5 percent of hydraulic fluids and lubricants volumes.

No herbicides or pesticides are expected to be used during construction. If a pre-existing hazardous waste is encountered during construction, PG&E would follow its existing procedures to identify, remove and dispose of the waste according to the applicable regulations.

2.3.11.2. Hazardous Materials Management

Hazardous materials such as fuel, grease, and fluids needed for equipment operation would be onsite periodically and handled in keeping with the Project SWPPP and APMs that address the proper use, storage, and cleanup (if warranted). All hazardous materials would be used and stored as instructed by Safety Data Sheets (SDSs) that would be provided to onsite personnel in case of emergency. Hazardous materials would be transported per applicable regulations such as in specialty trucks or in other approved containers. When not in use, hazardous materials would be properly stored to prevent drainage or accidents.

Additionally, appropriate best practices would be implemented to minimize the effects of an accidental spill such as the presence of spill kits in active work areas to prevent materials from draining onto the ground or into drainage areas. One of the Moraga Substation 115 kV circuit breakers expected to be replaced has an existing volume of mineral oil that exceeded 1,320 gallons. Its spill prevention and containment design measures and practices are included in Moraga Substation's existing Spill Prevention, Control, and Countermeasure Plan consistent with Code of Federal Regulations Title 40, Parts 112.1 to 112.7.

The proposed Project is not expected to use or store large quantities of hazardous materials, but fuel, grease, lubricants, and fluids needed for equipment operation would be onsite periodically and handled in keeping with the Project SWPPP and APMs that address the proper use, storage, and cleanup (if warranted). All hazardous materials would be used and stored as instructed by SDSs that would be provided to onsite personnel in case of emergency. Hazardous waste would be transported per applicable regulations to an appropriate facility for disposal. Herbicides or pesticides are not anticipated to be used during construction.

2.3.12. Waste Generation and Management

Project activities are expected to generate and manage solid waste, liquid waste, and hazardous waste.

2.3.12.1. Solid Waste

Soil removed during excavations, ~~having~~ if it has been pre-characterized, would be placed directly into trucks, removed from the area, and disposed of offsite at an appropriate landfill, or it would be used for backfill if clean. At remote locations in the eastern section of the Project, soils would be deposited into a rock bag and flown with a helicopter to a staging area or spread out around on the ground surface at the immediate site of the excavation per landowner agreements. If soils were flown to a staging area, those materials would then be placed directly into trucks as described previously. Spoils that are not useable and/or are identified as contaminated through appearance would be tested to characterize before appropriate transportation to a licensed landfill facility. Off haul from road improvement is not expected to require removal from the Project. A total of approximately 297,948 cubic yards would be removed for disposal at an appropriate offsite facility.

Wood guard poles would either be reused or recycled. If a pole's condition does not allow reuse, the pole would be recycled or disposed of in an appropriate manner by PG&E.

In addition, crews would gather and sort recyclable and salvageable materials into bins. PG&E expects to recycle or reuse conductor after being removed. The metal framing removed is expected to have 10 percent recycled and 90 percent disposed of as construction waste. Salvageable items (such as useable conductor, steel, and hardware) would be sold through available markets. Some examples of items that may be recycled include replaced substation fence sections, damaged steel from pole assemblies, conductor segments, conductor reels, pallets, and broken hardware. The wood poles used for guard structures would be returned to the staging area and, depending on the condition of each pole, may be reused or disposed of in a Class I hazardous waste landfill or in the lined portion of a certified municipal landfill. Construction of the proposed Project also would generate waste materials that cannot be reused or recycled (materials such as wood, soil, vegetation, and sanitation waste); local waste management facilities would be used for the disposal of these types of construction waste.

When possible, various waste materials generated during construction would be recycled and salvaged. Construction debris would be picked up regularly from construction areas and stored in approved containers onsite; the debris would be hauled away for recycling or disposal periodically during construction. Construction debris including recyclables (metal poles, pole framing,[9] fencing, and pavement), untreated wood, clean soil, and green waste would be recycled and salvaged as appropriate.

2.3.12.2. Liquid Waste

The dust control methods outlined in this chapter would result in minor amounts of water waste that would follow existing drainage patterns. Construction staging areas would include berms and other methods to contain excess water applied for dust control, concrete wash water, and similar liquid construction wastes. Portable restroom facilities would generate minor amounts of liquid waste that would remain contained to the facilities until their removal during regular cleanings by vendors. Concrete washout stations would be established within staging and laydown areas to contain the washout. If the washout is removed before it hardens, concrete slurry can be taken to Waste Management Altamont, 10840 Altamont Pass Road, Livermore, California 94511. Measures to address these liquid wastes would be implemented in accordance with the Project's SWPPP (see APM HYD-1, Prepare and Implement SWPPP). Hazardous liquid waste would be disposed of consistent with applicable laws and regulations.

[9] Framing refers to the metal crossarms that hold conductors.

2.3.12.3. Hazardous Waste

There are no large volumes of known hazardous waste generated by or resulting from Project construction. Minor volumes of hazardous waste would be disposed of using the methods described previously. Limited hazardous waste would be generated during both Project construction and operations and would be handled and disposed of in accordance with local, state, and federal requirements. Typical hazardous waste derived during construction may include limited quantities of used oil, containers, rags, and other used petroleum products. In addition, waste from existing steel tower components, concrete footings, and treated wood poles would be generated during replacement. Steel tower components are expected to have lead paint. Steel tower components found with lead paint would be removed and disposed of at a licensed waste facility per applicable regulations. Concrete footings may contain asbestos; if so, they also would be removed and disposed of at a licensed waste facility per applicable regulations.

If pre-characterization of excavated soil has not occurred, the soil would be stockpiled separately onsite to be tested, managed, and transported for disposal as appropriate. If suspected hazardous substances or waste are unexpectedly encountered during trenching activities (using indicators such as sheen, odor, and/or soil discoloration), work would be stopped until the material is properly characterized, and appropriate measures are taken to protect human health and the environment. Appropriate personal protective equipment would be used, and waste management would be performed in accordance with applicable regulations. If excavation of hazardous materials is required, the materials would be disposed of in accordance with applicable regulations.

Potentially hazardous waste streams during construction may include soils excavated during foundation installation and trenching for the underground cable. Soils would have been pre-characterized and, if deemed hazardous waste, would be placed directly into trucks during excavation and would be removed from the area and disposed of offsite at an appropriate landfill.

Although treated wood waste is not expected, it has the potential to be classified as hazardous waste if it contains elevated levels of arsenic, chromium, copper, pentachlorophenol, or creosote. Treated wood waste often can be identified visually by tags or markings on the wood, when cut staining is visible around the perimeter only, or by discoloration or odor. If encountered, the treated wood waste would be managed in accordance with applicable California and federal regulations. Treated wood waste is expected to be taken to a suitable facility such as Vasco Road Landfill in Livermore.

2.3.13. Fire Prevention and Response

Fire prevention and response procedures during construction are expected to follow standard utility practices and no fire breaks are expected.

2.3.13.1. Fire Prevention and Response Procedures

PG&E would follow its construction fire prevention and response procedures during construction. Procedures are updated per regulation and best practice innovations. The procedures include fire prevention and suppression methods training and briefing for construction workers. Procedures for minimizing potential ignition, including vegetation clearing, parking requirements/restrictions, idling restrictions, smoking restrictions, proper use of gas-powered equipment, use of spark arrestors, and restrictions on “hot work” (i.e., activities that generate heat, sparks, or flame, such as welding, cutting, and soldering) are included in worker training. PG&E has work restrictions during Red Flag Warnings and High to Extreme Fire Danger days as detailed in wildfire mitigation plans. During days with increased wildfire risk potential, procedures may include storage of fire suppression tools and backpack pumps with water within approximately 30 feet of work activities or larger water sources, including water storage tanks or water trucks that would be used in case of a fire. Additional procedures may include assigning personnel to conduct a “fire watch” or “fire patrol” to ensure that risk mitigation and fire preparedness measures are imple-

mented, to report a fire immediately, and to coordinate with emergency response personnel in the event of a fire.

Hot work and welding are not anticipated to be required in work areas; however, as a precaution, if working in grassy areas or around dry vegetation, it would be trimmed and removed from the work area to minimize fire risk. In addition, water trucks and water buffalos (water tanks on trailers) would be present in areas where there is an elevated risk of fire in alignment with PG&E's Construction Fire Prevention standards.

No fire breaks are expected to be needed. Hot work is not planned as part of construction in or near vegetated areas. Dry vegetation and grasses within work areas and existing dirt access roads would be mowed, trimmed, or removed prior to work activities.

2.4. Construction Workforce, Equipment, Traffic, and Schedule

2.4.1. Construction Workforce

The peak workforce is estimated to be up to 117 workers per day during the peak month of construction (August 2029), and average daily workforce would consist of approximately 62 workers. In addition, up to 12 management and compliance monitoring personnel would be present per day on average. On a typical workday, up to 8 crews would be performing Project activities as described in Table 2.4-1 (Anticipated Construction Equipment and Workforce) in EIR Appendix B. During structure installation, several crews may be working on various segments of the lines and at the substations. The breakdown by construction activity is as follows:

- Structure removal and rebuild: approximately 2 crews would be working on various segments
- Substation work: approximately 1 crew would be working at each of Moraga and Oakland X substations to install new equipment
- Underground vault and trenching work: approximately 2 crews would be working in a linear fashion along the underground portion
- Conductor stringing: approximately 3 crews would be in the field, working at pull and tension sites and using helicopters or drones, depending on location. Construction helicopter activity is anticipated to occur only in the eastern section of the Project. Drones may be used within the entire Project area.

Table 2.4-1 (Anticipated Construction Equipment and Workforce) in EIR Appendix B lists the expected equipment and personnel by construction activity. Not all equipment and personnel listed may be used during all portions of the activity. This is a preliminary equipment list, and other equipment may be identified when Project design is finalized, or during construction if unexpected conditions require additional equipment.

2.4.2. Construction Equipment

Table 2.4-1 (Anticipated Construction Equipment and Workforce) in EIR Appendix B lists the anticipated equipment and personnel to be used by construction activity. Not all equipment and personnel listed may be used during all portions of the activity. This is a preliminary equipment list, and other equipment may be identified when Project design is finalized, or during construction if unexpected conditions require additional equipment.

2.4.3. Construction Traffic

Construction crews (worker commutes) would be traveling to and from the proposed sites via a light-duty auto/truck as detailed in Table 2.4-1, Anticipated Construction Equipment and Workforce (in Appendix B). Worker daily commute trips are estimated at approximately 50 miles roundtrip for PG&E. Equipment

would be staged onsite in a work area or brought to the work area daily on work trucks or trucks with trailers. Construction trip types are estimated in miles per day/vehicle by vehicle type and activity as detailed in Table 2.4-1 (Anticipated Construction Equipment and Workforce).

Based on these assumptions, Table 2.4-2 (Estimated Construction Vehicle Trips and Vehicle Miles Traveled) summarizes estimated vehicle trips and vehicle miles traveled (VMT) by trip type and Project construction activity. Estimated vehicle trips are calculated with the daily trip count multiplied by days of use. Total VMT is estimated vehicle trips multiplied by miles/day/vehicle type.

Table 2.4-2. Estimated Construction Vehicle Trips and Vehicle Miles Traveled

Trip Type		Workers or Trucks	ADT	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Workers	Auto/Light Trucks (1.0 PCE)	109	218	109	0	109	0	109	109
	Medium/Heavy Trucks (2.0 PCE)	8	32	16	0	16	0	16	16
Light Trucks (1.0 PCE)		20	40	20	0	20	0	20	20
Medium/Heavy Trucks (2.0 PCE)		47	188	94	0	94	0	94	94
Total Construction Traffic in PCE			478	239	0	239	0	239	239

ADT = average daily traffic
PCE= passenger-car equivalent

For the purpose of this analysis, it is estimated that construction activities associated with rebuilding of the overhead lines, construction of the underground lines, and removal of the existing overhead lines would result in up to 47 large truck (line trucks, semi-trucks, concrete trucks, flatbeds, and cranes) trips per day and up to 20 transport vehicle (crew cab trucks, pickups, and other light-duty vehicles) trips per day.

2.4.4. Construction Schedule

The preliminary proposed schedule is presented in Table 2.4-3 (Preliminary Proposed Construction Schedule). See also Table 2.4-1, Anticipated Construction Equipment and Workforce (in Appendix B). Construction is anticipated to start in August 2028 and to be completed in July 2031. The approximately 35 months would conclude with the removal of the existing overhead lines west of Estates Drive. While the majority of site and roadway restoration is expected to be completed with the construction activity at a work location, some restoration is expected to continue through December 2032.

Table 2.4-3. Preliminary Proposed Construction Schedule

Project Construction Activity	Proposed Schedule
CPUC Issues Permit to Construct to PG&E	August 2026
Initiate Notice to Proceed/Construction Begins	August 2028
Rebuild Western Extent of Lines as Underground (West of Estates Dr)	August 2028 through February 2030
Rebuild Lines Overhead and Remove Existing Lines (East of Estates Dr)	June 2029 through November 2030
Construction Activities at Moraga Substation	September 2029 through December 2029
Construction Activities at Oakland X Substation	September 2029 through February 2030
Replant/Water Landscape Trees (West of Estates Dr)	September 2029 through August 2031
In-service date	December 2030
Restoration (East of Estates Dr)	December 2030 through December 2032
Remove Existing Structures and Conductors (West of Estates Dr)	January 2031 through July 2031
Restoration (West of Estates Dr)	May 2030 through December 2032

The underground portion is not limited by the existing energized power lines and would start at the same time the overhead rebuild would start. Line clearances would be scheduled throughout the Project to deenergize one or more circuits to provide a safe work area or to move or remove line components. Installation of the new foundations and removal of the old foundations may be conducted outside of the clearance windows for the conductors. The rebuilding of lines overhead is anticipated to occur over 18 months and the lines rebuilt underground would occur over 19 months. The rebuild of the overhead and underground portions would occur concurrently as feasible in anticipation of the in-service date scheduled for December 2030. Structure site restoration is expected to occur after each structure replacement.

At a single address on Park Boulevard, assuming a vault would be within 100 feet, PG&E anticipates the following general timeline of construction activities (PG&E, 2025):[10]

- **Vault** (excavation, shoring, soil hauling, installation, and backfill) = 2 weeks.
- **Duct bank** (trenching, shoring, soil hauling, conduit installation, and backfill) = 6 days of active construction progressing at minimum of 40 feet/day, nonconsecutive days expected.
- **Cable pulling** installation at a vault = 12 days (6 days in each direction to the adjacent vault).
- **Cable splicing** at a vault = 20 days.
- **Repaving** and lane striping = 2 days.

Construction at the substations would begin approximately one year after the line construction start. Removal of existing structures where the lines are rebuilt underground is anticipated to be approximately 7 months. Restoration east of Estates Drive includes expected watering of replanted landscaping which could occur over a 24-month period whereas the restoration west of Estates Drive is only scheduled for 1 month. Replanting and watering landscape trees would occur over 24 months. Restoration efforts and the further removal of existing structures would occur concurrently over the following two years.

Overhead line construction schedule would be affected by line clearances, which are usually available for approximately 10 calendar days in cooler months, when power demand is lower. Work outside of October/November through March/April would likely be limited to weekend clearances when demand typically is less and a line clearance can be scheduled.

Crews would be dispatched to structure locations as rights-of-way are available. Construction scheduling would be developed in keeping with landowner agreements and to minimize conflicts with existing land uses, such as those construction activities occurring in EBRPD and EBMUD properties, and construction activities in public roadways within the Project footprint. Scheduling also may be affected by constraints related to bird nesting, environmental concerns, line clearances, weather, red flag warnings, school hours, and other factors. Wet weather may slow or pause work outside of paved areas. Wildlife constraints are not anticipated outside of potentially accommodating bird nesting. Preconstruction bird nesting surveys would occur during the typical bird nesting season, as described in the Project APMs. Buffers for active nests would be incorporated into the 2-week look-ahead schedule, which would be maintained during construction and adjusted as needed. (PG&E, 2024; PEA Appendix B6)

Construction typically would occur Monday through Saturday between 7:00 a.m. and 8:00 p.m. or during times that would be set through coordination with relevant jurisdictions and property owners. If work activities or required clearances on the power lines would cause traffic congestion or necessitate work outside of normal working hours, the Project may require nighttime work or work on Sundays. Longer workday hours, Sunday work, and nighttime work may be required to support activities that need to continue to completion. These may include conductor-stringing activities, conductor splicing, work associated with the underground cable, unanticipated schedule delays, or preparation for inclement weather.

[10] The estimated pace and durations are approximate and may not be specific depending on final engineering, field conditions, or other factors. Additionally, the days, weeks, or months are not necessarily continuous or sequential.

Work at the Project staging areas and substations is anticipated to occur for the duration of the Project, but there would be days when no activities would take place. Over the duration of the Project, it is anticipated that on average work would occur for approximately 14 days at each structure location over approximately 4-6 months for structure replacement or reconductoring or structure and line removal. These workdays may be nonconsecutive. Table 2.4-4 (Estimated Approximate Construction Duration at Work Area Types) shows the estimates for construction activities at each work area.

Table 2.4-4. Estimated Approximate Construction Duration at Work Area Types

Project Construction Activity	Estimated Duration
Staging Areas outside of stations (up to approximately 21 areas or 16 acres)	22 months
Staging Areas in existing PG&E facilities	22 months
Helicopters Using Landing Zones in Eastern Section	22-23 days, nonconsecutive
Helicopter Flights Between Landing Zones/Airport and Eastern Section Work Areas	50 per day
Areas and Access Preparation including Guard Structures	< 1 day/structure on average
Structure Foundation	1-2 days/structure
Structure Assembly and Installation	1-2 days/structure
Transition Structure Installation	2-3 weeks
Structure Removal	1-2 days/structure
Landing Zones	< 0.25 day/structure
Conductor Reconductoring	1-2 days/structure
Tension Pull Sites	2 weeks/site
Underground Vault Installation	2 weeks/vault
Underground Duct Bank Installation	40-100 linear feet/day
Underground Cable Pulling Adjacent Vaults	15 days
Vault Racking and Splicing	7 days
Transition Structure Commissioning	2 weeks
Drone Use in Central and Eastern Sections	2 weeks
Restoration	<1 day/structure on average
Moraga Substation – equipment review and replacement	4 months
Oakland X Substation – equipment review and replacement	6 months

2.5. Post-Construction

The Project would use the testing procedures recommended by the Institute of Electrical and Electronics Engineers and the equipment manufacturers and no special process is planned for configuring and testing. The estimated equipment, duration of work, and personnel requirements for testing are presented in Table 2.4-1 (Anticipated Construction Equipment and Workforce) in EIR Appendix B. After 115 kV equipment testing, end-to-end testing, and SCADA testing have been completed, the hybrid lines would be energized. All necessary clearances would be coordinated by PG&E.

No new landscaping is planned. Both Moraga and Oakland X substations would require no landscaping plans since the Project would not affect existing landscaping at either site. Replanting existing landscaping impacted by construction would be done in coordination with the property owner.

2.5.1. Demobilization and Site Restoration

As work is completed at each work site, the surplus materials, equipment, and construction debris located at the site would be collected and removed. All Project construction debris would be removed and recycled or disposed of at permitted landfill sites, as appropriate. Cleared vegetation would be mulched and left onsite or removed as identified in the landowner agreement.

Following their use, equipment, surplus materials, matting, and supplies would be removed and work sites would be returned to conditions that allow for pre-project land uses. All site improvements would be subject to conditions stipulated in easements obtained from landowners. If the grade or topography was altered during Project activities, final grading would restore contours in keeping with those of the surrounding area and natural drainage patterns. Each site would be returned to pre-project conditions or as specified in landowner agreements. BMPs would be installed, inspected, and maintained according to the SWPPP, as necessary to stabilize disturbed soils. Crews would conduct a final survey to document that cleanup activities have been successfully completed as required.

As part of the final construction activities, PG&E would restore disturbed areas, repave removed or damaged paved surfaces, restore landscaping or vegetation as necessary, and clean up the job site.

Restoration would be done in compliance with the locally issued ministerial permits and is based on matching the roadway's existing subbase and surface (asphalt, concrete, or a combination of both). After backfilling a duct bank trench or vault excavation, a road base backfill or slurry concrete cap would be installed and a pavement surface would be laid where the trench or excavation occurred. The edges of the pavement surface would be leveled to match the existing adjacent pavement surface. If the initial pavement surface is cold patch asphalt, then it would act as a temporary layer to return the road to service per ministerial permit conditions. Temporary cold patch asphalt would be removed before the final road pavement surface is installed. Final pavement surface restoration would use hot mix asphalt, concrete, or a combination of both depending on the ministerial permit conditions. Repaving and striping would be completed sequentially as completed sections of road surface are being restored, and this process would continue until the pavement restoration activity is complete.

Many of the Project areas are in developed and urban areas that are paved or disturbed and free of vegetation or have urban landscaping. Vegetated areas disturbed by Project activities would be restored to conditions equal to or better than preconstruction conditions. These may include limited street or landscaped areas that would be replanted according to an agreement with the city or property owner. PG&E would work with the city to replace landscape-affected properties with vegetation that is compatible with the rebuilt PG&E facilities.

Restoration of non-landscaped vegetated areas would be conducted through seeding of disturbed areas with a habitat-appropriate native seed mix, or other seed mix approved by the relevant property owner. Trucks are used to transport plants or seed mix to the restoration location. As needed, watering is estimated to occur for up to two years. Removal of gravel in areas where it has been laid down would be coordinated with the relevant property owner. In some cases, the gravel may remain in place; in others, it may be removed during post-Project restoration.

2.6. Operation and Maintenance

Following construction of the Project, operation and maintenance activities would consist of routine inspection, repair, and maintenance activities, which would be conducted as they are under existing conditions for existing facilities modified as part of this Project.

2.6.1. Regulations and Standards

PG&E is a public utility, and the operation of its Project would be regulated by the CPUC. The following regulations and standards guide PG&E's operation and maintenance activities for electric lines, substations, and communication systems:

- CPUC GO 95 regulates all aspects of design, construction, operation, and maintenance of electrical power lines and fire safety hazards for utilities subject to CPUC jurisdiction.
- CPUC GO 128 applies to the construction of underground electric and communication lines to promote and safeguard public health and safety.
- CPUC GO 165 applies to all electric distribution and transmission facilities (excluding those facilities contained in a substation) subject to CPUC jurisdiction and orders additional inspection requirements beyond GO 95 to maintain a safe and reliable electric system.
- CPUC GO 174 regulates substation inspection programs for utilities subject to CPUC jurisdiction to promote the safety of workers and the public and enable adequacy of service.
- California Independent System Operator (CAISO) Transmission Owner Maintenance Practices for Electrical Substations, and NERC PRC-005-2, "Protection System Maintenance," supply applicable guidance for maintenance procedures.

Vegetation management is performed to maintain the required safety buffer in accordance with:

- Federal Energy Regulatory Commission Order No. 777
- NERC Standard FAC-003-4, which establishes vegetation management standards for electric transmission lines, also applies to maintenance.
- California Public Resource Code 4292-4293 and 4295.5 address fire hazard reduction for electric lines and establish minimum clearances.
- CPUC GO 95, Rule 35, and Rule 37, and Section III

PG&E's 2023-2025 Wildfire Management Plan[11] is developed in compliance with California SB 901, AB 1054, and guidelines from the California Office of Energy Infrastructure Safety. Revision 4 was submitted to the California Office of Energy Infrastructure Safety on January 8, 2024. The 2023-2025 plan addresses the following:

- PG&E's wildfire safety programs and initiatives focused on reducing the potential for catastrophic wildfires related to electrical equipment
- Reducing the potential for fires to spread
- Containing the customer impact of Enhanced Powerline Safety Settings (EPSS)/Public Safety Power Shutoff (PSPS) events

PG&E's EPSS[12] transmission line protection devices reduce the time it takes for line protective devices such as circuit breakers and line reclosers to deenergize a power line when a fault occurs. These settings are in high fire risk and surrounding areas. Power lines automatically turn off power within one-tenth of a second when EPSS protection devices identify a fault. These faults may occur from vegetation striking a line, animal interference, third-party interference (for example, a vehicle hitting a line), or equipment failure. EPSS does not cause a power outage. These settings help protect customers and communities

[11] https://www.pge.com/en/outages-and-safety/safety/community-wildfire-safety-program.html#tabs-d12abf1841-item-caaebaf89b-tab

[12] https://www.pge.com/en/outages-and-safety/safety/community-wildfire-safety-program/enhanced-powerline-safety-settings.html

from potential ignitions that could result in wildfires by deenergizing the line when a fault is detected on a power line.

In 2022, there was a 68 percent reduction on EPSS-enabled powerlines in CPUC-reportable ignitions in High Fire-Threat Districts on distribution powerlines (compared to the weather-normalized 2018-2020 average). In 2022, despite dry conditions, there was a 99 percent decrease in acres impacted by ignitions as measured by fire size from electric distribution equipment (compared to the 2018-2020 average).

A PSPS[13] event occurs in response to severe weather. Severe weather, such as high winds, can cause trees or debris to damage equipment. If there is dry vegetation, this could lead to a wildfire. During these conditions, power is turned off to help prevent ignition of a wildfire. After the severe weather has passed, PG&E inspects power lines and restores power after equipment inspections are completed and any weather damage repaired. Typically, distribution lines are part of a PSPS event. The Project lines have not been part of a PSPS event.

2.6.2. System Controls and Operation Staff

Monitoring and control functions for the new telecommunication wire collocated on the power lines would be connected to the existing PG&E transmission energy management system. The existing power lines would be monitored and protected by sets of relays located in Moraga and Oakland X substations at each end of each circuit. The required constant communication between protective relays at each end would be over redundant communication paths. Any alarms resulting from relay actions would be promptly annunciated at PG&E's grid control center located in Vacaville, California. In the event of an alarm, required corrective actions can be initiated by operators on round-the-clock duty at the grid control center.

2.6.3. Inspection Programs

PG&E routinely inspects power line structures and substations to verify stability, structural integrity, and the condition of components, including hardware, insulators, conductors, and equipment (fuses, breakers, relays, cutouts, switches, transformers, paint). The PG&E power line inspection process involves three types of detailed inspections: (1) ground inspections; (2) aerial inspections; and (3) climbing that looks for abnormalities or circumstances that would negatively impact safety, reliability, or asset life. Ground inspections are performed visually by an inspector on the ground. Aerial inspections are performed via drone, helicopter, or aerial lift, with desktop image review. Climbing inspections are performed visually by an inspector climbing the structure. The existing lines are inspected annually by existing operation and maintenance crews, currently rotating between inspections, or as needed when driven by an event, such as an emergency or as identified by output from PG&E's Wildfire Transmission Risk Model. The range of inspections performed via helicopter includes infrared inspections to detect overheating and thermal anomalies and corona inspections by imaging to identify where ionization of air may cause an ignition. Detailed ground, aerial, or climbing occur on a 3-year cycle unless modeling indicates the need for a greater frequency. If a detailed inspection is not scheduled, then a patrol inspection occurs. A patrol inspection is a visual review of the asset condition by vehicle or helicopter to detect imminent or existing safety or reliability hazards.

Typically, there are no O&M inspections conducted on a new power line for the first 5 years following the in-service date. Rebuilt line inspections would include routine and detailed ground inspections for the underground portion of the hybrid lines. Routine inspections include quarterly visual inspections of the underground line, termination, and cable. Underground line inspections are expected to occur from roadways or at nearby terminal locations that can be accessed by walking. Access to underground lines or vaults will include traffic control support to open vault covers within roadways. Detailed inspections every two years include visual inspection of the XLPE lines and energized vaults and infrared inspection of the terminations to detect hot spots.

[13] https://www.pge.com/en/outages-and-safety/safety/community-wildfire-safety-program/public-safety-power-shutoffs.html

Current ongoing substation routine operations inspection activities are sufficient, and no additional activities would be required for the proposed Project.

Detailed ground, aerial and climbing power line inspections occur on a 3-year cycle. As of 2023, PG&E introduced a staggered approach to ground and aerial inspections leaving less time between inspections throughout the 3-year baseline cycle. Infrared and corona inspections are completed on high fire threat district (HFTD) Tier 3 lines annually and on HFTD Tier 2 lines at least once every 3 years.

Existing O&M crews are sufficient to complete the inspection processes on the rebuilt lines and substations.

2.6.4. Maintenance Programs

Routine maintenance of the power lines and substations would be performed to correct conditions identified during inspections. A field inspector completes all possible minor/incidental repairs or replacements to correct abnormal conditions that can be performed safely during the inspection. For abnormal conditions not corrected during the inspection, the field inspector prepares a risk-based notification of the required maintenance activity. For example, insulators are not washed as part of regular maintenance unless inspections determine it is necessary. Scheduled maintenance or facility replacement after the designated lifespan of the equipment would vary by equipment type. The rebuilt power line parts do not typically require regular maintenance as indicated by the inspection frequency.

Site-specific conditions would create different rates of corrosion which would be observed during regular inspections and maintenance would be scheduled accordingly. Maintenance would include replacing the cathodic protection components such as a corroded galvanic anode. Current ongoing routine maintenance activities are sufficient, including existing access road maintenance, and no additional activities would be required under the proposed Project. PG&E facilities would not be color treated, and no landscaping is planned; no color maintenance or landscaping maintenance would be required.

Emergency repair operations for damage from storms, floods, vandalism, or accidents would involve the prompt deployment of crews and necessary equipment to repair and replace damaged facilities.

2.6.5. Vegetation Management Program

PG&E inspects vegetation near power lines and substation annually to ensure that vegetation posing safety concern is addressed.[14] High fire-threat locations are inspected more than once a year to ensure trees are a safe distance from the lines. Routine vegetation management includes clearing around structures to allow for the inspections of the structure bases and footings. Patrols and inspections look for vegetation around structures. If woody vegetation is in contact with the structure or significantly interferes with the inspection of the structure base or footings, then appropriate vegetation work is scheduled.

Current ongoing vegetation management programs are sufficient for the powerlines, substations, and access roads, and no additional activities would be required under the proposed Project.

2.7. Decommissioning

It is difficult to predict precisely when or how the proposed Project would be decommissioned (or rebuilt) at the end of the Project's useful life. At the time of decommissioning, PG&E would review and consider current options, issues, and regulatory requirements in consultation with landowners, occupants, government representatives, and other participants having interest in the proposed work.

[14] https://www.pge.com/en/outages-and-safety/safety/vegetation-management.html

2.8. Anticipated Permits and Approvals

PG&E will obtain all applicable permits for the Project from federal, state, and local agencies. Table 2.8-1 (Permits and Approvals that May Be Required) provides the potential permits and approvals that may be required for Project construction.

Table 2.8-1. Permits and Approvals that May Be Required

Permit/Authorization	Agency	Purpose
Federal		
None		
State		
National Pollutant Discharge Elimination System – General Construction Stormwater Permit	Bay Area Regional Water Quality Control Board	Stormwater discharges associated with construction activities disturbing more than 1 acre of land
Encroachment Permit	California Department of Transportation	Installation of temporary guard structures in Caltrans right-of-way and netting across SR 13 during construction
Local		
Encroachment Permit	Contra Costa County City of Orinda City of Piedmont	Conductor installation over/along county or city roads, including traffic controls; temporary construction areas
Temporary Park Access Permit	East Bay Regional Park District	Minor modifications to and use of existing fire roads; temporary construction areas, including helicopter landing zones
Excavation Permit	City of Oakland	Potholing and trenching/ excavation in city streets

2.9. Applicant-Proposed Measures

PG&E proposes the following measures as part of the proposed Project. These APMs are considered part of the Project and would be required to be implemented as indicated unless they are specifically superseded by mitigation measures recommended in EIR Chapter 3.

Table 2.9-1. Applicant-Proposed Measures

Applicant-Proposed Measures
Aesthetics (AES)
APM Aesthetics-1 (AES-1): Aesthetics Impact Reduction During Construction. All project sites will be maintained in a clean and orderly state. Nighttime lighting will be directed away from residential areas and have shields to prevent light spillover effects. Upon completion of project construction, project staging and temporary work areas will be returned to pre-project conditions, including regrading of the site and revegetating or repaving of disturbed areas to match pre-existing contours and conditions.
APM AES-2: Use of Dulled Galvanized Finish or Corten Steel on Replacement Structures and Non-Specular Conductors. Use of a factory-dulled galvanized finish or Corten steel on replacement power line structures and non-specular (nonreflective) conductors will reduce the potential for a new source of glare and visual contrast resulting from the project.
Agriculture and Forestry Resources (AGR)
APM AGR-1: Minimize Impacts on Active Agricultural Areas. ■ Prior to construction, PG&E will provide written notice to agricultural landowners outlining construction activities, preliminary schedule, and timing of restoration efforts. ■ PG&E will coordinate with landowners to minimize construction-related disruptions to grazing operations. To the extent reasonably feasible, PG&E will schedule construction activities to minimize disruptions to grazing.

Applicant-Proposed Measures

- PG&E will restore grazing land temporarily impacted by construction to pre-project conditions following completion of construction, including areas impacted by establishment of temporary staging, laydown and storage areas, overland access, guard structures, and pull sites. The responsibility of performing these various tasks may be stipulated in an agreement between PG&E and the landowner.

Air Quality (AIR)

APM AIR-1: Dust Control During Construction

Pacific Gas and Electric Company (PG&E) will implement measures to control fugitive dust consistent with BAAQMD's Basic Best Management Practices (BMPs) (BAAQMD, 2023) as follows:

- All exposed surfaces within the active construction area (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day as necessary to contain dust.
- All haul trucks transporting soil, sand, or other loose material offsite will be covered.
- All visible mud or dirt trackout onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- All grading activities shall be suspended when average wind speeds exceed 20 mph. If excavating soils when average wind speeds exceed 20 mph, soil piles will be lightly sprayed with water to contain dust to the work area.
- Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations.

Where project activities are within 1,000 feet of residential areas, PG&E will also implement the following additional BMPs, consistent with BAAQMD's Enhanced BMPs (BAAQMD, 2023):

- Limit the simultaneous occurrence of excavation, grading, and ground-disturbing construction activities.
- Minimize the amount of excavated material or waste materials stored at the site.
- Stabilize soil where project grading occurred and the area is inactive for at least 14 calendar days. Soil stabilization measures may include wood mulch, gravel, seeding or application of other non-toxic soil stabilizer consistent with APM HYD-1.

APM AIR-2: Asbestos Management.

If any load-bearing structure (poles, towers, concrete pads) is to be removed, this project will require asbestos testing and notification to BAAQMD. Notify the Environmental Field Specialist (EFS) at least 45 days prior to work commencing. BAAQMD must be notified at least 10 working days prior to work (demolition) commencing. If the construction start date changes, notify the EFS immediately as notification to BAAQMD may need to be resubmitted. EFS is responsible for obtaining any necessary permits from BAAQMD prior to the start of work.

APM AIR-3: Minimize Construction Equipment Exhaust.

PG&E will minimize construction equipment exhaust as follows:

- Use low-emission or electric construction equipment where feasible.
- Ensure that cranes, off-highway trucks, and tractors/loaders/backhoes used during project construction will comply with Tier 4 emissions standards, pending availability.
- Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following startup that limit their availability for use following startup. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction supervisors will include briefings to crews on vehicle use as part of preconstruction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.

Biological Resources (BIO)[15]

Field Protocols (FPs) from the Bay Area Habitat Conservation Plan (BAHCP)

FP-01:

Hold annual training on habitat conservation plan requirements for employees and contractors performing covered activities in the HCP Plan Area that are applicable to their job duties and work.

[15] PG&E APMs include biological resources measures from the Bay Area Habitat Conservation Plan (BAHCP), Bay Area O&M Incidental Take Permit (ITP), and Bay Area O&M ITP EIR, as described in EIR Section 3.4 (Biological Resources) and EIR Appendix F.

Applicant-Proposed Measures
FP-02:
Park vehicles and equipment on pavement, existing roads, or other disturbed or designated areas (barren, gravel, compacted dirt).
FP-03:
Use existing access and ROW roads. Minimize the development of new access and ROW roads, including clearing and blading for temporary vehicle access in areas of natural vegetation.
FP-04:
Locate off-road access routes and work sites to minimize impacts on plants, shrubs, and trees, small mammal burrows, and unique natural features (e.g., rock outcrops).
FP-05:
Notify a conservation landowner at least 2 business days prior to conducting covered activities on protected lands (state and federally owned wildlife areas, ecological reserves, or conservation areas); more notice will be provided if possible or if required by other permits. If the work is an emergency, as defined in PG&E's Utility Procedure ENV-8003P-01, PG&E will notify the conservation landowner within 48 hours after initiating emergency work. While this notification is intended only to inform the conservation landowner, PG&E will attempt to work with the conservation landowner to address landowner concerns.
FP-06:
Minimize potential for covered species to seek refuge or shelter in pipes and culverts. Inspect pipes and culverts of diameter wide enough to be entered by a covered species that could inhabit the area where pipes are stored for wildlife species prior to moving pipes and culverts. Immediately contact a biologist if a covered species is suspected or discovered.
FP-07:
Vehicle speeds on unpaved roads will not exceed 15 miles per hour [mph].
FP-08:
Prohibit trash dumping, firearms, open fires (such as barbecues), hunting, and pets (except for safety in remote locations) at work sites.
FP-09:
During fire season in designated State Responsibility Areas, equip all motorized equipment with federally approved or state-approved spark arrestors. Use a backpack pump filled with water and a shovel and fire-resistant mats and/or windscreens when welding. During fire "red flag" conditions, as determined by the California Department of Forestry and Fire Protection, curtail welding. Each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C. Clear parking and storage areas of all flammable materials.
FP-10:
Minimize the activity footprint and minimize the amount of time spent at a work location to reduce the potential for take of species.
FP-11:
Utilize standard erosion and sediment control best management practices (BMPs) (pursuant to the most current version of PG&E's Stormwater Field Manual for Construction Best Management Practices) to prevent construction site runoff into waterways.
FP-12:
Stockpile soil within established work area boundaries and locate stockpiles so as not to enter water bodies, stormwater inlets, other standing bodies of water. Cover stockpiled soil prior to precipitation events
FP-13:
Fit open trenches or steep-walled holes with escape ramps of plywood boards or sloped earthen ramps at each end if left open overnight. Field crews will search open trenches or steep-walled holes every morning prior to initiating daily activities to ensure wildlife are not trapped. If any wildlife are found, a biologist will be notified and will relocate the species to adjacent habitat or the species will be allowed to naturally disperse, as determined by a biologist.
FP-14:
If the covered activity disturbs 0.1 acre or more of habitat for a covered species in grasslands, the field crew will revegetate the area with a commercial weed-free seed mix.

Applicant-Proposed Measures

FP-15:

Prohibit vehicular and equipment refueling 250 feet from the edge of vernal pools and 100 feet from the edge of other wetlands, streams, or waterways. If refueling must be conducted closer to wetlands, construct a secondary containment area subject to review by an environmental field specialist and/or biologist. Maintain spill prevention and cleanup equipment in refueling areas.

FP-16:

Maintain a buffer of 250 feet from the edge of vernal pools and 50 feet from the edge of wetlands, ponds, or riparian areas. If maintaining the buffer is not possible because the areas are either in or adjacent to facilities, the field crew will implement other measures as prescribed by the land planner, biologist, or HCP administrator to minimize impacts by flagging access, requiring foot access, restricting work until dry season, or requiring a biological monitor during the activity.

FP-17:

Directionally fell trees away from an exclusion zone[16] if an exclusion zone has been defined. If this is not possible, remove the tree in sections. Avoid damage to adjacent trees to the extent possible. Avoid removal of snags and conifers with basal hollows, crown deformities, and/or limbs over 6 inches in diameter.

FP-18:

Nests with eggs and/or chicks will be avoided. Contact a biologist, land planner, or the Avian Protection Program manager for further guidance.

Species-specific Avoidance and Minimization Measures (AMMs) from the BAHCP

AMM Wetland-2:

Identify wetlands, ponds, and riparian areas and establish buffers. Maintain a buffer of 50 feet around wetlands, ponds, and riparian areas. If maintaining the buffer is not possible because the areas are either in or adjacent to facilities, the field crew will implement other measures as prescribed by the biologist or HCP administrator to minimize impacts. These measures include flagging access, requiring foot access, restricting work until the dry season, requiring a biological monitor during the activity, or excavating burrows in ROWs where trenching will occur. Activities must maintain the downstream hydrology to the wetland, pond, or riparian area. Additional minimization measures may be implemented with prior concurrence from USFWS.

AMM Plant-01:

No herbicides will be used for vegetation management, pole clearing, or any other purpose within 100 feet of an MBZ (except vegetation management's direct application to cut stumps when greater than 25 feet from an MBZ and in conformance with applicable pesticide regulations).

AMM Plant-02:

Heavy equipment shall remain on access roads or other previously disturbed areas unless otherwise prescribed by a land planner, biologist, or HCP administrator.

AMM Plant-03:

Stockpile separately the upper 4 inches of topsoil during excavations associated with covered activities. Stockpiles topsoil will be used to restore the disturbed ROW.

AMM Plant-04:

When covered activities greater than 0.1 acre in size within a MBZ will have direct impacts on covered species, work with the crew to place flagging, fencing, or other physical exclusion barriers to minimize disturbances. If the work will directly impact covered plant species, implement AMMs Plant-05, -06, -07, and -08.

AMM Plant-05:

If a covered plant species is present and it cannot be avoided, PG&E will salvage plant material (i.e., seeds, cuttings, whole plants) and prepare a restoration plan that details the handling, storage, propagation, or reintroduction to suitable and appropriate habitat subject to USFWS review and approval.

AMM Plant-06:

If a covered annual plant species is present and it cannot be avoided, conduct covered activities after seeds have matured to the extent possible

[16] Per the BAHCP, an exclusion zone is an area marked with fencing, signage, stakes, or flagging. Exclusion zones are "do not enter" areas, except as instructed by a biologist or the BAHCP Administrator. The exclusion zone distance is a guideline that may be modified by the biologist, based on site-specific conditions (including, but not limited to, habituation by the species or background disturbance levels) (see also ITP FEIR APM BIO-7, Table 5.4-12).

Applicant-Proposed Measures

AMM Plant-07:

If a covered perennial plant species is present and it cannot be avoided, conduct covered activities after seeds have matured to the extent possible. Minimize disturbance to the below-ground portions of the plants (e.g., roots, bulbs, tubers).

AMM Plant-08:

PG&E will prune shrubs in a manner that promotes resprouting. If permanent impacts are unavoidable, establish new individuals by planting seedlings or from cuttings in adjacent suitable habitat. PG&E will implement best management practices [BMPs] including vehicle, equipment, and personnel hygiene protocols; procedures for conducting activities in infected areas; and timing restrictions that avoid working when soils are moist and the likelihood of spreading *Phytophthora cinnamomi* is greatest.

California Department of Fish and Wildlife (CDFW) Measures from the Bay Area O&M Incidental Take Permit (ITP)

5.3: Biological Monitor Authority.

To ensure compliance with the Conditions of Approval of this ITP, all Designated Biologists and General Biological Monitors shall immediately stop any activity, when safe to do so, that does not comply with this ITP and/or order any reasonable measure to avoid the unauthorized take of an individual of the Covered Species. PG&E shall provide unfettered access to each Work Area and otherwise facilitate the Designated Biologists and General Biological Monitors in the performance of his/her duties. If a Designated Biologist or General Biological Monitor are either unable to comply with the ITP or prevented from performing required ITP compliance, then they shall notify the CDFW Representative immediately. PG&E shall not enter into any agreement or contract of any kind, including but not limited to non-disclosure agreements and confidentiality agreements, with its contractors and/or Designated Biologists or Biological Monitors that prohibit or impede open communication with CDFW, including but not limited to providing CDFW staff with the results of any surveys, reports, or studies or notifying CDFW of any non-compliance or take. Failure to notify CDFW of any non-compliance or take or injury of a Covered Species as a result of such agreement or contract may result in CDFW taking actions to prevent or remedy a violation of this ITP.

5.4: Education Program.

PG&E shall conduct an education program for all persons employed or otherwise working in the Project Area before performing any work. The program shall consist of a presentation from the Designated Biologist or General Biological Monitor that includes a discussion of the biology and general behavior of the Covered Species, information about the distribution and habitat needs of the Covered Species, sensitivity of the Covered Species to human activities, its status pursuant to CESA including legal protection, recovery efforts, penalties for violations and Project specific protective measures described in this ITP. PG&E shall provide interpretation for non-English speaking workers, and the same instruction shall be provided to any new workers before they are authorized to perform work in the Project Area. Upon completion of the education program, employees or contractors shall sign a form or equivalent acknowledging that they attended the program and understand all protection measures. This training shall be repeated at least once annually for long-term and/or permanent employees or contractors that shall be conducting work in the Project Area.

5.5: Covered Activity Monitoring Documentation.

When biological monitoring is required per Condition of Approval 6.4 (Compliance Monitoring) or when required for conducting Covered Activities E9a (Reconductoring), G9 (Pipeline Lowering), G11 (Pipeline Replacement) and minor new construction in modeled habitat, the Monitoring Biologist(s) shall maintain monitoring documentation onsite in either hard copy or digital format throughout the duration of work, which shall include a copy of this ITP with attachments. PG&E shall ensure a copy of the monitoring documentation is available for review at the Work Area upon request by CDFW.

5.6: Trash Abatement.

PG&E shall initiate a trash abatement program before starting Covered Activities and shall continue the program for the duration of the Project. PG&E shall ensure that trash and food items are contained in animal-proof containers and removed, ideally at daily intervals but at least once a week, to avoid attracting opportunistic predators such as ravens, coyotes, and feral dogs.

5.7: Dust Control.

PG&E shall implement dust control measures during construction activities to facilitate visibility for monitoring of the Covered Species by Biological Monitors and crews. PG&E shall keep the amount of water used to the minimum amount needed and shall not allow water to form puddles.

Applicant-Proposed Measures

5.8: Prohibition of Firearms.

Firearms and domestic dogs shall be prohibited in work areas as well as from site access routes during construction and development of the project, except those firearms and domestic dogs that are in the possession of authorized security personnel or local, state, or federal law enforcement officials.

5.9: Erosion Control.

PG&E shall implement and install all erosion and sediment control measures and devices prior to conducting Covered Activities that include grading, excavation, or placement of fill. PG&E shall utilize erosion control measures where sediment runoff from exposed slopes or surfaces could enter a drainage, stream, wetland or pond. PG&E shall repair and/or replace ineffective measures or contrivances whose integrity has been compromised immediately.

5.10: Erosion Control Materials.

PG&E shall prohibit use of erosion control materials potentially harmful to Covered Species and other species, such as monofilament netting (erosion control matting) or similar material, in potential Covered Species' habitat.

5.11: Clean Vehicles.

PG&E shall implement the following:

5.11.1 Mud and/or accumulated soils shall be removed from equipment and vehicles to the maximum extent practicable.

5.11.2. Vehicles and equipment shall be cleaned or washed before entering a new work site.

5.11.3 A log shall be kept for each work site and shall be completed to document each cleaning or washing of vehicles or equipment before entering each new work site.

5.11.4 Vehicles shall be staged and stored on paved or cleared areas to the extent practicable.

5.11.5 Certified weed-free mulch, straw, hay bales, or equivalent materials shall be used where necessary.

5.12: Delineation and Avoidance of Sensitive Habitat Features.

A Designated Biologist shall clearly identify sensitive resources that crews must avoid for the duration of the activities with posted signs, posting stakes, flags, and/or rope or cord, and place fencing as necessary to minimize or avoid disturbance.

5.13: Work Area Access.

To the extent practicable, project-related personnel shall access a work area using existing routes, and shall not cross Covered Species' habitat outside of or en route to a work area. PG&E shall restrict project-related vehicle traffic to established roads, staging, and parking areas to the maximum extent practicable. PG&E shall ensure that vehicle speeds do not exceed 15 mph to avoid Covered Species on or traversing the roads.

5.14: Staging Areas.

PG&E shall confine all Project-related parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities to a Work Area using, to the extent possible, previously disturbed areas. No staging areas shall be located in chaparral or scrub habitats, over rock outcroppings or within 300 feet of a stock pond or vernal pool.

5.15: Hazardous Waste.

PG&E shall immediately stop and, pursuant to pertinent state and federal statutes and regulations, arrange for repair and clean up by qualified individuals of any fuel or hazardous waste leaks or spills at the time of occurrence, or as soon as it is safe to do so. PG&E shall properly contain and dispose of any unused or leftover hazardous products offsite.

5.16: Pesticides.

At no time shall PG&E utilize broadcast baiting of rodenticides within the project area. When pesticides are used, PG&E shall follow all applicable state and federal laws, County Agricultural Commissioner regulations, label requirements, and when applicable, according to requirements in habitat management plans associated with ITP 8.5 (Habitat Acquisition and Protection).[17]

5.17: CDFW Access.

PG&E shall provide CDFW staff with reasonable access to Work Areas and mitigation lands under PG&E control and shall otherwise fully cooperate with CDFW efforts to verify compliance with or effectiveness of mitigation measures set forth in this ITP.

[17] PG&E may elect to provide for the acquisition, permanent protection, and perpetual management of habitat mitigation lands to complete compensatory mitigation obligations (ITP 8.5; CDFW, 2022b).

Applicant-Proposed Measures

5.18: Refuse Removal.

Upon completion of construction activities within a work area, PG&E shall remove from, and properly dispose of all temporary fill and construction refuse, including, but not limited to, broken equipment parts, wrapping material, cords, cables, wire, rope, strapping, twine, buckets, metal or plastic containers, and boxes.

6.1: Notifications Before Commencement of Certain Activities.

Notifications shall be submitted at least 45 days in advance and prior to "release to construction" by the Designated Representative for review by CDFW. Within 14 days of request by CDFW and if not possible then at least 5 days prior to the beginning of the Covered Activity, PG&E shall provide any requested additional information and provide access for a CDFW field review of the proposed Work Area. The proposed Covered Activity may not commence until PG&E has provided the additional information to the specifications of the request by CDFW, or until field review access has been provided to CDFW. If there continues to be unresolved issues or questions, then PG&E or CDFW may request to meet and confer within 10 business of the request to resolve any outstanding issues. CDFW retains the right to determine whether a proposed Covered Activity shall not be provided coverage under this ITP.

6.4: General Compliance Monitoring.

The Designated Biologist shall be onsite:

- Daily when Covered Species are encountered within a work area;
- At the determination of the Designated Biologist, when Covered Species are relocated outside a work area to monitor and assess relocation success;
- When required by species-specific ITP measures.

A Biological Monitor shall be onsite:

- Daily when construction activities are conducted in [BAHCP] modeled habitat;
- When required by species-specific ITP measures.

For construction activities in Covered Species modeled habitat that required work over a period of two weeks or greater, a General Biological Monitor shall conduct compliance inspections, at a minimum, once very week after clearing, grubbing, and grading are completed and during periods of inactivity. The General Biological Monitor shall conduct compliance inspections to:

1. Minimize incidental take of the Covered Species;
2. Prevent unlawful take of species;
3. Check for compliance with all measures of the ITP;
4. Check all exclusion zones;
5. Ensure that signs, stakes, and fencing are intact, and that construction activities are only occurring in the pre-designated project footprint.

The Designated Representative or Monitoring Biologist shall prepare daily written observation and inspection records summarizing oversight activities and compliance inspections, observations of Covered Species and their sign, survey results, and monitoring activities required by this ITP.

6.8: Observations.

The Designated Biologist or PG&E shall submit all observations of Covered Species to CDFW's California Natural Diversity Database within 60 calendar days of the observation and the PG&E shall include copies of the submitted forms with the next Annual Summary Report or 5-year compliance report. If observations occur on lands not owned in fee title by PG&E, then PG&E may elect to inform the landowner of an observation. If the landowner objects to submission of the observation, then PG&E may elect to not submit.

6.10: Notification of Take or Injury.

PG&E shall immediately notify the Designated Biologist if a Covered Species is taken or injured by a project-related activity, or if a Covered Species is otherwise found dead or injured within the vicinity of the project. The Designated Biologist or Designated Representative shall provide initial notification to CDFW by calling the Regional Office at (707) 428-2002. The initial notification to CDFW shall include information regarding the location, species, and number of animals taken or injured and the ITP Number. Following initial notification, PG&E shall send CDFW a written report within two working days. The report shall include the date and time of the finding or incident, location of the animal or carcass, and if possible, provide a photograph, explanation as to cause of take or injury, and any other pertinent information.

7.1: Equipment Fueling.

No vehicles or heavy equipment shall be refueled within 100 feet of a wetland, stream, or other waterway, or within 250 feet of vernal pools, unless secondary containment is used. The fueling operator must always stay with the fueling operation. Tanks may not be topped off. If refueling must be conducted closer to wetlands, construct a secondary containment area subject to review by an environmental field specialist and/or biologist. PG&E shall

Applicant-Proposed Measures
maintain spill prevention and cleanup equipment in refueling areas. Sufficient spill containment and cleanup equipment shall be present at all mobile, temporary, and permanent equipment fueling locations.
7.2: Lighting.
PG&E shall ensure that all artificial outdoor lighting be limited to lighting for safety and security, and designed using Illuminating Engineering Society's design guidelines, International Dark-Sky Association-approved fixtures, or other industry standards that address lighting impacts. Lighting above ground level shall be directed downward or inward, where consistent with safety concerns, and shielding shall be utilized, where needed, to minimize light scatter offsite. Light fixtures shall have non-glare finishes that shall not cause reflective daytime glare.
7.3: Construction Activities Hours.
Construction activities shall cease 30 minutes before sunset and shall not begin prior to 30 minutes after sunrise, to the extent practicable. Emergency night work shall be limited in extent, duration, and brightness, to the extent feasible. For Covered Activities E9a (Reconductoring), G9 (Pipeline Lowering), G11 (Pipeline Replacement), and minor new construction, work may not occur at night during rain events in CTS habitat within 0.5 miles of known or potential breeding habitat between November 1 and April 30 unless otherwise authorized by CDFW. Covered Activities shall not occur at night for non-emergency work in California freshwater shrimp habitat any time of year unless otherwise authorized by CDFW.
7.4: Stored Materials Inspections.
Workers shall thoroughly inspect for AWS and CTS in all construction pipe, culverts, or similar structures with a diameter of 7.6 centimeters (3 inches) or greater that are stored for one or more overnight periods before the structure is subsequently moved, buried, or capped. If during inspection one of these animals is discovered inside the structure, workers shall notify the Biological Monitors) and allow the Covered Species to safely escape that section of the structure before moving and utilizing the structure or moved out of harm's way by a Designated Biologist.
7.5: Cover or Ramp Open Excavations.
Trenches or pits shall be covered or equipped with an escape ramp if left overnight in Covered Species modeled habitat. Crews shall inspect any trench, pit, or hole every morning prior to conducting construction activities to ensure no individuals are trapped; if any animals are found staff shall contact the Designated Biologist(s) to identify whether it is a Covered Species and if so, it shall be moved out of harm's way by the Designated Biologist(s). If the animal is not a Covered Species, then a General Monitoring Biologist or other individual with wildlife handling experience in possession of any applicable handling permits may move it out of harm's way.
7.6: Spoils Stockpiles.
PG&E shall ensure that soil stockpiles are placed where soil shall not pass into wetlands or any other "waters of the state," in accordance with CFGC section 5650. PG&E shall cover and protect stockpiles to prevent soil erosion, including wind and rain. Spoils shall be placed away from chaparral habitat, rock outcroppings, and concentrated ground squirrel, pocket gopher, or other small mammal burrows or habitat features suitable for use by the Covered Species as refugia habitat.
7.7: Screen or Cap Hollow Pipes or Posts.
All hollow pipes or posts that are installed as part of construction activities, or encountered in a work area that PG&E owns or is responsible for that are above ground shall be capped, screened, or filled with material by PG&E prior to the end of the day in which installation occurs.
7.8: Equipment Inspections.
Workers shall inspect for Covered Species under vehicles and equipment before the vehicles and equipment are moved. If a Covered Species is present, the worker shall notify the Biological Monitors and wait for the Covered Species to move unimpeded to a safe location. Alternatively, PG&E shall contact a Designated Biologist to determine if they can safely move the Covered Species out of harm's way in compliance with the ITP.
7.9: No Barriers to Covered Species Movements.
PG&E shall construct access routes such that there are no steep curbs, v-ditches, berms, straw wattles, or dikes that could prevent Covered Species from traversing through ROWs or from exiting roadways. If curbs/ berms/straw wattles are necessary for safety and/or surface runoff, PG&E shall design and construct them to allow Covered Species to move over them. PG&E shall modify or remove exclusion fencing at the request of Biological Monitors or CDFW staff that may impede Covered Species movements.
7.17: Alameda Whipsnake Pre-Activity Habitat Features Survey.
Preconstruction surveys for Alameda whipsnake and sheltering and sunning habitat features (e.g., burrows, rocky outcrops, fallen trees, etc.) shall be conducted in modeled core and perimeter core habitat for construction activities (also refer to ITP 7.19 for survey requirements in core habitat). These surveys shall be conducted by a Designated

Applicant-Proposed Measures

Biologist no more than 30 calendar days prior to any initial ground disturbance. These surveys shall consist of walking the work area and, if possible, any accessible adjacent areas within at least 50 feet of the work area. The Designated Biologist shall investigate potential cover sites when it is feasible and safe to do so. This includes thorough investigation of mammal burrows, rocky outcrops, appropriately sized soil cracks, tree cavities, and debris. Sheltering, sunning, or other sensitive species features identified by the Designated Biologist shall be identified with flagging. PG&E shall avoid habitat features flagged by the Designated Biologist to the extent practicable. At the recommendation of the Designated Biologist, PG&E shall install an exclusionary barrier (ITP 7.18).

7.18: Exclusionary Barrier.

PG&E shall install a temporary barrier, where feasible, to prevent the Covered Species from dispersing into the work area, including along construction access routes, prior to commencing any other construction activities. The barrier shall be installed immediately after the preconstruction surveys have been completed in accordance with ITP 7.17 and shall consist of fencing at least 42 inches tall with 36 inches above the soil surface, designed with a lip to prevent the Covered Species from climbing over the barrier, and buried to a depth of six inches below the soil surface. The soil shall be compacted against both sides of the fence to prevent the Covered Species from gaining access. The stakes shall be placed on the inside of the fence.--- No gaps or holes are permitted in the fencing system except for access areas as required for vehicular and pedestrian traffic. The exit/entry points shall be constructed so that it is flush to the ground and so that the Covered Species cannot access the work area. The barrier shall be designed to allow trapped individuals to leave the work area by installing one-way funnels, ramps, or other methods approved by CDFW. An alternative barrier design or directional treatment techniques in lieu of fencing may be used after receiving written authorization from CDFW. The Designated Biologist or General Monitoring Biologist shall inspect the barrier daily and the barrier shall remain in place until all construction activities have been completed or where recommended by a Designated Biologist. PG&E shall maintain and repair barrier immediately, if damaged, to ensure that it is functional and without defects. PG&E shall provide refuge opportunities along or near the outer side of the silt fence for the Covered Species (also refer to ITP 7.19).

7.19: Refugia Coverboards.

Coverboards shall be installed in work areas as determined by the Designated Biologist in modeled core and perimeter core habitat prior to construction activities. When coverboards are recommended, they shall be placed to provide refuge for the Covered Species [AWS] fleeing the area, including areas where a directional treatment methodology is used (e.g., phasing a project to encourage Covered Species [AWS] to move towards core habitats and away from potentially harmful environs). When coverboards are recommended, they shall be inspected at the end of each workday by a General Monitoring Biologist and use by wildlife shall be recorded.

7.20: Alameda Whipsnake Clearance Surveys.

Immediately prior to the start of construction activities impacting greater than 0.1 acre that affects core AWS habitat, including scrub or chaparral plant communities in modeled habitat, the Designated Biologist(s) shall visually survey the work area and adjacent areas, as determined by the Designated Biologist, to clear the area of AWS. If construction activities may affect habitat features flagged per ITP 7.17 then a General Biological Monitor shall conduct daily clearance surveys in the active work area(s).

7.21: Alameda Whipsnake Pre-Activity Tailboards.

The Designated Biologist or General Biological Monitor may prescribe activity-specific tailboards trainings reminding staff of the importance of following measures to minimize impacts on AWS as they relate to the work site. Site-specific tailboards are be conducted for staff working on construction activities that impact greater than 0.1 acre in core habitat or perimeter core habitat.

7.22: Suspected Alameda Whipsnake in Work Area.

If AWS is found by any person in the work area before or during construction activities, all work that could potentially injure the snake shall stop immediately and the snake shall be allowed to leave the work area on its own. If the snake does not leave the work area or cannot move to an area with sufficient habitat outside of the work area, the Designated Biologist shall move the snake to suitable habitat outside the work area. Construction activities shall resume only after the snake has been confirmed to be out of the work area.

7.23: Alameda Whipsnake Seasonal Restrictions.

Disturbance in AWS modeled core and perimeter core habitat shall only take place between April 15 and October 31 to the extent feasible when AWS is more active and less likely to be affected by construction activities. For activities occurring in AWS core or perimeter core habitat between November 1 and April 14, a Designated Biologist(s) shall be present during operations.

Applicant-Proposed Measures

7.24: Alameda Whipsnake Injury.

If an AWS has major or serious injuries as a result of construction activities, the Designated Biologist shall immediately take it to a qualified wildlife rehabilitation or veterinary facility. PG&E shall bear any costs associated with the care or treatment of such injured AWS. If the injury is minor or healing and the AWS is likely to survive as determined by the Designated Biologist, it shall be released immediately to an area out of harm's way. PG&E shall notify CDFW of the injury to the AWS within 2 working days by telephone and e-mail followed by a written incident report to CDFW. Notification shall include the name of the facility where the animal was taken.

Applicant-Proposed Measures from the ITP Final EIR (FEIR)

ITP FEIR APM BIO-1: Prevent or minimize the spread of invasive weeds.

The following will be implemented on E9a (Reconductoring), G9 (Pipeline Lowering), G11 (Pipeline Replacement), and minor new construction to prevent the spread of invasive weeds during all phases of covered activities, as appropriate:

- During covered activities involving ground disturbance, mud and/or accumulated soils will be removed from equipment and vehicles to the extent feasible. Vehicles and equipment will be cleaned or washed before entering a new work site. A log will be kept for each job site and will be completed to document each cleaning or washing of vehicles or equipment before entering each new work site.
- Vehicles will be staged and stored on paved or cleared areas whenever feasible.

Certified weed-free mulch, straw, hay bales, or equivalent materials will be used where necessary for covered activities.

ITP FEIR APM BIO-2: Protect special-status wildlife encountered while performing covered activities and report covered wildlife observations.

Any special-status wildlife species encountered during the course of a covered activity will be allowed to leave the area unharmed, and work activities that could disturb or harm the individual will halt until the wildlife has left the area. Encounters with a special-status species will be reported to a qualified biologist and PG&E Environmental staff. PG&E will maintain records of all covered wildlife species encountered during permitted activities. Encounters with covered wildlife species will be documented and provided to CDFW in an annual report as required by the ITP. If a covered wildlife species is encountered during the course of operations, the following information will be reported for each species:

- The locations (i.e., narrative, vegetation type, and maps) and dates of observations, including occurrences observed during any required surveys.
- The general condition of individual health (e.g., apparent injuries).
- If the species is moved, the location where the species was captured and the location where it was released.
- The locations, dates, and species and behaviors observed during covered wildlife monitoring.

When conducting covered activities E9a (Reconductoring), G9 (Pipeline Lowering), G11 (Pipeline Replacement), and minor new construction PG&E will document encounters with special-status species to the same level of detail as required for covered species. During PG&E's environmental screening process, PG&E will also apply this measure to other covered activities to protect special-status species and habitats based on recommendations from qualified biologists. This data will be provided in ITP annual reports.

ITP FEIR APM BIO-3: Design and site minor new construction projects activities to avoid sensitive areas.

New, permanent facilities as part of minor new construction activities will be sited and designed to avoid impacts on sensitive vegetation types, sensitive natural communities, and unique plant assemblages, as well as occupied habitat and suitable habitat for special-status species, to the extent feasible. If impacts on these areas cannot be avoided, PG&E will determine if additional permitting is required to conduct the work and obtain the required permits (e.g., LSAA). If impacts are expected on covered species' habitat, Mitigation Measure BIO-1[18] (MM BIO-1) [replaced with ITP Habitat Management land Acquisition and Restoration measures] will be implemented to mitigate for habitat impacts.

Where minor new construction will result in impacts on sensitive vegetation types, sensitive natural communities, or unique plant assemblages, PG&E will minimize the construction footprint and implement appropriate protective measures as recommended by the qualified biologist to protect the natural community. Examples of such measures include: reseeding with a California annual seed mix, installing protective fencing around sensitive natural communities or resources, and installing wattles, erosion blankets and other drainage controls to protect new or adjacent plantings.

[18] The ITP FEIR presented mitigation measures that were superseded by the measures included in the ITP as a condition of approval.

Applicant-Proposed Measures

ITP FEIR APM BIO-3a: Minimize spread of invasive plant and plant pathogens in minor new construction.

When conducting minor new construction activities, PG&E will avoid or minimize the spread of invasive species by taking the following actions:

1. Prior to commencement of activities located on or adjacent to non-paved surfaces, a qualified biologist will flag known populations of noxious weeds and invasive plants in the work areas. Invasive plant species include those listed as invasive by the California Invasive Plant Council (Cal IPC).
2. PG&E will stage work in areas not infested with weeds or treat for weed removal prior to using an infested area.
3. Prior to ground disturbance in areas containing species susceptible to Sudden Oak Death, a qualified professional (e.g., biologist, arborist, botanist familiar with Sudden Oak Death and the vegetation communities in the area) will assess the risk of activities and will identify and implement measures to reduce or avoid the risk of Sudden Oak Death spread. These measures will include but will not be limited to the following, and will be further developed and updated based on the best available science and site-specific conditions:
    a. Designate quarantine areas and implement proper measures for disposal of infested materials (e.g., branches, split wood, wood chips),
    b. Sanitize shoes, pruning gear, and other equipment with sanitizing materials (e.g., chlorine bleach, Clorox Clean-up, Lysol, scrub brush, boot brush) before and after ground-disturbing and vegetation removal activities are implemented,
4. Clothing, footwear, and equipment used during minor new construction will be cleaned of soil, seeds, vegetation, or other debris or seed-bearing material before entering a work site or when leaving an area with infestations of invasive plants and noxious weeds.
5. Heavy equipment and other machinery used in areas with infestations of invasive plant species or Sudden Oak Death will be inspected for the presence of invasive species before use on the project site and will be cleaned before entering the site, to reduce the risk of introducing invasive plant species or plant pathogens.
6. To minimize the introduction and spread of noxious weeds and invasive plants, PG&E will avoid moving weed-infested gravel, rock, and other fill materials to relatively weed-free locations. In areas where invasive plants are removed during minor new construction or vegetation removal activities, PG&E will dispose of invasive plant biomass offsite at an appropriate waste collection facility or treat biomass onsite to eliminate seeds and propagules and prevent reestablishment; if moved offsite, PG&E will transport invasive plant material in a closed container or bag to prevent the spread of propagules during transport. PG&E will use certified weed-free straw and mulch for erosion-control projects. PG&E will maintain stockpiled, uninfested material in a weed-free condition.
7. Areas where ground disturbance has resulted in exposed soil as a result of minor new construction shall be seeded with compatible California annual species, as determined by a qualified biologist or botanist familiar with the native vegetation in the area and experienced in revegetation techniques. Revegetation will occur prior to the onset of winter rains within the year initial impacts take place. If work cannot feasibly be scheduled he rainy season, revegetation may occur as directed by the qualified biologist and no later than the onset of the next winter rains.
8. To ensure a successful revegetation effort, onsite vegetation shall meet the following success criteria:
    a. PG&E shall perform pre-activity surveys to record baseline vegetative ground cover conditions and composition by a qualified biologist prior to covered activities as follows. The biologist will record the following:
        i. Absolute percent ground cover for the entire work area.
        ii. Relative percentages of ground cover within the work area by herbaceous plants, shrubs, trees, and noxious/invasive plants.
        iii. Develop a catalog of all invasive species present within the work area, including an estimate of percent composition by species.
    b. PG&E will conduct post-activity monitoring of work areas in the spring following completion of minor new construction.
        i. A qualified biologist will record any new invasive species that may have inadvertently been introduced to the work area. The biologist shall make special note of any new invasive plant species rated as “high” by the Cal IPC.
        ii. A qualified biologist will record whether there was an increase in relative cover of invasive species from baseline that may have resulted from the covered activity.
        iii. If relative cover of invasive plant species has increased within the work area, PG&E shall remove and/or dispose of invasive plants in an appropriate manner, as recommended by a qualified biologist and/or a Pest Control Advisor. If any new invasive plants rated by Cal IPC as “high” are found within the work area, they will be removed in an appropriate manner, as recommended by a qualified biologist and/or a Pest Control Advisor.

If the relative ground cover of invasive plants exceeds baseline by 100 percent or more, PG&E will reseed the areas where invasive plants are removed and monitor for one additional year.

Applicant-Proposed Measures

ITP FEIR APM BIO-4: Avoid special-status plants.

Occurrences of special-status plant species will be avoided to the extent practicable and will include performance of project activities in special-status plant habitat after senescence. PG&E has created "Map Book zones" for the 13 state or federally listed plants that are covered in the O&M HCP. A Map Book zone is defined as an area of occupied or potentially occupied the HCP- covered plant species habitat as determined by PG&E botanical surveys. When rare and endangered plant species subject to the Native Plant Protection Act cannot be avoided, PG&E will follow the requirements of California Fish and Game Code Sections 1913(b) and 1913(c) concerning notification to CDFW at least 10 days in advance and provide an opportunity to salvage such species. If a special-status plant is found or known to occur, the plant will be avoided if feasible (i.e., O&M objectives could still be met). If feasible to avoid, avoidance will include establishing a buffer around the plants and demarcation of the buffer by a qualified biologist or botanist using flagging. Consideration of site-specific environmental factors such as terrain, site hydrology, light, and potential introduction of invasive plants may inform the avoidance approach.

ITP FEIR APM BIO-5: Erect wildlife flagging or exclusion fencing.

Prior to construction or commencement of any activity that, in the absence of fencing, is likely to directly or indirectly adversely affect covered species, flagging or exclusion fencing for the species will be installed around the perimeter of the activity footprint,[19] or otherwise to ensure species protection.

Any exemption or modification of flagging or exclusion fencing requirements will be based on the specifics of the activity, site-specific population, or habitat parameters. Sites with low population density and disturbed, fragmented, or poor habitat will likely be candidates for flagging or fencing requirement exemptions or modifications. Substitute measures, such as onsite Biological Monitors in the place of the flagging or fencing requirement, will be performed as appropriate.

Prior to flagging or fencing, the qualified individual will ensure (to the extent feasible) that covered special-status species are absent from the activity footprint. After an area is flagged or fenced, PG&E is responsible for ensuring that covered special-status species flagging or fencing is maintained and opened/closed appropriately during project activities and regularly inspected for damage, which will be repaired as soon as possible.

This measure will also be applied when conducting covered activities E9a (Reconductoring), G9 (Pipeline Lowering), G11 (Pipeline Replacement), and minor new construction when these activities are likely to adversely affect special-status species. PG&E may also apply this measure to other covered activities to protect special-status species and habitats based on recommendations from qualified biologists.

ITP FEIR APM BIO-6: Protect nesting birds.

All vegetation clearing and ground-disturbing activities will be conducted outside of the nesting season (generally March 1–August 31) to the extent feasible. If this is not feasible, a biologist or qualified individual will determine if preconstruction activity surveys, nest buffers, and/or monitoring are needed in accordance with PG&E's Nesting Bird Management Plan. Nesting bird surveys will be scheduled to occur within a timeframe prior to construction the activity that is suitable for the detection of recently established nests. If active nests containing eggs or young are found, the qualified biologist or individual will establish an appropriate nest buffer in accordance with the species-specific buffers in PG&E's Nesting Bird Management Plan. Nest buffers under the Plan will be species-specific and can range from 15 to 100 feet for passerines, 50 to 300 feet for raptors, or larger if necessary, depending on the planned activity's level of disturbance, site conditions, and the observed bird behavior. Covered activities will not commence within the established buffer areas until the qualified biologist or individual determines that the young have fledged or the nest is no longer active. Active nests will be periodically monitored until the young have fledged or the activity all construction is finished. If birds with active nests are observed showing behavioral signs of agitation (e.g., standing up from a brooding position, flying off the nest) during covered activities, the buffer will be increased to a distance in which the behavioral signs of agitation cease, in accordance with PG&E's Nesting Bird Management Plan.

ITP FEIR APM BIO-7: Avoid and protect special-status bats.

When feasible, activities directly affecting bat roosting habitat will be conducted outside of the bat breeding/pupping season (generally, April through mid-September). If work that will affect known bat breeding sites must be done in the bat breeding/pupping season, a qualified biologist will evaluate known breading/roosting sites or conduct surveys for bat roosts in suitable breeding/roosting sites (e.g., bridges, mines, caves, trees with hollows, palm trees, snags, buildings, long and dark culverts, rock outcrops, dense tree canopies, and flaking tree bark). If

[19] An activity footprint is the area of ground disturbance associated with the preconstruction, construction, operation, implementation, maintenance, and decommissioning of an activity, including associated linear and non-linear components (e.g., staging areas, access routes and roads, gen-ties, pipelines, other utility lines, borrow pits, disposal areas). The footprint may also be considered synonymous with the covered activity site.

Applicant-Proposed Measures

evidence of a bat maternity roost is found or maternity roosts are detected, PG&E will avoid conducting covered activities that may directly affect the active roost site, including the following:

- If a maternity roost is identified then the qualified bat biologist will develop a Bat Avoidance and Monitoring Plan prior to the start of project activities that shall include: (1) an assessment of all impacts to bats from the activity, including noise disturbance during covered activities and (2) effective AMMs to protect bats in order to ensure that direct impact to active bat maternity roost site do not occur. Notification will be provided to CDFW prior to the start of covered activities. The notification will include a copy of the Bat Avoidance and Monitoring Plan. If direct impacts to identified maternity roost sites cannot be avoided, PG&E will provide a compensatory mitigation plan to CDFW for review and approval.
- As necessary, an exclusionary buffer will be maintained around active roosts. The size of the buffer will be determined by the qualified biologist based on factors such as the planned activity's level of disturbance and site conditions and will typically be 250 feet.
- As necessary, a qualified biologist will monitor active bat roost site buffers during O&M activities to determine if roosting activity is influenced by noise or vibrations until a qualified biologist has determined if the young bats are volant (about to fly) or the roost is unoccupied.

When feasible, to protect bats and in accordance with BAHCP BMP-30[20] tree work near riparian zones will be conducted during the dry season. If it is not feasible to conduct tree work during the dry season, operations will occur between rain events or during dry spells unless there is an emergency or imminent threat to life or property.

Project-specific Applicant-Proposed Measures for Species Not Covered for Take In the BAHCP/ITP

MOX APM BIO-1: Preconstruction Surveys and Biological Monitoring.

To reduce impacts to sensitive biological resources that may be present within and adjacent to work areas, clearance surveys and preconstruction surveys will be implemented at the discretion of the PG&E biologist.

MOX APM BIO-2: Crotch's Bumble Bee and Monarch Butterfly.

The CDFW ITP FEIR concluded that implementation of the HCP and ITP measures (such as FP-01 through FP-04, FP-07, FP-10, FP-11, FP-12, and FP-14) will reduce the level of impact to less than significant for the Crotch's bumble bee; in this APM, these same measures are being extended to include the Monarch butterfly, which was not addressed in the HCP or ITP.

MOX APM BIO-3: Foothill Yellow-legged Frog.

Applicable measures from PG&E's BAHCP, including FP-01 through FP-08, FP-10 through FP-17, and AMM Wetland-2 (Tables 5.4-9 and 5.4-10) also will minimize impacts to FYLF. All special-status amphibians encountered in the work areas will be reported to the project biologist or PG&E Environmental staff and allowed to leave the work area in accordance with ITP FEIR APM BIO-2 (Table 5.4-12).

MOX APM BIO-4: Northwestern Pond Turtle.

The measures FP-01 through FP-17 from PG&E's BAHCP and AMM Wetland-2 to minimize potential impacts to CRLF and wetlands also will minimize impacts to Northwestern pond turtle (Tables 5.4-9 and 5.4-10).

MOX APM BIO-5: Nesting Birds.

PG&E will implement FP-01 through FP-18 from PG&E's Bay Area O&M HCP as well as ITP FEIR APM BIO-6 to avoid and minimize impacts to nesting birds (Tables 5.4-9 and 5.4-12). As both helicopter and drone use are proposed for this project, the established nest buffers will include vertical buffers based on the horizontal ground buffers presented in PG&E's Nesting Birds: Species-Specific Buffers for PG&E Activities. (PG&E, 2024; PEA Appendix B6).

MOX APM BIO-6: San Francisco Dusky-footed Woodrat.

Measures FP-01 through FP-17 from the BAHCP (Table 5.4-9) also will reduce impacts to dusky-footed woodrat. Any woodrat nests encountered in the work areas during covered activities will be reported to the project biologist or PG&E Environmental staff and individuals, if found, will be allowed to leave the work area (ITP FEIR APM BIO-2) (Table 5.4-12). If active nests are identified and cannot be avoided, PG&E will implement the dismantling and relocation measures described in Attachment D of PEA Appendix B6 (PG&E, 2024).

Cultural Resources (CUL)

APM CUL-1: Develop and Implement Worker Environmental Awareness Program Prior to Construction.

PG&E will design and implement a worker environmental awareness program that will be provided to all project personnel involved in earth-moving activities. This training will be administered by a qualified cultural resource

[20] BMP-30 from the BA HCP: When possible, activities near streams, wetlands, or on saturated soils shall be conducted during the dry season (generally May 15–October 15) or during periods of minimum flow. If it is not possible to perform the work in the dry season, perform rainy season work during dry spells between rain events. For the purposes of this project, a riparian zone will have a buffer distance of 250 feet.

Applicant-Proposed Measures

professional either as a standalone training or as part of the overall environmental awareness training required by the project and may be recorded for use in subsequent training sessions. No construction worker will be involved in field operations without having participated in the worker environmental awareness program, which will include, at a minimum:

- A review of archaeology, history, precontact, and Native American cultures associated with historical resources near the project
- A review of applicable local, state, and federal ordinances, laws, and regulations pertaining to historic preservation
- A discussion of procedures to be followed in the event that unanticipated cultural resources are discovered during implementation of the project
- A discussion of disciplinary and other actions that could be taken against persons violating historic preservation laws and PG&E policies
- A statement by the construction company or applicable employer agreeing to abide by the Worker Education Program, PG&E policies, and other applicable laws and regulations

APM CUL-2: Inadvertent Cultural Resource Discoveries.

If unanticipated cultural resources are identified during construction, the following procedures will be initiated:

- All ground-disturbing construction activities within 100 feet of the discovery will halt immediately.
- The construction crew will protect the discovery from further disturbance until a qualified archaeologist has assessed it.
- The construction supervisor will immediately contact the project environmental inspector and the PG&E cultural resource specialist.
- The PG&E cultural resources specialist will coordinate with the state lead officials, as appropriate. If the discovery can be avoided or protected and no further impacts will occur, then the resource will be documented on DPR 523 forms, and no further effort will be required. If the resource cannot be avoided and may be subjected to further impacts, qualified personnel will evaluate the significance of the discovery in accordance with the state laws outlined previously; personnel will implement data recovery or other appropriate treatment measures, if warranted. A qualified historical archaeologist will complete an evaluation of historic period resources, while evaluation of precontact resources will be completed by a qualified archaeologist specializing in California prehistoric archaeology. Evaluations may include archival research, oral interviews, and/or field excavations to determine the full depth, extent, nature, and integrity of the deposit.

APM CUL-3: Unanticipated Discovery of Human Remains.

If human remains or suspected human remains are discovered during PG&E construction, work within 100 feet of the find will stop immediately and the construction supervisor will contact the PG&E cultural resources specialist, who meets the Secretary of Interior's Standards for archaeology. Upon discovery, the Coroner Division of the Alameda County Sheriff's Office will be contacted for identification of human remains. The Coroner has 2 working days to examine the remains after being notified.

If the remains are Native American, the Coroner must notify the Native American Heritage Commission (NAHC) of the discovery within 24 hours. The NAHC then will identify and contact a Most Likely Descendant (MLD). The MLD may make recommendations to the landowner or representative for the treatment or disposition, with proper dignity, of the remains and grave goods. When proper consultation has occurred, a procedure that may include the preservation, excavation, analysis, and curation of artifacts and/or reburial of those remains and associated artifacts will be formulated and implemented.

If the remains are not Native American, the Coroner will consult with the archaeological research team and the lead agency to develop a procedure for the proper study, documentation, and ultimate disposition of the remains. If a determination can be made as to the likely identity – either as an individual or as a member of a group – of the remains, an attempt should be made to identify and contact any living descendants or representatives of the descendant community. As interested parties, these descendants may make recommendations to the owner or representative for the treatment or disposition, with proper dignity, of the remains and grave goods. Final disposition of any human remains or associated funerary objects will be determined in consultation between the landowner and the MLD.

Energy

APM GHG-1 (refer to Section 5.8) will simultaneously reduce greenhouse gas emissions and contribute to the reduction of energy resources.

Geology and Soils (GEO)

APM GEO-1: Development of Seismic Design Criteria and Appropriate Seismic Safety Design Measures Implementation.

The project will be designed based on current seismic design practices and guidelines. As part of design, site-specific seismic analyses will be performed to evaluate peak ground accelerations for design of project components. Because

Applicant-Proposed Measures

the proposed power cables will be lifeline utilities, the 84th percentile motions (one standard deviation above the median) will be used. Additionally, the Institute of Electrical and Electronics Engineers (IEEE) Standard 693, Recommended Practices for Seismic Design of Substations, has specific requirements to mitigate past substation equipment damage. These design guidelines will be implemented during equipment replacement at substations. Substation equipment will be purchased using the seismic qualification requirements in IEEE 693.

APM GEO-2: Site-Specific Landslide Assessment.

As described in Section 5.7.1.4, two proposed structure locations are near active or prehistoric/older slides, with the structures typically located uphill from mapped landslides. A site-specific design-level evaluation of these locations will be performed to evaluate the potential for these landslides to impact project facilities. Appropriate design measures for the protection of the power line structure stability, which may include foundation design enhancements or adjustments to structure locations, will be incorporated into the design.

APM GEO-3: Appropriate Design Measures Implementation.

Potentially problematic subsurface conditions during project construction include soft or loose soils that could be susceptible to liquefaction, especially at and in the vicinity of stream or river crossings. Where soft or loose soils are encountered during design studies or construction, appropriate measures will be implemented to avoid, accommodate, replace, or improve soft or loose soils. Such measures may include the following:

- Over excavating soft or loose soils and replacing them with non-expansive engineered fill.
- Increasing the density and strength of soft or loose soils through mechanical vibration and compaction.
- Treating soft or loose soils in place with binding or cementing agents.

Greenhouse Gas Emissions (GHG)

APM GHG-1: PG&E Minimize Gas Emissions.

PG&E will implement the following to minimize GHG emissions:

- If suitable park-and-ride facilities are available in the project vicinity, construction workers shall be encouraged to carpool to the job site.
- The Applicant shall develop a carpool program to the job site.
- On-road and off-road vehicle tire pressures shall be maintained to manufacturer specifications. Tires shall be checked and re-inflated at regular intervals.
- Demolition debris shall be recycled for reuse to the extent feasible.
- The contractor shall use line power instead of diesel generators at all construction sites where line power is available.
- The contractor shall maintain construction equipment per manufacturing specifications.
- Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction supervisors will include briefings to crews on vehicle use as part of preconstruction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.

APM GHG-2: PG&E Minimize SF6 Emissions.

PG&E will implement the following to minimize SF6 emissions:

- Incorporate Moraga Substation modifications into PG&E's systemwide SF6 emission reduction program.
- Require that new breakers at Moraga Substation, as applicable, have a manufacturer's guaranteed maximum leakage rate of 0.5 percent per year or less for SF6.
- Maintain substation breakers in accordance with PG&E's maintenance standards.
- Comply with CARB Early Action Measures as the policies become effective.

Hazards, Hazardous Materials, and Public Safety (HAZ)

APM HAZ-1: Development and Implementation of Hazardous Material and Emergency Response Procedures.

PG&E will implement construction controls, training, and communication to minimize the potential exposure of the public and site workers to potential hazardous materials during all phases of project construction. Construction procedures that will be implemented include worker training appropriate to the worker's role, and containment and spill control practices in accordance with the Stormwater Pollution Prevention Plan (SWPPP) (APM HYD-1).

Applicant-Proposed Measures

APM HAZ-2: Emergency Spill Supplies and Equipment.

Materials will be available on the project site during construction to contain, collect, and dispose of any minor spill. Oil-absorbent material, tarps, and storage drums will be available on the project site during construction and will be used to contain and control any minor releases of oil. If excess water and liquid concrete escape during pouring, they will be directed to adjacent lined and bermed areas, where the concrete will dry and then be transported for disposal per applicable regulations.

APM HAZ-3: Shock Hazard Safety Measures.

All authorized personnel working on site, during either construction or O&M, will be trained according to PG&E standards. Training will be implemented prior to construction by PG&E or construction contractor safety managers. A record of when the safety training occurred, the safety manager delivering the training and who attended will be stored by the contractor and available for review by PG&E and the CPUC as requested. Training will include identifying electrical hazards, establishing safe distances from the lines, deenergizing lines where appropriate, and use of personal protective equipment such as arc flash-resistant apparel. The public will be excluded from work areas. When power lines are energized during construction and operation, they are suspended in the air at the requisite ground clearance distance that avoids shock or arc flash hazard to the public.

APM HAZ-4: Worker Environmental Awareness Training Program.

A worker environmental awareness training program (WEAP) will be developed and implemented prior to construction. The WEAP program will be established to communicate environmental concerns and appropriate work practices to all construction field personnel. The training program will emphasize site specific physical conditions to improve hazard prevention and will include a review of the SWPPP, which also will address spill response and proper best management practice (BMP) implementation. The WEAP program will be provided separately to CPUC staff prior to construction. If it is necessary to store chemicals, they will be managed in accordance with all applicable regulations. Safety data sheets will be maintained and kept available onsite, as applicable.

APM HAZ-5: Potentially Contaminated Soil or Groundwater.

Where there is known potential of contaminated soil in the area based on review of databases of hazardous materials and sites, soil sampling will be conducted in project areas prior to or upon commencement of construction. Soil that is known (based on testing prior to or upon commencement of construction) or suspected of being contaminated (based on visual, olfactory, or other evidence identified during construction) and is removed during trenching or excavation activities will be segregated. These segregated soils will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations before disposal at a non-PG&E facility that is licensed to handle the soil based on contaminants identified from test results. If the soil is taken to a PG&E spoils facilities, the soil will be tested, handled, and disposed of in accordance with applicable state and federal regulations. Appropriate handling, transportation, and disposal locations will be determined based on results of the analyses. If the soil is contaminated above hazardous levels, it will be contained and disposed of offsite at a licensed waste facility. In addition, results will be provided to contractor and construction crews to inform them about soil conditions and potential hazards. The location, distribution, and frequency of the sampling locations where there is a known potential of contaminated soil in the area will be determined during final design with the intent to provide adequate representation of the conditions in the construction area. Groundwater is not expected to be encountered during construction. However, if it is encountered, groundwater will be collected during construction, contained, tested, and disposed of in accordance with all applicable regulations. Containment will be done by pumping the groundwater into holding tanks. Noncontaminated groundwater will be released to the stormwater drainage system in the area (with prior approval). If the groundwater is contaminated, it will be disposed of at a facility that accepts liquid hazardous waste, in accordance with applicable regulations.

Hydrology and Water Quality (HYD)

APM HYD-1. Prepare and Implement a SWPPP.

Stormwater discharges associated with project construction activities are regulated under the CGP. Cases in which construction will disturb more than 1 acre of soil require submittal of a Notice of Intent, development of an SWPPP (both certified by the Legally Responsible Person), periodic monitoring and inspections, retention of monitoring records, reporting of incidences of noncompliance, and submittal of annual compliance reports. Pacific Gas and Electric Company (PG&E) will comply with all CGP requirements for construction of project components.

Following project approval, PG&E will prepare and implement a SWPPP, which will address erosion and sediment control concerns to minimize construction impacts on surface water quality, as well as reduce the potential for stormwater runoff to impact adjacent properties. The SWPPP will be designed specifically for the hydrologic setting of the proposed Project (surface topography, storm drain configuration, and other factors). Implementation of the SWPPP will help stabilize graded areas and reduce erosion and sedimentation. The SWPPP will propose BMPs that will be implemented during construction activities. Erosion and sediment control BMPs – such as straw wattles,

Applicant-Proposed Measures

erosion control blankets, and silt fences – will be installed in compliance with the SWPPP. Suitable soil stabilization BMPs will be used to protect exposed areas during construction activities, as specified in the SWPPP. During construction activities, BMPs will be implemented to reduce exposure of construction materials and wastes to stormwater. BMPs will be installed following manufacturer's specifications and according to standard industry practice.

Erosion and sediment control measures may include the following:

- Straw wattle, silt fence, or gravel bag berms
- Trackout control at all entrances and exits
- Stockpile management
- Effective dust control measures
- Good housekeeping measures
- Stabilization measures, which may include wood mulch, gravel, and seeding

Identified erosion and sediment control measures will be installed prior to the start of construction activities and will be inspected and improved as required by the CGP. Temporary sediment control measures intended to minimize sediment transport from temporarily disturbed areas such as silt fences or wattles will remain in place until disturbed areas are stabilized. In areas where soil is to be temporarily stockpiled, soil will be placed in a controlled area and will be managed using industry-standard stockpile management techniques. Where construction activities occur near a surface waterbody or drainage channel, the staging of construction materials and equipment and excavation spoil stockpiles will be placed and managed in a manner to minimize the risk of sediment transport to the drainage. Any surplus soil will be transported from the site and disposed of in accordance with federal, state, and local regulations.

The SWPPP will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials will be permitted, if necessary. A copy of the SWPPP will be provided to CPUC for recordkeeping. The plan will be maintained and updated during construction as required by the CGP.

APM HYD-2. Worker Environmental Awareness Program.

The worker environmental awareness program will be developed and provided separately to CPUC staff prior to construction. The worker environmental awareness program will communicate environmental issues and appropriate work practices specific to project components to all field personnel. These will include spill prevention and response measures and proper BMP implementation. A copy of the worker environmental awareness program record will be provided to CPUC for recordkeeping at the completion of the project. An environmental monitoring program also will be implemented to ensure that the plans are followed throughout the construction period for project components.

APM HYD-3. Project Site Restoration.

As part of the final construction activities, PG&E will restore all removed curbs and gutters, repave, and restore landscaping or vegetation, as necessary.

Land Use and Planning

The Project will have no or nominal impact on land use and planning (see EIR Section 3.1.8) and no land use APMs are included. However, several APMs discussed in other sections will reduce any nuisances to nearby properties and people. These include APM AIR-1, which includes measures to control dust during construction; APM NOI-1, which details how PG&E will provide written notice at least 1 week prior to planned construction activities to all sensitive receptors and residences within approximately 500 feet of construction sites, as well as providing contact information for a project public liaison to receive and respond to concerns; and APM TRA-1, which will provide temporary traffic controls to prevent excessive congestion or traffic hazards during construction.

Mineral Resources

The Project will have no or nominal impact on mineral resources (see EIR Section 3.1.8), so no APMs are included by PG&E.

Noise (NOI)

APM NOI-1: General Construction Noise Management.

PG&E will employ standard noise-reducing construction practices such as the following:

- Comply with manufacturer's muffler requirements on all construction equipment engines and ensure exhaust mufflers are in good condition.
- Turn off construction equipment when not in use, where applicable.
- Locate stationary equipment, construction staging areas, helicopter landing zones, and construction material areas as far as practical from sensitive receptors.
- Include noise control requirements for construction equipment and tools in specifications provided to construction contractors to the maximum extent practicable, including performing all work in a manner that minimizes noise.

Applicant-Proposed Measures

PG&E will provide written notice at least 1 week prior to planned construction activities to all sensitive receptors and residences within approximately 500 feet of construction sites, staging yards, access roads, and areas of drone use, and within approximately 1,000 feet of helicopter landing zones. PG&E also will post notices in public areas, including recreational use areas, within approximately 500 feet of the project alignment and construction work areas. The announcement will state approximately where and when construction will occur in the area, including areas of helicopter construction. Notices will provide tips on reducing noise intrusion – for example, by closing windows facing the planned construction. PG&E will identify a public liaison to respond to concerns of neighboring receptors during construction, including residents, about construction noise disturbance. PG&E also will establish a toll-free telephone number for receiving questions or concerns during construction and develop procedures for responding to callers. Contact information for reaching the PG&E public liaison officer by telephone or in person will be included in the notices and also posted conspicuously at the construction sites. PG&E will respond to questions or concerns received.

APM NOI-2: Noise Minimization with Portable Barriers.

Compressors and other small stationary equipment used during construction of PG&E project components will be shielded with portable barriers if appropriate and if located within approximately 200 feet of a residence.

APM NOI-3: Noise Minimization with Quiet Equipment.

Quiet equipment will be used during construction of PG&E project components whenever possible (for example, equipment that incorporates noise control elements into the design, such as quiet model compressors or generators, can be specified).

APM NOI-4: Noise Minimization through Direction of Exhaust.

When in proximity to noise-sensitive uses, equipment exhaust stacks and vents will be directed away from those noise-sensitive uses where feasible.

APM NOI-5: Nighttime Noise Disruption Minimization through Residential Notification.

In the event that nighttime construction is necessary for PG&E project components – for instance, if certain activities such as underground line splicing need to continue to completion – affected residents will be notified in advance by mail, personal visit, or door-hanger, and will be informed of the expected work schedule.

APM NOI-6: Helicopter Noise Minimization Measures.

PG&E will select helicopter landing zones that are located at least 500 feet from occupied residences where feasible. Nearby residences will be notified at least 1 week ahead of helicopter operations to minimize concerns regarding helicopter noise.

APM NOI-7: Noise Minimization Equipment Specification.

PG&E will specify general construction noise reduction measures that require the contractor to ensure that all equipment is in good working order, adequately muffled, and maintained in accordance with the manufacturers' recommendations.

APM NOI-8: Incorporate Vibration Assessment into Project Construction.

Where pile driving may be required adjacent to residential or commercial uses, final design efforts and construction methods will consider soils and hammer type and use when assessing potential for vibration. Vibration monitoring will be conducted during pile driving activities, or in response to a complaint, to confirm that vibration levels are within acceptable guidelines. Site-specific minimization measures such as modifying the type of hammer, reducing hammer energy, modifying hammer frequency, or using vibratory pile driving will be implemented as necessary to reduce the potential effects of off-site vibration. Monitoring may be reduced or eliminated when it has been established that these measures, if required, are effective for the site conditions.

Paleontological Resources (PAL)

APM PAL-1: Retain a Qualified Paleontological Principal Investigator.

A Paleontological Principal Investigator who meets the standards set forth by the Society of Vertebrate Paleontology will be retained to ensure that all APMs related to paleontological resources are properly implemented during construction. The Paleontological Principal Investigator will have a master's degree or Ph.D. in geology or paleontology, have knowledge of the local paleontology, and be familiar with paleontological procedures and techniques.

APM PAL-2: Worker Environmental Awareness Training.

Training on paleontological resources protection will be administered for excavation deeper than 3 feet below ground surface (bgs) at all work locations. Training may be provided by PG&E as a stand-alone training, or it may be included as part of the overall environmental awareness training as required by the project.
The training will include the following:

- The types of fossils that could occur at the project site
- The types of lithologies in which the fossils could be preserved

Applicant-Proposed Measures

- The procedures that should be taken in the event of a fossil discovery
- Penalties for disturbing paleontological resources

APM PAL-3: Paleontological Resource Monitoring for Select Construction Activities.

A paleontological monitor will be present to monitor for paleontological resources in areas where Siesta Formation (Tst), Orinda Formation (Tor), glauconitic sandstone (Ta), and Pleistocene alluvial and fluvial deposits (Qpaf) occur at the surface and where excavation is greater than 3 feet deep and, for excavations involving drilling or augering, where a drill diameter that is larger than 3 feet will be used. Monitoring is not required if this work occurs in soil or sediment that is imported or previously disturbed. Locations of activities requiring monitoring where previously disturbed or imported soil or sediment is not known are:

- Structure foundation excavation greater than 3 feet bgs using a drill that is 3 feet or greater in diameter at the following locations: RN1, RS1, RS2, RN7, RS7, RN8, RS8, RN21, RS21, TN28, TN29 and TS28.
- Vault installation within Park Boulevard beginning at its intersection with Wellington Street continuing within Park Boulevard Way to the Oakland X Substation property.

The paleontological monitor will be able to: (1) recognize fossils and paleontological deposits and deposits that may be paleontologically sensitive; (2) take accurate and detailed field notes, photographs, and locality coordinates; and (3) document project-related ground-disturbing activities, their locations, and other relevant information, including a photographic record. Monitoring at these locations can be reduced if, after initial monitoring, it is determined the project's Paleontological Principal Investigator that there is a low likelihood of identifying paleontological resources.

APM PAL-4: Unanticipated Paleontological Discovery.

If significant paleontological resources are discovered during PG&E's construction activities, the following procedures will be followed:

- Stop work immediately within 100 feet of the fossil find.
- Contact the designated project inspector and PG&E Cultural Resource Specialist (CRS) immediately.
- Protect the site from further impacts, including looting, erosion, or other human or natural damage.
- Arrange for a qualified paleontologist to evaluate the discovery. If the discovery is determined to be significant, PG&E will implement measures to protect and document the paleontological resource. Work may not resume within 100 feet of the find until approved by the paleontologist and CRS.
- Obtain permission from the landowner before treating the fossils. Curate all fossils discovered in an appropriate repository.
- A qualified paleontologist will be notified to review the need for paleontological monitoring during subsequent ground-disturbing activities with the potential to affect paleontologically sensitive sediments at that location. The qualified paleontologist will be responsible for the reassessment of paleontological sensitivity upon the receipt of additional information from ongoing excavations, which may result in reducing or increasing the amount of monitoring required.

Population and Housing

The Project will have no or nominal impact on population and housing (see EIR Section 3.1.8), so no Applicant-proposed measures are included by PG&E.

Public Services

No Applicant-proposed measures are included by PG&E.

Recreation

APM REC-1: Coordination with Park and Open Space Management and Signage.

PG&E will coordinate closely with park and open space landowners for temporary public land closures during project construction activities. If traditional access is temporarily unavailable, signs advising recreational facility users of construction activities, including directions to alternative trails and/or bikeways, will be posted at entrance gates to park and open space areas. Signage will be posted at least 1 week in advance of the construction activity near a park or open space area.

Transportation (TRA)

APM TRA-1: PG&E Temporary Traffic Controls.

PG&E will obtain any necessary transportation and encroachment permits from Caltrans and the local jurisdictions, as required, including those related to state route crossings and the transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during construction. PG&E will develop traffic control plans to detail road and lane closure or width reduction or traffic diversion as required by the encroachment permits. Residents and emergency service providers will be notified of upcoming road closures consistent with the notification procedures described in APM NOI-1. Construction activities that are in, along, or cross local roadways will follow best management practices and local jurisdictional

Applicant-Proposed Measures

encroachment permit requirements—such as traffic controls in the form of signs, cones, and flaggers—to minimize impacts on traffic and transportation, including emergency vehicle access and evacuation routes in the project area. Where work areas will occupy the end of a street with no secondary access and residential access may be restricted, PG&E will implement residential safe transport. PG&E will provide the CPUC with copies of permits obtained prior to construction activity in each jurisdiction or location. If required for obtaining a local encroachment permit, PG&E will establish a Traffic Management Plan (TMP) to address haul routes, timing of heavy equipment and building material deliveries, workers and equipment parking, potential street or lane closures, signing, lighting, and traffic control device placement. When working on state highways, PG&E will ensure traffic control operations are compliant with both the California Temporary Traffic Control Handbook, 2019 edition, and the California Manual on Uniform Traffic Control Devices, 2014 edition, and any updated versions of these documents that become available before start of construction.

APM TRA-2: PG&E Repair of Damaged Transportation Infrastructure.

Restoration of roads and all removed or damaged curbs, gutters, and sidewalks will be done in compliance with the locally issued ministerial permits. Road restoration is based on matching the roadway's existing subbase and surface (asphalt, concrete, or a combination of both). After backfilling a duct bank trench or vault excavation, a road base backfill or slurry concrete cap will be installed and a pavement surface will be laid where the trench or excavation occurred. The edges of the pavement surface will be leveled to match the existing adjacent pavement surface. If the initial pavement surface is cold patch asphalt, then it will act as a temporary layer to return the road to service per ministerial permit conditions. Temporary cold patch asphalt will be removed before the final road pavement surface is installed. Final pavement surface restoration will use hot mix asphalt, concrete, or a combination of both depending on the ministerial permit conditions. Repaving and striping will be completed sequentially as completed sections of road surface are being restored, and this process will continue until the pavement restoration activity is complete.

Tribal Cultural Resources (TCR)

APM TCR-1: Undiscovered Potential Tribal Cultural Resources.

After stopping work and following the procedure for determining eligibility in APM CUL-2, in the event that a prehistoric or protohistoric site is identified and cannot be avoided, PG&E will contact the CPUC to identify an appropriate tribe with whom to consult on treatment.

If no agreement can be reached for mitigation after discussions with the California Native American tribe(s) or it is determined that the tribe(s)' preferred mitigation is not feasible, PG&E will implement one of the example mitigation measures listed in Public Resources Code Section 21084.3(b), or other feasible mitigation.

Utilities and Service Systems

No Applicant-proposed measures are included.

Wildfire (WFR)

APM WFR-1: Construction Fire Prevention Plan.

A project-specific Construction Fire Prevention Plan for construction of the project will be prepared prior to initiation of construction by PG&E. The PG&E plan will be approved by the CPUC. The final plan will be approved by the CPUC at least 30 days prior to the initiation of construction activities. The plan will be fully implemented throughout the construction period, and it will include the following at a minimum:

- The purpose and applicability of the plan
- Incorporation of the requirements in PG&E's current Utility Standard TD-1464S for Preventing and Mitigating Fires While Performing PG&E Work
- Responsibilities and duties for compliance
- Preparedness training and drills
- Procedures for fire reporting, response, and prevention that include:
  - Identification of daily site-specific risk conditions
  - The tools and equipment needed on vehicles and on hand at sites
  - Reiteration of fire prevention and safety considerations during tailboard meetings
  - Daily monitoring of the Red-Flag Warning System with appropriate restrictions on types and levels of permissible activity
- Coordination procedures with federal, state, and local fire officials and emergency responders, including notifications of temporary lane or road closures
- Crew training, including the construction fire prevention practices described in APM WFR-2
- Method(s) for verifying that all plan protocols and requirements are being followed

PG&E or its contractor will be responsible for training project personnel and enforcing all provisions of the PG&E Construction Fire Prevention Plan, as well as performing other duties related to fire detection, prevention, and

Applicant-Proposed Measures
suppression for the project. Construction activities will be monitored to ensure implementation and effectiveness of the plan.
APM WFR-2: Fire Prevention Practices. PG&E will implement the following fire prevention practices at active construction sites and during maintenance activities: ■ Existing PG&E personnel conducting maintenance on the project are trained on the PG&E Utility Standard TD-1464S for Preventing and Mitigating Fires While Performing PG&E Work or relevant current standard and will follow the standard in regard to training, preparation, communication methods and means, observations of and alerts concerning weather conditions including NWS events, and PG&E's work restrictions and fire mitigation required for elevated PG&E Utility FPI ratings (R4, R5, or R5-Plus). ■ Construction personnel will be trained in fire-safe actions, including PG&E's current Utility Standard for Preventing and Mitigating Fires While Performing PG&E Work, Wildfire Prevention Contract Requirements, and the project's PG&E Construction Fire Prevention Plan concerning initial attack, firefighting, and fire reporting. Construction personnel will be trained and equipped to extinguish small fires to prevent them from growing into more serious threats. ■ Construction personnel will have fire suppression equipment on all construction vehicles per PG&E Utility Standard TD-1464S and will be required to park vehicles away from dry vegetation. Water tanks and/or water trucks will be sited or available at active project sites for fire protection during construction. ■ All construction crews and inspectors will be provided with radio and cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. All fires will be reported to the fire agencies with jurisdiction in the area upon discovery of the ignition. ■ While performing stationary ground-level jobs or activities from which a spark, fire, or flame may originate (for example, welding, cutting, grinding), all flammable material (for example, grass, leaf litter, dead or dying tree) must be removed down to the mineral soil around the operation for a minimum of 10 feet. ■ PG&E General Requirements for Wildfire Mitigation (R1 to R3) apply for PG&E work areas located farther than 5 miles from an FIA when the nearest FIA has an elevated FPI rating (R4, R5, or R5-Plus), except during NWS Red-Flag Warnings and Fire Weather Watch events when R5 mitigations will apply. ■ For work within an FIA, during Red-Flag Warning and Fire Weather Watch events, as issued by the NWS, and elevated PG&E Utility FPI rating (R4, R5, or R5-Plus), all construction activities will refer to the current PG&E Standard TD-1464S and related requirements such as PG&E Wildfire Prevention Contract Requirements, Attachment 1 – Wildfire Mitigation Matrix, and Attachment 2 – Wildfire Risk Checklist Fire Mitigations. With the increased potential fire risk of R4, additional water resources are required, and a working fire watch is assigned to be able to continue work as long as the weather conditions are evaluated to ensure it remains safe to continue work. ■ For R5 and R5-Plus ratings, measures beyond R1 to R4 levels include posting a dedicated fire watch at the jobsite, making available a trailer-mounted water tank or alternative water delivery method at the jobsite, and modifying the fuel sources surrounding the jobsite. All planned work is suspended during an R5-Plus fire rating. During all emergency work being performed for an R5-Plus fire rating, personnel must have a PG&E Safety and Infrastructure Protection Team on standby or a 300-gallon water tender available. Use of heavy equipment (blades, dozers, skid steers, excavators, back hoes), construction hot work, and electrical equipment work (including tasks related to conductors, pole, and overhead equipment from which a spark, fire, or flames may originate) are allowed with the R5 mitigations in place but not allowed during R5-Plus conditions.

2.10. EMF and CPUC EMF Analysis/Mitigation Requirements

2.10.1. Electric and Magnetic Fields

Recognizing that there is public interest and concern regarding potential health effects that could result from exposure to electric and magnetic fields (EMF) from power lines, this document provides information regarding EMF associated with electric utility facilities and the potential effects of the proposed Project related to public health and safety. Potential health effects from exposure to electric fields from power lines (produced by the existence of an electric charge, such as an electron, ion, or proton, in the volume of space or medium that surrounds it) are typically not of concern since electric fields are effectively shielded by materials such as trees, walls, etc. Therefore, the majority of the following information related to EMF focuses primarily on exposure to magnetic fields (invisible fields created by moving charges) from power lines.

Magnetic fields can be reduced either by cancellation or by increasing distance from the source. Cancellation is achieved in two ways. A power line circuit consists of three "phases": three separate wires (conductors), usually on an overhead tower. The configuration of these three conductors can reduce magnetic fields. When the configuration places the three conductors closer together, the interference, or cancellation, of the fields from each wire is enhanced, and the magnetic field is reduced. This technique has practical limitations because of the potential for short circuits if the wires are placed too close together. Close conductor spacing can also create worker safety concerns because there is a risk of workers contacting energized conductors during maintenance.

This EIR does not consider magnetic fields in the context of CEQA and determination of environmental impact. This is because (a) there is no agreement among scientists that EMF does create a potential health risk, and therefore, (b) there are no defined or adopted CEQA standards for defining health risk from EMF. As a result, EMF information is presented for the benefit of the public and decisionmakers.

After several decades of study regarding potential public health risks from exposure to power line EMF, research results remains inconclusive. Several national and international panels have conducted reviews of data from multiple studies and state that there is not sufficient evidence to conclude that EMF causes cancer. The International Agency for Research on Cancer (IARC), an agency of the World Health Organization (WHO), and the California Department of Health Services (DHS) both classified EMF as a possible carcinogen (WHO, 2001; DHS, 2002).

In addition, the 2007 WHO [Environmental Health Criteria (EHC) 238] report concluded that:

- Evidence for a link between Extremely Low Frequency (ELF, 50–60 Hz) magnetic fields and health risks is based on epidemiological studies demonstrating a consistent pattern of increased risk for childhood leukemia. However, "…virtually all of the laboratory evidence and the mechanistic evidence fail to support a relationship between low-level ELF magnetic fields and changes in biological function or disease status….the evidence is not strong enough to be considered causal but sufficiently strong to remain a concern."
- "For other diseases, there is inadequate or no evidence of health effects at low exposure levels."

Currently, there are no applicable regulations related to EMF levels from power lines or substations. However, following a CPUC decision from 1993 (Decision [D.]93 11 013) that was reaffirmed by the CPUC on January 27, 2006 (D.06 01 042), the CPUC requires utilities to incorporate "low-cost" or "no-cost" measures to mitigate EMF from new or upgraded electrical utility facilities up to approximately 4 percent of total project cost. To comply with this requirement, PG&E developed and included a Field Management Plan (FMP) as part of the application for the proposed Project to reduce magnetic field levels in the vicinity of the power line.

2.10.2. EMF in the Project Area

Magnetic field strength is a function of both the electric current carried by the wires, and the configuration and design of the three conductors that together form a single circuit of an electric transmission line. Magnetic field strengths for typical transmission power line loads at the edge of an overhead transmission system right-of-way generally range from 10 to 30 milligauss (mG) (NIEHS, 2002). Exposure to EMF occurs in the community from sources other than electric transmission lines. Research on ambient magnetic fields in homes indicates that levels below 0.6 mG could be found in half of the studied homes in the centers of rooms, and that the average levels in the homes away from electrical appliances was 0.9 mG. Immediately adjacent to appliances (within 12 inches), field values are much higher, for example: 4 to 8 mG near electric ovens and ranges, 20 mG for portable heaters, or 60 mG for vacuum cleaners (NIEHS, 2002). Outside of the home, the public also experiences EMF exposure from the electric distribution system that is located throughout all areas of the community.

Existing EMF levels along PG&E's existing 115 kV corridor vary with loading conditions, with vary with time of the day, season of the year, and operating conditions. Modeled existing levels are discussed in detail in PG&E's Preliminary EMF Field Management Plan (see EIR Appendix G). These calculated EMF levels were based on peak loading condition and a set of assumptions. They were used to compare various design options and not meant to be indicators of real site-specific levels.

2.10.3. Field Management Plan for the Proposed Project

This section discusses PG&E's general practices regarding EMF and the specific EMF reduction measures proposed by PG&E for the proposed Project. PG&E's Field Management Plan also includes design calculations of estimated EMF levels for the proposed lines with and without implementation of these EMF reduction measures and conductor phasing (i.e., arranging conductors of the proposed power lines for magnetic field reduction). For additional details on PG&E's set of assumptions and calculated magnetic field levels for the proposed Project, see EIR Appendix G [Exhibit D: Preliminary EMF Field Management Plan, included in PG&E's PTC application].

PG&E's EMF Design Guidelines. In accordance with Section X(A) of CPUC General Order 131 D, Decision No. D.06 01 042, and PG&E's EMF Design Guidelines prepared in accordance with the EMF Decision, PG&E would incorporate "no cost" and "low cost" magnetic field reduction steps in the design of the proposed power lines.

PG&E's guidelines call for implementation of measures to reduce magnetic fields based on the land uses surrounding each project, in the following priority:

- Schools, day care centers, hospitals
- Residential properties
- Commercial/industrial land uses
- Recreational sites
- Agricultural lands
- Undeveloped land

Common options in PG&E's EMF Design Guidelines include the following measures, any or all of which may be selected to reduce the magnetic field strength levels from the proposed power line:

- Arranging the conductors in a triangular configuration to maximize field cancellation.
- Placing the conductors for the power line in the right-of-way at the greatest distance from buildings housing priority land uses to reduce magnetic field exposure along the entire route, except where the location of existing utilities prevent strategic line placement.
- Moving the conductors further from the edge of the right-of-way near high priority groups including school, day care, hospital and residential land uses.

Proposed EMF Reduction Measures. The Preliminary Field Management Plan for the Project (EIR Appendix G [Exhibit D: Preliminary EMF Field Management Plan, included in PG&E's PTC application]) includes each of these measures, as "no cost" and "low cost" magnetic field reduction steps:

- Arrange conductors of the proposed power lines for magnetic field reduction ("phasing"),
- Utilize twisted cable technology underground to further reduce magnetic field levels at no cost,
- Raise the height of approximately 36 structures in the residential and school land use areas by 10 feet taller than required for meeting clearance requirements,
- Lower the depth of the trench in the school and residential land use areas five feet lower than the base case design.

During final engineering and selection of the alignment of the line, PG&E would attempt to strategically place the line farther from priority land uses, where feasible.

Table 2.10-1. "Low Cost and No Cost" Options Proposed by PG&E, Overhead Lines

Location	Adjacent Land Use	Reduction Measure Considered	Estimated Cost	Measure Adopted? (If not adopted, reason)
Moraga Substation	Undeveloped	None	--	--
Manzanita Drive to Estates Drive	Residential	Raise Conductor 10 feet	$320,000	Yes
Corpus Cristi School	School	Raise Conductor 10 feet	$40,000	Yes

Table 2.10-2. "Low Cost and No Cost" Options Proposed by PG&E, Underground Lines

Location	Adjacent Land Use	Reduction Measure Considered	Estimated Cost	Measure Adopted? (If not adopted, reason)
Corpus Cristi School	School	Lower Trench 5 feet	$396,000	Yes
St. James Dr to Hollywood Ave	Residential	Lower Trench 5 feet	$396,000	Yes
Hollywood Ave to Dolores Ave	Undeveloped	None	--	--
Dolores Ave to El Centro Ave	Residential	Lower Trench 5 feet	--	No; setback > 30 ft, field reduction < 15%
El Centro Ave to Edgewood Ave	Residential	Lower Trench 5 feet	$792,000	Yes
Edgewood Ave to 4174 Park	Commercial	None	--	--
4174 Park to Greenwood Ave	Residential	Lower Trench 5 feet	$1,296,000	Yes
Greenwood Ave to Oakland X	Residential	Lower Trench 5 feet	$612,000	Yes

Additional information regarding EMF can be found in EIR Appendix G [Exhibit D: Preliminary EMF Field Management Plan, included in PG&E's PTC application]. PG&E's complete PTC application and Proponent's Environmental Assessment are available for public review at the CPUC Energy Division CEQA Unit and on the Project website at:

https://ia.cpuc.ca.gov/environment/info/aspen/moraga-oakland/moraga-oakland.htm

If the Project or an alternative is approved by the CPUC, PG&E would prepare and submit to the CPUC a Final EMF Management Plan containing the precise EMF measures to be employed for the Project.

2.11. References

APLIC (Avian Power Line Interaction Committee), 2012. Reducing Avian Collisions with Power Lines: The State of the Art in 2012. Edison Electric Institute and APLIC. Washington D.C. https://www.aplic.org/uploads/files/11218/Reducing_Avian_Collisions_2012watermarkLR.pdf .

_____, 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington D.C. and Sacramento, CA. https://www.aplic.org/uploads/files/2643/SuggestedPractices2006(LR-2).pdf .

CAISO (California Independent System Operator), 2025. Board Approved 2024-2025 Transmission Plan. May 30.

PG&E (Pacific Gas and Electric Company), 2025. PG&E Response Letter to CPUC Data Request #6 for the Moraga-Oakland X 115 kV Rebuild Project (A.24-11-005). April 21.

_____, 2025b. PG&E Response Letter to CPUC Review of Proponent's Environmental Assessment and Data Request #1 (A.24-11-005). January 31.

_____, 2024. Proponent's Environmental Assessment for Pacific Gas and Electric Company's Moraga–Oakland X 115 kV Rebuild Project. Application A.24-11-005. November 15.

_____, 2018. Avian Protection Plan: PG&E's Program to Address Avian Electrocutions, Collisions, and Nesting Birds. Public Version. Victor, CA.

3. ENVIRONMENTAL ANALYSIS

3.1. Introduction to Environmental Analysis

Chapter 3 identifies the environmental impacts of the proposed Project, in accordance with State CEQA Guidelines sections 15126 and 15126.2. It also presents and applies criteria used to determine whether an adverse impact is significant under CEQA and describes feasible mitigation measures, if any, that could reduce each significant adverse impact to a level of less than significant.

3.1.1. Organization of Each Section

Chapter 3 examines the environmental consequences associated with the proposed Project and the alternatives to it. This Chapter includes analyses of the environmental disciplines listed below:

3.2 Aesthetics
3.3 Air Quality
3.4 Biological Resources
3.5 Cultural Resources
3.6 Energy
3.7 Geology and Soils
3.8 Greenhouse Gas Emissions
3.9 Hazards, Hazardous Materials, and Public Safety
3.10 Hydrology and Water Quality
3.11 Noise
3.12 Paleontological Resources
3.13 Public Services
3.14 Recreation
3.15 Transportation
3.16 Tribal Cultural Resources
3.17 Utilities and Service Systems
3.18 Wildfire

Within each environmental discipline, discussions are presented in the following order:

- Environmental Setting
- Regulatory Setting, including information on the laws, regulations, plans, and policies that relate to the issue area being discussed[21]
- Environmental Impacts of the proposed Project, including the approach to the impact analysis and applicable impact significance criteria for each issue area
- Mitigation Measures
- References

Much of the EIR Environmental Setting is based on PG&E's Proponent's Environmental Assessment (PEA) with review and updates by the EIR team, as needed. Therefore, separate citations are not repeated within each issue area in Chapter 3.

The analysis of impacts associated with each environmental discipline provides the regulatory agencies, the lead agency's decision makers, and the general public sufficient information to understand and meaningfully consider the nature and severity of environmental impacts of this proposed Project.

Chapter 4 presents the alternatives, including the No Project Alternative, and includes an analysis for each issue area, a comparison of alternatives, and the identification of the Environmentally Superior Alternative under CEQA.

Cumulative impacts for all disciplines are presented in Chapter 5, and other CEQA analysis requirements are addressed in Chapter 6.

[21] CPUC General Order 131-D, Section XIV.B states that "local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the Commission's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." As a public utility project that is subject to the jurisdiction of the CPUC, the proposed Project is exempt from local regulation and discretionary permits. As such, the regional and local regulatory standards are provided in this analysis for informational purposes only.

3.1.2. CEQA Requirements

CEQA applies to any project that requires a discretionary approval by a state or local body. CEQA strives to facilitate informed governmental decisions regarding discretionary projects and activities that may affect the environment. The regulations implementing CEQA are designed to allow flexibility in consolidating and avoiding duplication among multiple layers of governmental review.

Under CEQA, impacts are evaluated using significance thresholds or standards. These thresholds derive from the CEQA Guidelines Appendix G checklist, which provides sample questions that may be tailored to satisfy individual agency needs and project circumstances. For each resource defined in the checklist, a determination is made that there is (1) no impact, (2) a less than significant impact, (3) a less than significant impact with mitigation incorporated, or (4) a significant and unavoidable impact.

Significant impacts under CEQA require the public agency that is approving, funding, or carrying out the project to consider mitigation, where feasible, to avoid or reduce significant impacts to less than significant levels. CEQA Guidelines Sections 15126.2(a–c), 15358, and 15382 further define and describe significant effects.

For the purpose of this document, and pursuant to CEQA Guidelines (Section 15125(a)), the environmental setting used for the impact analysis reflects conditions in the vicinity of the proposed Project at the time of issuance of the Notice of Preparation (February 25, 2025). The EIR evaluates the environmental consequences of the proposed Project and alternatives, and the impact of any mitigation measures. Under CEQA, the impacts identified are compared with predetermined, specific significance criteria or thresholds, and are classified according to significance categories listed in each environmental discipline.

3.1.3. Impact Analysis

The analysis completed for each environmental discipline follows the CEQA requirements defined above. In each section, Applicant Proposed Measures (APMs) developed by PG&E and/or mitigation measures recommended in this EIR may apply.

The Impact Analysis subsection for each resource topic presents an assessment of the identified direct and indirect impacts and discloses the level of significance for each impact. The analysis in Chapter 3 applies to the construction, operations, and maintenance of the Project as a whole unless specifically stated. A significant impact is defined under CEQA as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project" (State CEQA Guidelines § 15382). The terms "effect" and "impact" used in this document are synonymous and can refer to effects that are either adverse or beneficial.

Direct effects	Effects caused by the proposed Project that occur at the same time and place as the proposed Project
Indirect effects	Effects caused by the proposed Project that occur later in time, or further in distance, but are still reasonably foreseeable
Residual impacts	Impacts that still meet or exceed significance criteria after application of mitigation and, therefore, remain significant
Cumulative impacts	Impacts resulting from the proposed Project when combined with similar effects of other past, present, and reasonably foreseeable future projects, regardless of which agency or person undertakes such projects (cumulative impacts could result from individually insignificant but collectively significant actions taking place over time)
Short-term impacts	Impacts expected to occur during construction or decommissioning that do not have lingering effects for an extended period after the activity is completed
Long-term impacts	Impacts that would persist for an extended period of time

The significance of each impact is determined based on an analysis of the impact, compliance with any recommended mitigation measures, and the level of impact remaining compared to the applicable significance criteria. Impacts are classified as one of the five categories listed below.

Significant and Unavoidable	A substantial or potentially substantial adverse change from the environmental baseline that meets or exceeds significance criteria, where either no feasible mitigation can be implemented, or the impact remains significant after implementation of mitigation measures
Less than Significant with Mitigation	A substantial or potentially substantial adverse change from the environmental baseline that can be avoided or reduced to below applicable significance thresholds
Less than Significant	An adverse impact that does not meet or exceed the significance criteria of a particular environmental issue area and, therefore, does not require mitigation
Beneficial	An impact that would result in an improvement to the physical environment relative to baseline conditions
No Impact	A change associated with the project that would not result in an impact to the physical environment relative to baseline conditions

The analysis in this EIR is prepared with the understanding that the Applicant would obtain all required permits and approvals from other agencies and comply with all legally applicable terms and conditions associated with those permits and approvals. Implementation of the Project, which is described in Chapter 2, Description of the Proposed Project, including implementation of Applicant Proposed Measures (APMs) and of any mitigation measures identified to reduce or avoid significant adverse impacts, would be monitored in accordance with a Mitigation Monitoring and Reporting Program (MMRP), summarized below.

3.1.4. Significance Criteria

Thresholds of significance, also referred to as significance criteria, are used to determine when a project will result in a significant impact on the environment. Thresholds of significance are, "identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant" (CEQA Guidelines Section 15064.7(a).)

In many instances, this EIR uses the sample questions provided in CEQA Guidelines Appendix G as significance criteria; however, the sample questions have been tailored to address local conditions and Project characteristics and have been modified or supplemented by other significance criteria where appropriate. In some instances, the EIR uses environmental standards as thresholds of significance. An environmental standard is a rule of general application that is adopted by a public agency, e.g., a regulatory agency, through a public review process and that meet the criteria set forth in CEQA Guidelines Section 15064.7(d). With regard to existing laws and regulations pertaining to a resource, it is assumed that the Applicant complies with those that are applicable to the project.

3.1.5. Applicant Proposed Measures

The Applicant has proposed a substantial number of measures and procedures to avoid or reduce impacts, which are referred to as Applicant Proposed Measures (APMs). The APMs are considered part of the proposed Project and are provided in EIR Section 2.9. When assessing Project impacts, these APMs have been assumed to be part of the proposed Project and, therefore, are not included as recommended mitigation measures. However, implementation of each APM will be monitored by the CPUC to ensure the APM is effective in reducing the impact, as intended. The APMs that are intended to reduce the potential impacts in a particular environmental discipline (such as air quality, biology, etc.) are listed in the section

addressing that environmental discipline. In some instances, APMs are superseded or supplemented by mitigation measures that provide greater specificity and direction, or include actions omitted in the original APM in order to reduce a significant impact.

3.1.6. Mitigation Measures and Mitigation Monitoring and Reporting Program

An EIR is required to indicate the ways any significant effects of a project on the environment can be mitigated or avoided. A governmental agency must prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives (discussed below) or mitigation measures when the agency finds the changes to be feasible. (CEQA, § 21002.1, subd. (a) & (b); State CEQA Guidelines, § 15002, subd. (a).) Implementation of multiple mitigation measures may be needed to reduce an impact to a less-than-significant level. Impacts that still meet or exceed significance criteria after application of mitigation measures are considered residual impacts that remain significant.

Significant impacts under CEQA require the public agency that is approving, funding, or carrying out the project to consider mitigation, where feasible, to avoid or reduce the impacts to less than significant levels. Where needed, mitigation measures are recommended in each section, if required to avoid or minimize impacts that are identified. The mitigation measures recommended by this EIR have been identified in the impact assessment sections and presented in a subsection at the end of the impact analysis for each discipline.

Under CEQA, the lead agency must adopt a reporting or monitoring program for any changes made to the project or conditions of project approval adopted to mitigate or avoid significant effects on the environment (i.e., MMRP). (CEQA, § 21081.6, subd. (a)(1).)

The impact sections throughout Chapter 3, and the MMRP included in Chapter 7 of the EIR, identify all mitigation measures to reduce significant impacts. The CPUC would ensure implementation of all mitigation measures.

3.1.7. Alternatives

Pursuant to State CEQA Guidelines section 15126.6, an EIR must describe and evaluate a range of reasonable alternatives that would feasibly attain most of the project's basic objectives while avoiding or substantially lessening any of the significant impacts of the project as proposed. The range of alternatives is governed by the "rule of reason," that is, an EIR needs to describe and evaluate only those alternatives necessary to permit a reasoned choice and to foster informed decision-making and public participation. (State CEQA Guidelines, § 15126.6, subd. (f).) Chapter 5, Analysis and Comparison of Alternatives, analyzes the alternatives to the proposed Project, which are described in Chapter 4 and includes the impact analysis for each alternative scenario considered, compares the alternatives evaluated to the proposed Project, and identifies the Environmentally Superior Alternative.

As explained in Chapter 4 (Alternatives), the following alternatives are evaluated for each issue area:

- **Alternative 1:** No Project Alternative
- **Alternative 2:** Skyline-Colton-Snake Underground Alternative
- **Alternative 3**: Shepherd Canyon Underground Alternative
- **Alternative 4**: Skyline-Ascot Underground Alternative
- **Alternative 5:** Estates Drive Underground Alternative

The impacts of the alternatives are described in Chapter 4, and the overall impacts of the alternatives are compared in Sections 4.7 and 4.8 of this EIR.

3.1.8. Issue Areas Found to Have Nominal or No Impacts

For the reasons explained below, the following topics would result in a less-than-significant or no impact. Accordingly, the EIR does not analyze:

- Agriculture and Forestry
- Land Use and Planning
- Mineral Resources
- Population and Housing

3.1.8.1. Agriculture and Forestry Resources

Appendix G of the CEQA Guidelines suggest that a project may have a significant impact on agricultural and forestry resources if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.
- Conflict with existing zoning for agricultural use, or a Williamson Act contract.
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).
- Result in the loss of forest land or conversion of forest land to non-forest use.
- 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.

Because the Project is not located on land designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance by the California Department of Conservation, there would be no conversion of or impact to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use during Project construction, operation, or maintenance.

During construction, Project activities associated with replacing the existing lines would occur in an area currently used for grazing. The Project traverses land zoned as General Agriculture (A-2) in unincorporated Contra Costa County. However, the rebuilt structures would occupy a very small area that replaces the existing structure footprint area. The rebuilt lines would not obstruct or preclude the ongoing grazing activities. Implementation of APM AGR-1 as part of Project would coordinate construction related activities with grazing operations to avoid unplanned disruption where feasible in addition to restoring work areas or overland access as agreed upon with the landowner. No conflict with existing agricultural zoning would occur. The Project is not located on any lands under Williamson Act contracts. No impact would occur.

The Project is not located in any areas zoned as forest land. In addition, the Project is not located in timberland as defined by PRC 4526 or Timberland Production zoning per California Government Code Section 51104(g). Therefore, no impact would occur.

The Project runs through areas of forest land and up to approximately 350 trees may be trimmed or removed to provide access or allow equipment to operate within a work area. Tree removal would not be focused in a specific area or involve a large portion of landscape trees in urban areas. As such, native cover of the forest lands would not fall below the 10 percent density threshold for loss of forest land or conversion of forest land to non-forest use as determined by Section 12220(g) of the California Public Resources Code. Therefore, there would be no loss of forest land. In addition, no forest lands would be converted to non-forest land. Impacts would be less than significant.

Implementation of the Project would not involve changes in the existing environment for agriculture or discourage the continued use of adjacent land for agricultural use or induce growth that would result in the conversion of Important Farmland to non-agricultural use of forest lands to non-forest use. No impact would occur.

3.1.8.2. Land Use and Planning

Appendix G of the CEQA Guidelines suggest that a project may have a significant impact on land use and planning if it would:

- Physically divide an established community.
- Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

The Project would rebuild an existing electrical utility. No PG&E project features or other built components would be implemented that would introduce a new barrier that physically divides an established community. Implementation of this Project would not physically divide an established community, and no impact would occur.

As noted above, CPUC General Order 131-D, Section XIV.B states that "local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the Commission's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." As a public utility project that is subject to the jurisdiction of the CPUC, the proposed Project is exempt from local regulation and discretionary permits. Because local agencies do not have jurisdiction over PG&E's project components, and no State or federal land use plans, policies, or regulations are applicable, the PG&E Project components would not conflict with any applicable land use policy, plan, or regulation. Nonetheless, the impact analysis in EIR Chapter 3 demonstrates that the Project is compatible with the general plans adopted by the cities of Oakland, Orinda, Piedmont, and Contra Costa County and would not have an impact on plans or policies. No changes in land use or zoning would be required as part of the Project. No impact would occur.

The Bay Area Operations & Maintenance Habitat Conservation Plan (HCP) applies to PG&E's Operations & Maintenance (O&M) activities in the San Francisco Bay Area. This HCP is applicable to O&M activities for PG&E's electric transmission and distribution systems. It is currently being implemented for the existing power lines and would continue to be implemented for the rebuilt lines. No other HCPs or Natural Community Conservation Planning (NCCP) plans apply to the Project area; no impact would occur.

3.1.8.3. Mineral Resources

Appendix G of the CEQA Guidelines suggest that a project may have a significant impact on mineral resources if it would:

- Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state.
- 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.

While a large portion of the Project area overlaps with mineral resource zones (MRZs) designated by the Surface Mining and Reclamation Act of 1975 (SMARA), there are no known active mining claims or active mining operations within 0.5 miles of the Project. The portion of the Project alignment within MRZ-2[22] has existing residential land uses and would not be mined. There are no plans for mining in residential areas or designated open space/parkland areas. Therefore, loss of availability of a known mineral resource of value to the region and residents of the State would not occur; therefore, no impacts to mineral resources would occur.

[22] MRZ-2: Areas where adequate information indicates significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.

The Contra Costa County General Plan EIR identifies some areas within 0.5 miles of the Project as having significant mineral resources. The Project is approximately 12 miles from the closest active mining site. The General Plans for the cities of Orinda, Piedmont, and Oakland do not designate any locally important mineral resource recovery sites within 0.5 miles of the Project. However, the Mineral Land Classification Map identifies segments of both the overhead and underground portions of the Project that fall within MRZ-2(b).[23] There are no active mining sites within the cities of Orinda, Piedmont, or Oakland. The Project would not result in the loss of availability of a locally important mineral resource recovery site; therefore, no impacts would occur.

3.1.8.4. Population and Housing

Appendix G of the CEQA Guidelines suggest that a project may have a significant impact on population and housing if it would:

- Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).
- Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

The Project would improve reliability of electric service for a large section of the cities of Oakland and Piedmont served by Oakland X Substation. The Project would not extend new power lines or other infrastructure into areas not already served nor facilitate growth that has not already been accounted for in long-term planning documents. Although the Project would improve electric transmission reliability, power availability and reliability in this area are not constraints to population growth. During peak construction times, PG&E would employ approximately 117 workers on the Project who are expected to come from the local workforce. However, there are adequate temporary accommodations in the area if any construction workers are to temporarily relocate to the area during construction, as at a minimum there are approximately 180 hotel rooms in Contra Costa County (Trip.com, 2025). PG&E would operate the rebuilt power lines using its existing operation and maintenance staff. Thus, the Project would not directly or indirectly induce population growth.

Although existing homes occur adjacent to several work areas, no demolition of homes would occur. No new housing is proposed in the Project area. The Project would not displace existing housing or people, nor would replacement housing need to be constructed; therefore, no impact would occur.

3.1.9. Other CEQA Considerations

Chapter 6 of this EIR presents the analysis required by CEQA for the following topics:

- Significant environmental effects that cannot be avoided if the proposed Project is implemented.
- Significant and irreversible and irretrievable changes
- Growth-inducing effects
- Energy consumption

3.1.10. References

Trip.com, 2025. Contra Costa County Properties. https://us.trip.com/hotels/list?city=20337&cityName=Contra%20Costa%20County&country=66&provinceId=10125&searchWord=Contra%20Costa%20County&checkin=2025%2F05%2F16&checkout=2025%2F05%2F17&crn=1&adult=2&children=0&ages=&spm=10320665784.hohSearchBox-1. Accessed May 16, 2025.

[23] MRZ-2 is divided on the basis of both degree of knowledge and economic factors. Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present. Areas classified as MRZ-2b contain discovered mineral deposits that are significant inferred resources, as determined by their lateral extension from proven deposits or their similarity to proven deposits. Further exploration work could result in upgrading areas classified as MRZ-2b to MRZ-2a.

3.2. Aesthetics

This section describes existing environmental conditions and anticipated impacts on Aesthetics associated with the proposed Project. This analysis is based on a review of technical data, including Project maps and drawings provided by PG&E, aerial and ground-level photographs of the Project area, field observations, a review of local planning documents, and computer-generated visual simulations. Impacts evaluated in this section include: (1) impacts on scenic vistas; (2) impacts on views from designated scenic roadways; (3) degradation of existing visual character or quality of public views; (4) conflicts with applicable zoning and other regulations governing scenic quality; and (5) introduction of light and/or glare that would affect daytime or nighttime views.

The environmental setting for Aesthetics is presented in Section 3.2.1, and relevant regulations and standards are summarized in Section 3.2.2. Section 3.2.3 describes the impacts on the environment associated with implementation of the proposed Project. These impact discussions introduce mitigation measures that would reduce or avoid significant adverse environmental impacts. Section 3.2.5 lists references cited in this section. Environmental impacts of the alternatives to the proposed Project are described in Section 4. Cumulative impacts for all disciplines are considered in Section 5.

The scoping effort conducted by CPUC from February 25 through March 27, 2025, resulted in several public comments and concerns related to aesthetic resources. These were considered in the analysis below and include:

- Concern that the Project would result in significant and unmitigated aesthetic impacts related to height increase for some of the proposed structures and not undergrounding all power lines.
- Concern that PG&E's Environmental Analysis (EA) conclusion of less than significant aesthetic impacts is unsupported, because figures included in the EA illustrate both the impacts of overhead lines and the aesthetic improvements associated with underground lines. PG&E has also acknowledged that undergrounding would eliminate aesthetic impacts of aboveground structures.
- Consider the aesthetic impacts of rebuilding the outdated towers and continuing vegetation management.

3.2.1. Environmental Setting

3.2.1.1. Landscape Setting

The Project is in Northern California's metropolitan San Francisco Bay Area, within a densely populated urban corridor approximately 6 to 8 miles wide by 45 miles long, east of San Francisco Bay. Figure 3.2-1 (Key Observation Point [KOP] Map) shows the Project location within a regional and local landscape context. The figure also indicates the three major landscape units and the locations of photos used in the analysis of impacts. This area extends south from San Pablo Bay to Santa Clara Valley, and generally is bounded on the west by flat, estuary-fringed bay shore. To the east, a continuous backdrop of undulating, open grass and woodland greenbelts of the East Bay Hills rises abruptly from the gently inclined coastal plain. Typical regional land uses, including commercial, industrial, residential, and recreational open space, are found within the broader bay plain and East Bay Hills area. However, the predominant land use in the immediate Project area is residential, interspersed with recreational open space preserves in addition to limited areas of institutional and commercial use as well as the existing power line corridor.

The Project alignment is approximately 5 miles in length and originates in a suburban setting ~~approximately 2 miles southwest of~~in the City of Orinda. The route generally travels southwest, passing through East Bay Municipal Utility District (EBMUD) watershed land and East Bay Regional Park District (EBRPD) land before crossing the summit of the Oakland/Berkeley Hills and entering the cities~~City~~ of Oakland and Piedmont ~~(Oakland)~~. In Oakland, the route traverses hillside residential communities and two urban creek

watershed preserves before terminating at PG&E's Oakland X Substation approximately 2.25 miles east of downtown Oakland. The Project elevation rises to approximately 1,370 feet above sea level at the Oakland/Berkeley Hills summit, while the elevation at PG&E's Moraga Substation in the east is approximately 650 feet above sea level and the elevation at Oakland X Substation, the western Project terminus, is approximately 140 feet above sea level. Vegetation patterns within the Project area reflect marked microclimate variations that occur between generally cooler bayshore areas and the more arid inland east of the hills. The west-facing Oakland/Berkeley Hills support relatively dense stands of mature trees consisting of a mixture of native oaks, redwood, and non-native eucalyptus and pines, while the drier east flank of the hills supports sparser, savannah-like vegetation dominated by open grassland and more widely dispersed stands of native oaks.

As shown on Figure 3.2-1, the Project alignment crosses several key transportation corridors connecting East Bay communities. Among these are Skyline Boulevard, a county scenic route that extends along the summit of the East Bay Hills from the Oakland/Berkeley border to the southern border of Oakland and the Warren Freeway (State Route [SR] 13), a north-south connector linking SR 24 and Interstate (I-) 580. The Project largely parallels and crosses Shepherd Canyon Road, an east-west arterial that extends from the summit of the Oakland Hills to the commercial district of Montclair adjacent to the Warren Freeway and provides access to residential neighborhoods between the Warren Freeway and Skyline Boulevard. The Project's overhead power lines also cross Park Boulevard into the City of Piedmont and then continues underground within Park Boulevard, an urban arterial that connects the Warren Freeway and Oakland's central business district, as well as connecting to the broader regional transport network via I-580 and the MacArthur Boulevard interchange. In addition to infrastructure associated with these major roadways, established landscape features within the Project area include local paved narrow streets and utility infrastructure that includes numerous distribution and telecommunication lines.

Landscape character along the immediate Project route varies from largely undeveloped open space preserves and park land in the east, to predominantly single-family residential neighborhoods ranging from dispersed residences within the densely wooded hillsides above the Warren Freeway, to more densely clustered urban lots with manicured landscaping in the area immediately north of Park Boulevard.

3.2.1.2. Scenic Resources

Scenic resources are those natural and built landscape patterns and features that are considered visually or aesthetically pleasing and, therefore, contribute positively to the definition of a distinct community or region. Scenic resources may include trees or other important vegetation; landform elements such as hills or mountains, ridgelines, or rock outcroppings; water features such as rivers, bays, or reservoirs; and landmarks, important buildings, or historic sites and structures.

The East Bay Hills ridgelines and tributary canyons constitute important scenic resources within the Project vicinity. These include the largely undeveloped greenbelt east of the Oakland/Berkeley Hills summit under the jurisdiction of EBRPD and include Sibley Volcanic Regional Preserve and Huckleberry Botanic Regional Preserve in the immediate Project area, as well as Tilden Park to the north and Redwood Regional Park to the south. Incorporating 125,496 acres of parkland extending from San Pablo Bay in the north to the southern Alameda County line, these areas afford visitors a range of scenic and recreation amenities. Among these are approximately 1,330 miles of hiking and equestrian trails including the East Bay Skyline Trail, a 31-mile continuous path that passes through six of the East Bay regional parks and preserves and is crossed by the Project (EBRPD, 2025). The East Bay Skyline Trail is a designated National Recreation Trail that is overlain with segments of the Bay Area Ridge Trail, which is a planned 550-mile multi-use trail along ridgelines ringing the San Francisco Bay Area. The trail affords users panoramic city and bay views, passing historic and geologic resources and the largest remaining natural stand of coast redwoods found in the East Bay.

Numerous historic landscape features of scenic and recreational importance in the vicinity of the Project are found in the canyons west of the Oakland/Berkeley Hills summit. A former logging railway right-of-way (ROW) in lower Shepherd Canyon has been converted to a pedestrian greenway known as the Montclair Railroad Trail that constitutes a popular recreation amenity for residents; an approximately 0.7-mile-long portion of the Project construction area is located along the trail. A view from this trail is presented on Figure 3.2-10a. Similarly, the Bridgeview Trail, parallelled by and then crossed by the Project, follows Dimond Canyon west of the Warren Freeway and affords is visitors dramatic views of the historic Leimert Bridge, at one time the largest single-span bridge in the western U.S. Other historic structures in the area include remnants of a Mexican-era cottage in Dimond Park southeast of the Project, as well as Woodminster Amphitheater, a Works Progress Administration project of recognized historic importance in Joaquin Miller Park, approximately 1.4 miles southeast of the Project alignment.

Various public roadways are recognized for providing access to scenic resources in the Project vicinity. I-580, a designated state scenic highway, passes approximately 600 feet west of Oakland X Substation. The Warren Freeway (SR-13) and Park Boulevard are designated Alameda County scenic routes that are crossed by the Project approximately midway along its route. These relatively heavily traveled corridors afford vehicular access to other county scenic routes within or adjacent to the Project area. A view from SR-13 is presented on Figure 3.2-13a. A view from Park Boulevard is included on Figure 3.2-14a.

Skyline Boulevard is an Alameda County scenic route crossed by the Project that begins near the Warren Freeway SR 24 junction north of the Project area and extends approximately 7 miles to the junction with Joaquin Miller Road, approximately 1.25 miles south of the Project alignment. Closely paralleling the summit of the Oakland/Berkeley Hills, this roadway offers motorists and bicyclists numerous informal views toward San Francisco Bay, the Golden Gate Bridge, and adjacent peninsulas and peaks to the west. To the east, it affords views of 3,800-foot-high Mount Diablo, a major regional topographic feature. A view looking west from Skyline Boulevard is shown on Figure 3.2-7a.

3.2.1.3. Viewshed Analysis

A project viewshed is defined as the general area from which a project is visible. Viewing distance between a viewer and a project is a key factor that affects the potential degree of project visibility. Visual details generally become apparent to the viewer when they are observed in the foreground, at 0.25 mile to 0.5 mile or less.

Figures 3.2-2a through 3.2-2c show the potential visibility of Project elements from up to 2 miles away from the Project corridor. A delineation of the area within 0.5 miles of the Project is also shown. Because of the hilly terrain and landscape screening in the Project area, a maximum distance of 2 miles was used for the analysis. Topography, vegetation, and to a lesser degree built structures, limit visibility of Project components to between a few hundred feet and approximately one-quarter mile along much of the Project route. Figures 3.2-2a through 2c show limited or no Project visibility from most of the Project's surroundings up to 2 miles away. The viewshed figures also show a few areas where numerous structures (21 to 40) may potentially be visible. However, it should be noted that the viewshed model is terrain-based only and does not account for screening by structures and vegetation. In reality, very few (if any) of the structures would likely be visible from these areas as a result of intervening screening.

As illustrated in several views of existing conditions presented later in this section, structures along the alignment are only partially visible in most cases, and from any one location where the Project can be seen, the views are often limited to a single pair of structures. Only a few locations afford open (public) views of multiple Project structures. Among these are a segment of recreation trail within the Sibley Volcanic Regional Preserve where there are relatively unobstructed views toward several lattice towers along the Project alignment as it passes through grass-covered, undulating terrain (Figures 3.2-3a and 3.2-4a). Multiple structures also can be seen from a residential intersection below Skyline Boulevard (Figure 3.2-8a).

Residences in the heavily forested and steep terrain in the Project area between the Oakland Hills summit and SR-13 are typically set back from area roadways and from each other in this low-density neighborhood, and surrounding mature vegetation largely screens views toward the structures. Public views of Project structures west of SR-13 are blocked not only by intervening vegetation and the undulating topography through which the Project passes but are also constrained by numerous closely spaced residential structures and adjacent roadside infrastructure such as signage, traffic lights, light poles, and non-Project electrical utility structures.

Open views of the Project alignment along this portion of the route are generally limited to the view from Leimert Bridge and a point on Park Boulevard (Figure 3.2-14a) as well as along isolated segments of Trestle Glen Road. Project visibility from most major traffic corridors in the Project area, including Skyline Boulevard, Shepherd Canyon Road, SR-13, and Park Boulevard, is constrained by intervening topography and dense vegetation, and Project structures are generally not visible except where the alignment crosses these corridors. Where potentially visible from more distant locations, such as the heavily traveled I-880 corridor situated almost 2 miles away, the Project would not be evident to the casual observer. Accordingly, the primary focus of the Aesthetics analysis is the foreground viewshed zone, where Project-related visual effects would be most apparent, particularly those areas within 0.5 miles of Project elements.

3.2.1.4. Landscape Units

For purposes of documenting and describing the Project's foreground viewshed, three landscape units with distinguishing land use and development patterns have been identified and are shown on Figure 3.2-1.

The East Landscape Unit encompasses the eastern segment of the Project area extending approximately 1.7 miles west from the PG&E Moraga Substation in Contra Costa County to Manzanita Drive at the ridgeline of the East Bay Hills and the Alameda County line. The landscape includes undulating open grassland, scattered oak woodlands, hillsides, and ridgelines. The area is primarily undeveloped land and open space, including the Sibley Volcanic Regional Preserve and Huckleberry Botanic Regional Preserve, and is crossed by the East Bay Skyline Trail. This landscape unit is evaluated from three Key Observation Points (KOPs) – 2, 3a, and 3b (Figures 3.2-3a through 3.2-5b).

The Central Landscape Unit extends approximately 2.25 miles in a generally southwesterly direction from Manzanita Drive to Park Boulevard at Estates Drive. Compared with the East Landscape Unit, this area is characterized by hillside residences along narrow winding streets and undulating to steep wooded terrain, including Shepherd and Dimond canyons. Public open space within this landscape unit includes Shepherd Canyon Park, Montclair Railroad Trail, and Bridgeview Trail in Dimond Canyon Park. The historic Leimert Bridge provides open views of Dimond Canyon and the wooded hillsides. The Project crosses Alameda County scenic routes including Skyline Boulevard, Shepherd Canyon Road, Warren Freeway, and Park Boulevard. This landscape unit is evaluated from nine KOPs – 4, 5, 6a, 6b, 7, 8a, 8b, 10, and 13b (Figures 3.2-6a through 3.2-14b).

The West Landscape Unit extends 1.15 miles from Park Boulevard at Estates Drive in the City of Piedmont to Oakland X Substation. It includes gently undulating, developed terrain with primarily residential development mixed with commercial businesses. The area immediately north of Park Boulevard includes densely clustered urban lots with ornamental landscaping and the somewhat enclosed Trestle Glen neighborhood in the City of Piedmont. This landscape unit contains a higher concentration of built infrastructure, including more noticeable utility infrastructure such as light poles, traffic signals, electrical utility poles, and distribution lines. This landscape unit was evaluated from three KOPs – 16, 17, and 19 (Figures 3.2-15a through 3.2-17b).

3.2.1.5. Affected Viewers

Viewer groups include nearby residents, recreational users of Project area open space, and motorists on area roadways that cross the Project alignment.

Motorists traveling on local arterials and other public roadways located relatively close to, or crossing, the Project alignment represent the largest group of potentially affected viewers. While a large number, the duration of views is relatively short and subject to screening by vegetation and existing buildings.

A second viewer group consists of residents who live near or directly alongside the Project corridor. Included in this group are a limited number of viewers in a residential subdivision located adjacent to Moraga Substation, scattered locations near the summit of the Oakland Hills and immediately north of Shepherd Canyon, as well as an area above the Warren Freeway. In addition, residential views of the Project alignment are available to inhabitants of the residential neighborhoods below the Warren Freeway, south of the Project alignment along Leimert Boulevard, and immediately north of Park Boulevard, including locations along Trestle Glen Road in the City of Piedmont. There are approximately 2,096 residences located within 1,000 feet of proposed Project structures. For many residents near the alignment at these locations, particularly residents in the Oakland Hills neighborhoods above the Warren Freeway, mature vegetation and topography provide a measure of screening.

Recreational viewers at public open space, trails, and other recreation facilities found within the Project vicinity constitute another affected viewer group. This group includes users of local open space preserves that lie near (including at lower and higher elevations than) the Project alignment, such as Dimond Canyon Park, where open views of Project towers are available along the ridges overlooking the canyon, and Shepherd Canyon Park, where Project structures are partially visible at relatively close range. In addition, pedestrians, bicyclists, and equestrians access recreation trails, including the East Bay Skyline National Recreation Trail and McCosker Loop Trail that cross the Project alignment within Sibley Volcanic Regional Preserve and Huckleberry Botanic Regional Preserve east of the Oakland Hills. Recreational viewers also include visitors to the planned group camping and interpretive site in Sibley Volcanic Regional Preserve. Because of the comparatively sparse vegetation in this area, relatively unobstructed views of the alignment are generally available to recreational users.

All three of these viewing populations are expected to have high viewer concern levels (defined below). These viewers are likely to consider any increase in industrial character, structural prominence, or view blockage or impairment of higher value landscape features (e.g., background vegetation, landforms, sky, or San Francisco Bay) an adverse visual change.

3.2.1.6. Representative Viewpoints

To meet the requirements of CEQA and determine the extent of Project impacts, 15 KOPs were assessed using the Visual Sensitivity – Visual Change (VS-VC) System. KOPs are stationary viewing locations selected for the purpose of analyzing and describing existing Aesthetic resources in the Project area and for preparing visual simulations and assessing Project-induced visual change. Under the VS-VC System, the existing landscape at each KOP was characterized for visual quality, viewer concern, and viewer exposure (with each factor ranging in value from Low to High or Subordinate to Dominant for Project dominance).

Visual Quality is a measure of the overall impression or appeal of an area as determined by such landscape characteristics such as landforms, water features, vegetation patterns, and existing built features.

Viewer Concern addresses the level of interest or concern of viewers regarding an area's visual resources and is closely associated with viewers' expectations for the area.

Viewer Exposure describes the degree to which viewers are exposed to views of the landscape. Viewer exposure considers landscape visibility, distance zone, number of viewers, and the duration of view. For the proposed Project, the distance zones are defined as the foreground (within 0.25 mile of the viewer),

middleground (extending from the foreground to 0.5 mile of the viewer), and background (extending beyond the middleground – see Appendix E for a more detailed discussion of distance zone).

Overall Visual Sensitivity is a concluding assessment of an existing landscape's susceptibility to an adverse visual outcome. It is derived from an equally weighted comparison of existing visual quality, viewer concern, and viewer exposure. A landscape with a high degree of visual sensitivity is able to accommodate only a low degree of adverse visual change without resulting in a substantial or significant visual effect. A more detailed discussion of the landscape assessment steps under the VS-VC System is available in the EIR Appendix E. Table 3.2-1 summarizes the existing landscape characteristics as viewed from each of the 15 KOPs. Subsequent paragraphs describe the existing landscape characteristics for each of the 15 KOPs in greater detail. Representative existing views for each of the KOPs are provided in EIR Appendix A.

Table 3.2-1. Landscape Characteristics from Each Key Observation Point

KOP# – Name	Figure # in EIR Appendix A	Visual Quality	Viewer Concern	Viewer Exposure	Overall Visual Sensitivity
Overhead Power Line Rebuild					
KOP 2 – Sibley Volcanic Regional Preserve from McCosker Loop Trail	Figure 3.2-3a	Moderate	High	Moderate to High	Moderate to High
KOP 3a – East Bay Skyline Trail (Bay Area Ridge Trail) - Northeast	Figure 3.2-4a	Moderate	High	Moderate to High	Moderate to High
KOP 3b – East Bay Skyline Trail (Bay Area Ridge Trail) - Southwest	Figure 3.2-5a	Moderate	High	Moderate to High	Moderate to High
Overhead Power Line Removal					
KOP 4 – Manzanita Drive	Figure 3.2-6a	Moderate	High	Moderate to High	Moderate to High
KOP 5 – Skyline Boulevard	Figure 3.2-7a	Moderate	High	Moderate	Moderate to High
KOP 6a – Balboa Drive at West Circle	Figure 3.2-8a	Low to Moderate	High	Moderate	Moderate
KOP 6b – Thackeray Drive at Westover Drive	Figure 3.2-9a	Moderate	High	Moderate to High	Moderate to High
KOP 7 – Montclair Railroad Trail in Shepherd Canyon Park	Figure 3.2-10a	Moderate	High	Moderate to High	Moderate to High
KOP 8a – Drake Drive at Rincon Drive	Figure 3.2-11a	Low to Moderate	High	Moderate	Moderate
KOP 8b – Drake Drive at Magellan Drive	Figure 3.2-12a	Low to Moderate	High	Moderate	Moderate
KOP 10 – State Route 13 (Warren Freeway)	Figure 3.2-13a	Low to Moderate	High	Moderate to High	Moderate to High
KOP 13b – Northbound Park Boulevard	Figure 3.2-14a	Moderate	High	Moderate to High	Moderate to High
Underground Power Line					
KOP 16 – Estates Drive Near Sandringham Road	Figure 3.2-15a	Low to Moderate	High	Moderate to High	Moderate to High

KOP# – Name	Figure # in EIR Appendix A	Visual Quality	Viewer Concern	Viewer Exposure	Overall Visual Sensitivity
KOP 17 – Hollywood Avenue near Sebastian Avenue	Figure 3.2-16a	Low to Moderate	High	Moderate	Moderate
KOP 19 – Holman Road near Bates Road	Figure 3.2-17a	Low to Moderate	High	Moderate	Moderate

KOP 2 – Sibley Volcanic Regional Preserve from McCosker Loop Trail

Figure 3.2-3a presents the existing view of the Project from the McCosker Loop Trail, a recreation trail within a largely undeveloped landscape crossed by the Project west of Moraga Substation. This viewpoint is also at the site of a planned group campground.

Visual Quality. *Moderate*. The foreground landscape consists of undulating terrain dominated by open grassland and scattered oak woodland. Prominently visible in this view to the northeast are two lattice steel towers (LSTs) silhouetted against the sky where the Project alignment crests a nearby ridgetop. Not visually obvious in this image, but very noticeable on site, are the numerous conductors that span from these structures to the next pair of structures along the alignment. Although the landscape is predominantly natural in appearance, the existing power lines impart an element of industrial character that influences overall visual quality, which is rated Moderate.

Viewer Concern. *High*. Although energy transmission infrastructure features prominently in the foreground views from the trail, recreationists would consider any increase in industrial character, structure prominence, or view blockage/impairment of higher value landscape features (background sky) an adverse visual change.

Viewer Exposure. *Moderate to High*. The Project would be highly visible in foreground views from the trail. However, the number of viewers would be low, but the duration of view would be extended. Combining the equally weighted visibility, distance zone, number of viewers, and duration of view results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. *Moderate to High*. For viewers on the McCosker Loop Trail in the vicinity of KOP 2, combining the equally weighted Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in a rating of Moderate to High for overall visual sensitivity of the visual setting and viewing characteristics.

KOP 3a – East Bay Skyline Trail (Bay Area Ridge Trail) Viewing Northeast

Figure 3.2-4a presents the existing view (to the northeast) of the Project from East Bay Skyline Trail, which is part of the Bay Area Ridge Trail. This recreation trail passes through a largely undeveloped landscape, which is crossed by the Project west of Moraga Substation. This viewpoint ~~is~~ also ~~at~~ has views of the site of a planned group campground.

Visual Quality. *Moderate*. This elevated perspective near the western boundary of the Huckleberry Botanic Regional Preserve, captures a foreground landscape consisting of undulating terrain cloaked with dense underbrush and scattered oak woodland that highlights a pair of lattice towers in the foreground, giving way to increasingly barren grassland in the distance where visibility of Project towers diminishes with distance. Also visually prominent are the conductor spans that pass overhead of the viewpoint. Although the landscape is predominantly natural in appearance, the existing power lines impart an element of industrial character that influences overall visual quality, which is rated Moderate.

Viewer Concern. *High*. Although energy transmission infrastructure features prominently in the foreground views from the trail, recreationists would consider any increase in industrial character, structure

prominence, or view blockage/impairment of higher value landscape features (background hill slopes and sky) an adverse visual change.

Viewer Exposure. *Moderate to High*. The Project would be highly visible in foreground views from the trail. However, the number of viewers would be low, but the duration of view would be extended. Combining the equally weighted visibility, distance zone, number of viewers, and duration of view results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. *Moderate to High*. For viewers on the East Bay Skyline Trail in the vicinity of KOP 3a, combining the equally weighted Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in a rating of Moderate to High for overall visual sensitivity of the visual setting and viewing characteristics.

KOP 3b – East Bay Skyline Trail (Bay Area Ridge Trail) Viewing Southwest

Figure 3.2-5a presents the existing view of the Project from East Bay Skyline Trail at approximately the same location as KOP 3a but, instead, viewing uphill to the southwest along the Project ROW near where the alignment crests the Oakland Hills summit.

Visual Quality. *Moderate*. From this perspective, dense vegetation above the trail in the immediate foreground gives way to an unobstructed, relatively close-range view of a pair of Project lattice structures, along with an adjacent wood utility pole, that are prominently silhouetted against a sky backdrop. Not visually obvious in this image, but very noticeable on site, are the numerous conductors that span from these structures overhead of the viewpoint. Although the landscape is predominantly natural in appearance, the existing power lines impart an element of industrial character that influences overall visual quality, which is rated Moderate.

Viewer Concern. *High*. Although energy transmission infrastructure features prominently in the foreground views from the trail, recreationists would consider any increase in industrial character, structure prominence, or view blockage/impairment of higher value landscape features (background sky) an adverse visual change.

Viewer Exposure. *Moderate to High.* The Project would be highly visible in the foreground views from the trail. However, the number of viewers would be low, but the duration of view would be extended. Combining the equally weighted visibility, distance zone, number of viewers, and duration of view results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. *Moderate to High*. For viewers on East Bay Skyline Trail in the vicinity of KOP 3b, combining the equally weighted Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in a rating of Moderate to High for overall visual sensitivity of the visual setting and viewing characteristics.

KOP 4 – Manzanita Drive

Figure 3.2-6a presents the existing view of the Project from Manzanita Drive near The Hills Swim and Tennis Club. The view is to the west along a residential street along the Oakland Berkeley Hills summit that borders Huckleberry Botanic Regional Preserve and an access point to the Skyline Trail and Sibley Volcanic Preserve to the southeast.

Visual Quality. *Moderate*. This view captures a portion of a hilltop residential street bordered by a mature tree canopy and surrounding dense landscaping, which substantially block views of the Project from the foreground residence. Prominently centered in this view is a pair of Project structures (one LST and one TSP), which are silhouetted against the sky. Not visually obvious in this image, but very noticeable on site, are the numerous conductors that span from these structures overhead of the viewpoint. Other built elements in the foreground include a steel cobra-head light pole along the street, driveways and a parking

area on the right for a nearby private athletic club, and access to the Huckleberry Botanical Regional Preserve bordering the east side of this street. Although the landscaping is well maintained in appearance, the existing power lines impart a discordant visual contrast and notable industrial character that influence the overall visual quality, which is rated Moderate.

Viewer Concern. *High*. Although energy transmission infrastructure features prominently in the foreground views from KOP 4, residents, motorists on Manzanita Drive, recreationists accessing the Preserve, and patrons of the swim and tennis club would consider any increase in industrial character, structure prominence, or view blockage/impairments in of higher value landscape features (background sky) an adverse visual change.

Viewer Exposure. *Moderate to High*. The Project would be highly visible in foreground views from Manzanita Drive and the athletic club parking area. While the number of viewers would be low to moderate, the duration of view would be moderate to extended. Combining the equally weighted visibility, distance zone, number of viewers, and duration of view results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. *Moderate to High*. For viewers on Manzanita Drive and at the athletic club parking area in the vicinity of KOP 4, combining the equally weighted Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in a rating of Moderate to High for overall visual sensitivity of the visual setting and viewing characteristics.

KOP 5 – Skyline Boulevard

Figure 3.2-7a presents the existing view from northbound Skyline Boulevard, an Alameda County-designated scenic roadway, showing a motorist's view of the Project where it crosses the roadway.

Visual Quality. *Moderate*. This view captures a densely wooded, relatively steep southwest-facing upper flank of the Oakland Hills. This west-facing view shows the characteristic landscape along the roadway in this area, including almost continuous stands of mature trees, interspersed with scattered residential clusters, as well as intermittent, brief, distant, open views toward San Francisco Bay. Beyond the stand of trees visible in the immediate foreground, the Project crossing appears at the bend in the road. Near the center of this view, a prominent existing LSP is silhouetted against the sky, while on the right above the steep embankment, the lower portion of a Project LST is somewhat noticeable against a backdrop of dense vegetation. Visual quality at this location is considered Moderate and is substantially influenced by the existing structures and conductors (not visually prominent in the photograph but noticeable in the field).

Viewer Concern. *High*. Although energy transmission infrastructure features prominently in the foreground of views from KOP 4, residents and travelers (motorists and bicyclists) on Skyline Boulevard would consider any increase in industrial character, structure prominence, or view blockage/impairment of higher value landscape features (background sky) an adverse visual change.

Viewer Exposure. *Moderate*. The Project would be highly visible in foreground views from Skyline Boulevard. The number of viewers would be low, and the duration of view would be brief given the relatively narrow winding roadway and roadside vegetation. Combining the equally weighted visibility, distance zone, number of viewers, and duration of view results in an overall rating of Moderate for viewer exposure.

Overall Visual Sensitivity. *Moderate to High*. For viewers on northbound Skyline Boulevard in the vicinity of KOP 5, combining the equally weighted Moderate visual quality, High viewer concern, and Moderate viewer exposure results in a rating of Moderate to High for overall visual sensitivity of the visual setting and viewing characteristics.

KOP 6a – Balboa Drive at West Circle

Figure 3.2-8a presents the existing view to the northeast from Balboa Drive at West Circle, a narrow hillside road that provides access to numerous hillside residences.

Visual Quality. *Low to Moderate*. This view captures a hillside landscape of dense tree canopy and vegetation, the winding access road, and fences of adjacent residences. Two Project LSTs feature prominently in this inline view along the ROW (partially silhouetted against the sky) as do the overhead conductors and a wood-pole utility line (partially obscured by vegetation) consisting of power lines and a telecommunication cable. Beyond the two LSTs, farther up the ROW, are multiple pairs of LSTs and overhead conductors that recede toward the distant summit. Visual quality at this location is considered Low to Moderate and is substantially influenced by the existing utility infrastructure.

Viewer Concern. *High*. Although energy transmission infrastructure features prominently in foreground views from KOP 6a, residents and travelers (motorists and bicyclists) on Balboa Drive would consider any increase in industrial character, structure prominence, or view blockage/impairment of higher value landscape features (background sky or hillside vegetation) an adverse visual change.

Viewer Exposure. *Moderate*. The Project would be highly visible in foreground views from Balboa Drive. The number of viewers would be low, and the duration of view would be low to moderate. Combining the equally weighted visibility, distance zone, number of viewers, and duration of view results in an overall rating of Moderate for viewer exposure.

Overall Visual Sensitivity. *Moderate*. For viewers on Balboa Drive in the vicinity of KOP 6a, combining the equally weighted Low to Moderate visual quality, High viewer concern, and Moderate viewer exposure results in a rating of Moderate for overall visual sensitivity of the visual setting and viewing characteristics.

KOP 6b – Thackeray Drive at Westover Drive

Figure 3.2-9a presents the existing view to the northwest from Thackeray Drive at Westover Drive on the south side of Shepherd Canyon.

Visual Quality. *Moderate*. This view of the Project is available to some residents and motorists looking across Shepherd Canyon from the south. Largely surrounded by mature vegetation, portions of several residences situated along the edge of the northwest-facing slope of Shepherd Canyon can be seen in the foreground in this residential street view. A prominent wood utility pole supporting multiple overhead power and telecommunication lines is visible on the right. On the opposite side of the canyon, visible on the left in the middle distance, a pair of light-colored Project LSTs are visible against a dominant backdrop of dark, mature tree canopies. In the center of the view, beyond the garage roof in the foreground, a single Project LSP can be seen partially backdropped by a residential structure and distant tree canopy. Visual quality at this location is considered Moderate and is substantially influenced by the existing utility structures and conductors.

Viewer Concern. *High*. Although energy transmission infrastructure features prominently in the foreground views from KOP 6b, residents, motorists, and bicyclists on Thackeray Drive would consider any increase in industrial character, structure prominence, or view blockage/impairment of higher value landscape features (background vegetation and sky) an adverse visual change.

Viewer Exposure. *Moderate to High*. The Project would be moderately to highly visible in foreground views from Thackery Drive and nearby residences. The number of viewers would be low to moderate, and the duration of view would be moderate to extended. Combining the equally weighted visibility, distance zone, number of viewers, and duration of view results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. *Moderate to High*. For viewers on Thackeray Drive and at nearby residences in the vicinity of KOP 6b, combining the equally weighted Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in a rating of Moderate to High for overall visual sensitivity of the visual setting and viewing characteristics.

KOP 7 – Montclair Railroad Trail in Shepherd Canyon Park

Figure 3.2-10a presents the existing view of the Project from the Montclair Railroad Trail in Shepherd Canyon Park, a public open space that parallels the west side of Shepherd Canyon.

Visual Quality. *Moderate*. Viewing north from this location, dense vegetation and sloping terrain visible on both sides of the trail in the foreground largely constrain open views within the canyon. Trail users are afforded a limited view of a pair of existing Project Corten TSPs that are partially obscured by intervening tree canopies, with only the upper portion (cross-arms) of the structures visible against a sky backdrop. Not visually obvious in this image, but very noticeable on site, are the numerous conductors that span from these structures overhead of the viewpoint. Although the landscape is predominantly natural in appearance, the existing power lines impart an element of industrial character that influences overall visual quality, which is rated Moderate.

Viewer Concern. *High*. Although energy transmission infrastructure features prominently in the foreground views from the trail, recreationists would consider any increase in industrial character, structure prominence, or view blockage/impairment of higher value landscape features (background sky) an adverse visual change.

Viewer Exposure. *Moderate to High*. The Project would be highly visible in foreground views from the trail. However, the number of viewers would be low, but the duration of view would be extended. Combining the equally weighted visibility, distance zone, number of viewers, and duration of view results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. *Moderate to High*. For viewers on the Montclair Railroad Trail in the vicinity of KOP 7, combining the equally weighted Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in a rating of Moderate to High for overall visual sensitivity of the visual setting and viewing characteristics.

KOP 8a – Drake Drive at Rincon Drive

Figure 3.2-11a presents the existing view to the south from Drake Drive at Rincon Drive along the southern edge of a hillside residential development situated immediately above Shepherd Canyon Park that closely parallels the Project ROW.

Visual Quality. *Low to Moderate.* This view captures a residential hillside landscape that includes a mix of tall trees and dense, lower vegetation surrounding nearby residential properties. However, the landscape integrity is substantially diminished by extensive utility infrastructure consisting of a wood-pole utility line with various cables and conductors and two Project LSTs. The two LSTs are largely silhouetted against the sky, while the lower portions of the structures are less visible against a backdrop of distant trees. Not visually obvious in this image, but very noticeable on site, are the numerous conductors that span from the LSTs overhead just to the east of the viewpoint. Visual quality at this location is considered Low to Moderate and is substantially influenced by the existing utility infrastructure.

Viewer Concern. *High*. Although energy transmission infrastructure features prominently in foreground views from KOP 8a, residents and travelers (motorists and bicyclists) on Drake Drive would consider any increase in industrial character, structure prominence, or view blockage/impairment of higher value landscape features (background sky or hillside vegetation) an adverse visual change.

Viewer Exposure. *Moderate*. The Project would be highly visible in foreground views from Drake Drive. The number of viewers would be low, and the duration of view would be low to moderate. Combining the equally weighted visibility, distance zone, number of viewers, and duration of view results in an overall rating of Moderate for viewer exposure.

Overall Visual Sensitivity. *Moderate*. For viewers on Drake Drive in the vicinity of KOP 8a, combining the equally weighted Low to Moderate visual quality, High viewer concern, and Moderate viewer exposure results in a rating of Moderate for overall visual sensitivity of the visual setting and viewing characteristics.

KOP 8b – Drake Drive at Magellan Drive

Figure 3.2-12a presents the existing view to the northeast from Drake Drive at Magellan Drive within a hillside residential development situated immediately above Shepherd Canyon Park.

Visual Quality. *Low to Moderate*. This view captures a residential property surrounded by low, ornamental plants and backdropped by the upper portions of an existing LST pair with spanning conductors. One of the LSTs is largely silhouetted against the sky, while the other LST is less visible against a backdrop of distant trees. The immediate foreground includes street signage and a wood-pole utility line with various cables and conductors. Visual quality at this location is considered Low to Moderate and is substantially influenced by the existing utility infrastructure.

Viewer Concern. *High*. Although energy transmission infrastructure features prominently in foreground views from KOP 8b, residents and travelers (motorists and bicyclists) on Drake Drive and Magellan Drive would consider any increase in industrial character, structure prominence, or view blockage/impairment of higher value landscape features (background sky or trees) an adverse visual change.

Viewer Exposure. *Moderate*. The Project would be highly visible in foreground views from Drake Drive. The number of viewers would be low, and the duration of view would be low to moderate. Combining the equally weighted visibility, distance zone, number of viewers, and duration of view results in an overall rating of Moderate for viewer exposure.

Overall Visual Sensitivity. *Moderate*. For viewers on Drake Drive in the vicinity of KOP 8b, combining the equally weighted Low to Moderate visual quality, High viewer concern, and Moderate viewer exposure results in a rating of Moderate for overall visual sensitivity of the visual setting and viewing characteristics.

KOP 10 – State Route 13 (Warren Freeway)

Figure 3.2-13a presents a view of the Project crossing SR-13, an Alameda County scenic roadway.

Visual Quality. *Low to Moderate*. This view to the southwest captures a pair of LSTs and wood-pole utility lines on the west side of the freeway, backdropped by dense tree canopies and partially silhouetted against the sky. Cellular antennas are seen at the top of one of the LSTs. The freeway pavement and concrete barrier railing are seen in the foreground with a vehicle on the southbound lane discernible a short distance beyond. Dense vegetation limits the view west toward Dimond Canyon. Not visually obvious in this image, but very noticeable on site, are the numerous conductors that span from these structures overhead of the viewpoint. Despite the extensive vegetation, the existing power lines impart an element of industrial character that influences overall visual quality, which is rated Low to Moderate.

Viewer Concern. *High*. Although energy transmission infrastructure features prominently in foreground views from the freeway, motorists on this County-designated scenic roadway would consider any increase in industrial character, structure prominence, or view blockage/impairment of higher value landscape features (background vegetation and sky) an adverse visual change.

Viewer Exposure. *Moderate to High*. The Project would be highly visible in foreground views from the freeway. While the number of viewers would be high, the duration of view would be brief given the high

rate of freeway travel speeds. Combining the equally weighted visibility, distance zone, number of viewers, and duration of view results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. *Moderate to High*. For viewers on SR-13 in the vicinity of KOP 10, combining the equally weighted Low to Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in a rating of Moderate to High for overall visual sensitivity of the visual setting and viewing characteristics.

KOP 13b – Northbound Park Boulevard

Figure 3.2-14a presents the existing view to the northeast from northbound Park Boulevard, an Alameda County-designated scenic roadway. This view presents a pedestrian's and motorist's view of the Project alignment immediately north of where it crosses the roadway and ascends the largely wooded south slope of Dimond Canyon.

Visual Quality. *Moderate*. The foreground wooded canyon slope is predominantly natural in appearance. Three pairs of LSTs within the partially cleared ROW can be seen near the top of the canyon. Not visually obvious in this image, but very noticeable on site, are the numerous conductors that span from these structures overhead of the viewpoint. Collectively, the group of LSTs present a discordant, industrial character that is inconsistent with the surrounding natural landscape features and influence overall visual quality, which is rated Moderate.

Viewer Concern. *High*. Although energy transmission infrastructure features prominently in foreground views from the road, motorists and bicyclists would consider any increase in industrial character, structure prominence, or view blockage/impairment of higher value landscape features (background hill slopes and sky) an adverse visual change.

Viewer Exposure. *Moderate to High.* The Project would be highly visible in foreground views from the road. While the number of viewers would be moderate to high, the duration of view would be brief given the relatively high travel speeds and intermittent screening by intervening tree canopies. Combining the equally weighted visibility, distance zone, number of viewers, and duration of view results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. *Moderate to High*. For viewers on Park Boulevard in the vicinity of KOP 13b, combining the equally weighted Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in a rating of Moderate to High for overall visual sensitivity of the visual setting and viewing characteristics.

KOP 16 – Estates Drive Near Sandringham Road

Figure 3.2-15a presents a foreground view of the Project from Estates Drive, a well-used roadway within a dense, residential community in the City of Piedmont.

Visual Quality. *Low to Moderate*. This view to the south captures a pair of partially screened LSTs and a wood-pole utility line near the intersection of Estates Drive and Sandringham Road. The prominently visible LSTs are positioned beyond a stand of low trees. The LSTs appear as one structure from this vantage point because one structure is positioned behind the other. Silhouetted against the light sky backdrop, the complex, geometric form of the towers, along with numerous cellular antennas mounted to the closer of the two structures, is a dominant landscape feature on the edge of this suburban residential area. An array of wood utility poles supporting overhead power and telecommunication lines recede along Estates Drive. In the distance, portions of the East Bay flatlands, San Francisco Bay, and the San Francisco Peninsula are faintly visible. Overall visual quality is rated Low to Moderate, which reflects the substantial influence of the existing utility infrastructure.

Viewer Concern. *High*. Although energy transmission infrastructure features prominently in foreground views from the road, motorists and adjacent residents would consider any increase in industrial character, structure prominence, or view blockage/impairment of higher value landscape features (background sky) an adverse visual change.

Viewer Exposure. *Moderate to High*. The Project would be highly visible in foreground views from the road. Both the number of viewers and the duration of view would be moderate. Combining the equally weighted visibility, distance zone, number of viewers, and duration of view results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. *Moderate to High*. For viewers on Estates Drive in the vicinity of KOP 16, combining the equally weighted Low to Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in a rating of Moderate to High for overall visual sensitivity of the visual setting and viewing characteristics.

KOP 17 – Hollywood Avenue near Sebastian Avenue

Figure 3.2-16a presents a foreground view of the Project along Hollywood Avenue, a residential street near Park Boulevard.

Visual Quality. *Low to Moderate*. This view to the northeast captures a portion of a residential neighborhood consisting of relatively compact lots with predominantly low-growing, ornamental landscaping interspersed with dense tree canopies. Two Project LSTs, silhouetted against the sky and partially backdropped by a row of trees, feature prominently in the landscape along with wood-pole utility lines with multiple crossarms supporting numerous overhead power and telecommunication lines. Visual quality at this location is considered Low to Moderate and is substantially influenced by the existing utility infrastructure.

Viewer Concern. *High*. Although energy transmission infrastructure features prominently in the foreground of views from the road and adjacent residences, viewers would consider any increase in industrial character, structure prominence, or view blockage/impairment of higher value landscape features (background vegetation and sky) an adverse visual change.

Viewer Exposure. *Moderate*. The Project would be highly visible in foreground views from the road and adjacent residences. Both the number of viewers and the duration of view would be low to moderate. Combining the equally weighted visibility, distance zone, number of viewers, and duration of view results in an overall rating of Moderate for viewer exposure.

Overall Visual Sensitivity. *Moderate to High*. For viewers on Hollywood Avenue and at adjacent residences in the vicinity of KOP 17, combining the equally weighted Low to Moderate visual quality, High viewer concern, and Moderate viewer exposure results in a rating of Moderate for overall visual sensitivity of the visual setting and viewing characteristics.

KOP 19 – Holman Road near Bates Road

Figure 3.2-17a presents the existing view to the northeast from Holman Road near Bates Road within a residential neighborhood that is crossed by the Project ROW.

Visual Quality. *Low to Moderate.* This view captures a residential property surrounded by ornamental plantings and backdropped by the upper portions of an existing LST pair with spanning conductors that pass directly over the residence. The two LSTs are largely silhouetted against the sky, though the lower portions of the LSTs are screened from view by the residence and vegetation. The immediate foreground includes street signage and a wood-pole utility line with various cables and conductors that passes along both Holman Road and Bates Road. Visual quality at this location is considered Low to Moderate and is substantially influenced by the existing, visually dominant utility infrastructure.

Viewer Concern. *High*. Although energy transmission infrastructure features prominently in foreground views from KOP 19 and adjacent residences, residents, and motorists on Holman Road would consider any increase in industrial character, structure prominence, or view blockage/impairment of higher value landscape features (background sky) an adverse visual change.

Viewer Exposure. *Moderate*. The Project would be highly visible in foreground views from Holman Road. The number of viewers would be low, and the duration of view would be low to moderate. Combining the equally weighted visibility, distance zone, number of viewers, and duration of view results in an overall rating of Moderate for viewer exposure.

Overall Visual Sensitivity. *Moderate*. For viewers on Holman Road in the vicinity of KOP 19, combining the equally weighted Low to Moderate visual quality, High viewer concern, and Moderate viewer exposure results in a rating of Moderate for overall visual sensitivity of the visual setting and viewing characteristics.

3.2.2. Applicable Regulations, Policies, and Standards

3.2.2.1. Federal

National Recreation Trails Program

The National Trails System Act of 1968 (Public Law 90-543) authorized creation of a national system of trails that is comprised of National Recreation Trails, National Scenic Trails, and National Historic Trails. While National Scenic Trails and National Historic Trails may only be designated by an act of Congress, National Recreation Trails may be designated by the Secretary of the Interior or the Secretary of Agriculture to recognize exemplary trails of local and regional significance in response to an application from the trail's managing agency or organization. Through designation, these trails are recognized as part of America's national system of trails (U.S. National Recreation Trails Program, 2025).

The East Bay Skyline National Recreation Trail, one of 1,200 designated National Recreation Trails in the United States, is overlain with segments of the Bay Area Ridge Trail, a planned 550-mile multi-use trail along ridgelines ringing the San Francisco Bay Area. The 31-mile Skyline Trail traverses six of the EBRPD parks and preserves and is crossed by the Project where it passes through Sibley Volcanic Regional Preserve and Huckleberry Botanic Regional Preserve (EBRPD, 2025). Views from this trail are shown in Figures 3.2-4a and 3.2-5a.

3.2.2.2. State

California Scenic Highway Program

The California Scenic Highway Program, a provision of the Streets and Highways Code, was established by the State Legislature in 1963 to preserve and enhance the natural beauty of California. The California Scenic Highway Program includes highways that are either eligible for designation as scenic highways or have been designated as such. The status of a state scenic highway changes from eligible to officially designated when the local jurisdiction adopts a scenic corridor protection program, applies to Caltrans for scenic highway approval, and receives the designation from Caltrans (Caltrans, 2025). A city or county may propose adding routes with outstanding scenic elements to the list of eligible highways; however, state legislation is required for a highway to be officially designated.

The nearest designated state scenic highway to the Project is I-580, approximately 600 feet to the southwest of Oakland X Substation; however, it is not crossed by the Project and intervening vegetation and buildings generally screen views of the Project from this highway. The Project segment nearest the highway would be mostly underground.

3.2.2.3. Local

Pursuant to General Order 131-D, the Project is not subject to local authority because the California Public Utilities Commission (CPUC) has exclusive jurisdiction over the siting, design, and construction of electric power line projects, distribution lines, substations, and electric facilities constructed by public utilities subject to CPUC jurisdiction. Local ordinance policies and requirements are presented here because they are used as the basis for impact analysis.

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E is not subject to local (city and county) discretionary regulations except for air districts and Certified Unified Program Agencies (CUPAs) with respect to air quality and hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

This section reviews policies and regulations of these jurisdictions as they relate to Aesthetics in the Project area.

~~Alameda County General Plan Open Space Element (1994 as amended)~~

~~The Open Space Element of the *Alameda County General Plan* (Alameda County, 1994a) includes a list of principles that are designed to protect open space including:~~

- ~~Principle: Utility Lines to be Consolidated and Located to Avoid Scenic Areas~~

  ~~Wherever feasible, power and pipe utility lines should be consolidated to prevent further severance of open space lands. Utility lines and aqueducts in open space area should be located so as to avoid areas of outstanding beauty.~~

~~Alameda County General Plan Scenic Route Element (1994 as amended)~~

~~The Scenic Route Element of the *Alameda County General Plan* (Alameda County, 1994b) includes a list of roadways that are designated as county scenic routes. The plan objectives are to conserve, enhance, and protect scenic views observable from scenic routes. The Project intersects or comes near the following county scenic routes:~~

- ~~Skyline Boulevard – crossed by the Project~~
- ~~Warren Freeway (SR-13) – crossed by the Project~~
- ~~Park Boulevard – crossed by the Project~~
- ~~I-580 – passes within 800 feet, but the Project generally is not visible~~

Contra Costa County 2045 General Plan, Conservation, Open Space, and Working Lands Element

- Goal COS-12. Protect natural features with high scenic value, such as visual landmarks, major ridges, prominent hillsides, and stands of mature trees.
  - Policy COS-P12.2. Require redesign of project components that negatively impact viewshed or the visual quality of the area.
  - Policy COS-P12.3. Prohibit development within 100 vertical feet of the top of designated scenic ridges and within 50 vertical feet of other visually prominent ridgelines. Exceptions may be considered on existing legal lots where no other feasible building sites exist, and for infrastructure that requires high-elevation siting, such as wind turbines, communications towers, and water tanks. When siting buildings or infrastructure on or near ridges is unavoidable, require appropriate measures, such as screening, undergrounding, or camouflaging to mitigate visual impacts.

- Policy COS-P12.4. Preserve the scenic qualities of hillsides by encouraging designs that are sensitive to a site's topography and prohibiting unnecessary grading and vegetation removal.
- Policy COS-P12.5. Require restoration of natural contours and vegetation after grading and other land disturbances.
- Policy COS-P12.6. Prohibit extreme topographic modification, such as filling canyons or removing prominent hilltops. Exemptions may be considered for landfills, mining operations, and public or semi-public projects that necessitate such modifications.
- Policy COS-P12.7. Support preservation and enhancement of natural and human-made features that contribute to the scenic quality of landscape and viewshed along designated scenic routes and discourage projects that interfere with public views of those features.
- Policy COS-P12.8. Require a visual impact analysis for projects with potential to significantly impact public views along designated scenic routes.
- Policy COS-P12.9. Enable flexibility in the design of project along scenic routes and support innovative solutions to protect views and visual quality

East Bay Municipal Utility District East Bay Watershed Master Plan

The *East Bay Watershed Master Plan* contains policies and guidelines for district-owned lands within individual watershed management areas (defined as district-owned lands within each reservoir basin boundary). The Project crosses a portion of EBMUD land within the Upper San Leandro Reservoir watershed between Moraga Substation and Sibley Volcanic Regional Preserve (EBMUD, 2018). The Upper San Leandro Reservoir Watershed Management Direction includes the following Aesthetics guideline:

- USL.17 – Prohibit management practices or development proposals that would require large-scale modification of the Upper San Leandro Reservoir watershed landscape, especially in areas that are highly visible from Redwood Road, Anthony Chabot Regional Park, and other public viewpoints.

East Bay Regional Park District Master Plan

The 2013 *East Bay Regional Park District Master Plan* provides policy guidance for EBRPD's more than 1,200 miles of trails and approximately 113,000 acres of open space and parkland. The Project alignment crosses the Sibley Volcanic Regional Preserve and Huckleberry Botanic Regional Preserve within EBRPD jurisdiction (EBRPD, 2013).

The Facility Development section within Chapter 4 of the Master Plan outlines guidance for placement of utility lines and communication facilities within park lands, including:

- PRPT 28: The District will work in cooperation with the utility companies to place existing overhead utilities underground (unless so doing conflicts with applicable codes) as soon as practical and will work with other agencies to reduce visual impacts on adjacent lands. The District will seek to avoid the construction of high voltage power lines within the parklands, particularly in … preserve areas.
- PRPT 29: The District will keep its lands, including all ridges and peaks, free of additional communication facilities in order to maintain open viewshed, natural conditions, and public use as well as to limit vehicular and service activities.

City of Oakland General Plan

The *City of Oakland General Plan* guides development in the area and includes elements that contain provisions regarding visual resources, which are described in the following paragraphs.

The Scenic Highways Element (City of Oakland, 1974) addresses the preservation and enhancement of those distinctly attractive roadways that traverse the city and the visual corridors that surround them. Both Skyline Boulevard and I-580 are designated as scenic routes.

- Goal: To protect and enhance the distinctive character of scenic routes within the City.
- General Policies
  - Policy 6: Overhead utilities should be undergrounded along all freeways, scenic routes, and major streets. Programs should be developed to increase the present rate of undergrounding existing overhead utilities (p. 25).
- Specific Policy Related to Skyline Boulevard
  - Policy 1: New development or modifications to existing development which interferes with significant views experienced by motorists or pedestrians from the roadway should be prohibited, unless such prohibition will deny reasonable use of the property (p. 26).
- S-10 Scenic Route Combining Zone Regulations, Section 6562 Design Review Criteria, (b): That the proposed development will, as far as practicable, maintain existing vistas or panoramas which can be seen from the abutting public road and maintain the visual value of the total setting or character of the surrounding area (p. 37).

The Open Space Conservation and Recreation Element (City of Oakland, 1996) contains provisions for protecting and enhancing visual resources in the city, including the following.

- POLICY OS-10.1 VIEW PROTECTION: Protect the character of existing scenic views in Oakland, paying particular attention to: (a) views of the Oakland Hills from the flatlands; (b) views of downtown and Lake Merritt; (e) views of the shoreline; and (d) panoramic views from Skyline Boulevard, Grizzly Peak Road, and other hillside locations. (p. 2-65)

The Land Use & Transportation Element (City of Oakland, 2023) addresses the need to underground existing utility Lines.

- Policy N12.4 Undergrounding Utility Lines: Electrical, telephone, and related distribution lines should be undergrounded in commercial and residential areas, except where special local conditions such as limited visibility of the poles and wires make this unneeded. They should also be underground in appropriate institutional, industrial, and other areas, and generally along freeways, scenic routes, and heavily traveled streets. Programs should lead systematically toward the eventual undergrounding of all existing lines in such places. Where significant utility extensions are taking place in these areas, such as in new subdivisions, utilities should be installed underground from the start.

City of Orinda General Plan

The Land Use and Circulation Element of the *City of Orinda General Plan* (City of Orinda, 1987) identifies three routes that are designated Scenic Corridors on the General Plan:

1. Moraga Way from its intersection with Camino Pablo south to the City limits.
2. Camino Pablo from its intersection with Santa Maria Way north to the City limits.
3. Highway 24, designated as a California Scenic Highway within Orinda City limits.

The Plan contains the following policies for protecting and enhancing the visual character along these roadway corridors.

- Implementing Policy Q. Special care shall be taken to provide a well landscaped and open feeling along Scenic Corridors, especially at the entrance to the City, utilizing such techniques as generous landscaped setbacks and open-space acquisition, where appropriate.
- Implementing Policy R. Any proposed development or subdivision along a Scenic Corridor or Scenic Highway shall be designed to blend with and permit the natural environment to be maintained as the dominant visual element. It shall not lessen the scenic value of existing visual elements.
- Implementing Policy S. Where structures are permitted, they shall be designed to blend with and permit the natural environment to be maintained as the dominant visual element.
- Implementing Policy T. Because Highway 24 is a freeway that bisects Orinda, it merits special consideration to maintain its integrity as a California Scenic Highway as it passes through Orinda.

The Conservation Element of the *City of Orinda General Plan* contains the following policies for protecting and enhancing visual resources:

- POLICY 4.1.1.G. Protect visually prominent ridgelines and hillsides from development.
- POLICY 4.1.1 N. Encourage undergrounding of power lines and replacement of utility towers with single poles.

City of Piedmont General Plan

The City of Piedmont General Plan (City of Piedmont, 2009) includes a Design and Preservation Element with goals and policies related to Aesthetics. These include the following.

- Goal 27: City Identity and Aesthetics. Ensure that streets, parks, civic buildings, and other aspects of the "public realm" contribute to Piedmont's overall identity, beauty, and visual quality.
- Policy 27.3: View Preservation. Recognize and protect significant views in the city, particularly Piedmont's characteristic views of the San Francisco and Oakland skylines, Lake Merritt and San Francisco Bay, the Bay and Golden Gate Bridges, and surrounding hills, canyons, and geological features. Discourage the obstruction of such views by upper level additions, tall structures, and devices such as communication towers. Similarly, tree planting should avoid species or locations that will lead to the obstruction of desirable views.
- Policy 27.8: Utility Undergrounding. Support neighborhood efforts to underground utilities throughout Piedmont, with due consideration given to the level of community support and the financial impacts on the City and its residents. Underground utilities shall be required for any new subdivision.

3.2.3. Environmental Impacts of the Proposed Project

3.2.3.1. Impact Analysis Approach

Under the VS-VC System, "Overall Visual Change" is determined at each KOP based on an assessment and equal weighting of Project-induced visual contrast, Project dominance, and view blockage (or view impairment), as well as an evaluation of a visual simulation of the Project. The experience of visual change can be affected by the degree of screening by vegetation, landforms, and/or structures; distance from the Project; atmospheric conditions; and angle of view. Overall visual change is considered within the context of the determined overall visual sensitivity of the existing landscape and viewing circumstances, and an impact determination is made. A more detailed discussion of the Impact Analysis Methodology is available in EIR Appendix E. The impact conclusions presented later in this section take into account the Applicant Proposed Measures (APMs) presented in Table 3.2-2.

Table 3.2-1. Applicant Proposed Measures – Aesthetics

APM	Description
Aesthetics	
APM AE-1	Aesthetics Impact Reduction During Construction. All Project sites will be maintained in a clean and orderly state. Nighttime lighting will be directed away from residential areas and have shields to prevent light spillover effects. Upon completion of Project construction, Project staging and temporary work areas will be returned to pre-Project conditions, including regrading of the site and revegetating or repaving of disturbed areas to match pre-existing contours and conditions.
APM AE-2	Use of Dulled Galvanized Finish or Corten Steel on Replacement Structures and Non-Specular Conductors. Use of a factory-dulled galvanized finish or Corten steel on replacement power line structures and non-specular (non-reflective) conductors will reduce the potential for a new source of glare and visual contrast resulting from the Project.

3.2.3.2. Impact Significance Criteria

Significance Criteria

Project impacts related to Aesthetic resources were evaluated against the CEQA significance criteria. According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed Project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of Project impacts on Aesthetics were evaluated for each of the criteria listed below and as discussed in Section 3.2.3.3 for both construction and operation/maintenance.

Specifically would the Project:

- **AE-1:** Have a substantial adverse effect on a scenic vista?
- **AE-2:** Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within a state scenic highway?
- **AE-3:** In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.)
- **AE-4:** In urbanized areas, conflict with applicable zoning and/or other regulations governing scenic quality?
- **AE-5:** Create a new source of substantial light or glare, which would adversely affect daytime or nighttime views in the area?

It should be noted that because the Project crosses a mix of non-urbanized and urbanized areas, the Project was assessed under both the AE-3 (non-urbanized area) and AE-4 (urbanized area) impact criteria.

3.2.3.3. Impacts and Mitigation Measures

The modifications to existing PG&E 115 kV lines would occur in both non-urban and urban settings. Permanent visual change resulting from modifications to the existing PG&E power lines would be noticeable but largely incremental and would not substantially alter or degrade the existing visual character of the landscape within the Project area. The proposed replacement structures along the overhead portion of the Project alignment would be primarily located within the existing PG&E ROW and generally situated near the current locations of existing structures to be removed. Intervening vegetation and built structures would fully or partially screen public views of the Project to a large degree.

The visual modifications in the landscape would be experienced to varying degrees by motorists, bicyclists, residents, and visitors to recreation areas within the Project area. While distant, open views toward the Project would be available from limited locations in the area, the visual change associated with the Project would potentially be most noticeable where the alignment closely parallels or crosses public roadways, as well as where the Project alignment passes near visually sensitive areas such as residential properties or recreation areas where, in some cases, relatively close-range and medium- to long-duration views of Project elements could be experienced.

The following discussion of impacts is organized by impact criterion and, where appropriate, by construction and operation/maintenance phases.

Impact AES-1: Result in a substantial adverse effect on a scenic vista.

Construction and Operation/Maintenance

All Segments

LESS THAN SIGNIFICANT. CEQA requires that the Project be evaluated with regard to whether its implementation has a substantial, adverse effect on a scenic vista. For purposes of this evaluation, a scenic vista is defined as a distant public view along or through an opening or corridor that is recognized and valued for its scenic quality. There are no specific recognized scenic vistas within the Project viewshed. However, within the Overhead Power Line Removal segment, and as noted in Section 3.2.2.3, the *City of Oakland General Plan* Open Space, Conservation, and Recreation Element (City of Oakland, 1996) contains provisions for protecting and enhancing visual resources in the City, among them to protect the character of existing scenic views within the City that include panoramic views from hillside corridors. These include Skyline Boulevard, crossed by the Project along a partially wooded stretch of roadway that affords a limited view of the San Francisco Bay. Project modifications include replacement of the existing LSP at this location with a taller LSP; however, based on its siting near the roadway edge at an area with steeply descending terrain, the Project structure would not alter existing distant views of the Bay as seen by motorists, pedestrians, or bicyclists. Figures 3.2-7a and 3.2-7b (KOP 5) show a close-range, existing and post-construction view that demonstrate the Project would not substantially affect or obstruct the distant view of San Francisco Bay available from Skyline Boulevard. Therefore, there would be no adverse effect on a scenic vista because of Project construction or operation/maintenance, and the resulting Aesthetics impact would be Less than Significant.

Impact AES-2: Substantially damage scenic resources within a state scenic highway.

Construction and Operation/Maintenance

All Segments

LESS THAN SIGNIFICANT. As noted in Section 3.2.2.2, the Project area in the vicinity of the Oakland X Substation could be seen from a small section of I-580, the nearest designated state scenic highway, which passes approximately 600 feet west of the substation. Because the replacement Project alignment would transition underground beginning approximately 1.2 miles east of the substation, aboveground Project replacement structures east of the transition point would be largely imperceptible because of distance and urban backdrop conditions. One of three new riser poles that would connect the underground portion to the substation and the removal of existing power lines and towers could potentially be visible to motorists from I-580 at the Park Boulevard under crossing because dense vegetation lining the freeway embankment gives way to an open view of the substation uphill of the Project alignment. However, given the motorist's perpendicular view angle and the typical roadway velocity at this location, visibility of the Project and the associated construction activities would be fleeting, and the riser pole would be seen in

the context of existing utility infrastructure, including light standards of similar form. The removal of the existing towers, to the extent they are visible, would be a positive visual change. Overall, the perceived change would be minor and incremental and, therefore, the Project would not substantially damage scenic resources within a state scenic highway. As a result, the Aesthetics impact from construction and operation/maintenance would be Less than Significant.

Additionally, some of the power line replacement structures along other portions of the Project route would potentially be visible from Alameda County scenic routes in the Project area (e.g., Skyline Boulevard, Pinehurst Road, the Warren Freeway [SR-13], and Park Boulevard, all of which are crossed by the Project). While the Project would be highly visible in foreground views from Skyline Boulevard (Figure 3.2-7b), the number of viewers would be low; the duration of view would be brief (given the relatively narrow, winding roadway); and the roadside vegetation would provide substantial screening. Views of the PG&E power line crossing from Pinehurst Road, located within EBMUD watershed land, is largely constrained by dense woodland. In the case of the Warren Freeway (SR-13), affected views of the Project alignment, illustrated on Figure 3.2-13b, would be fleeting given typical highway speeds along this stretch of roadway (posted speed limit of 65 miles per hour). While speeds along Park Boulevard are lower, views toward the Project for motorists and bicyclists would be relatively brief given the elevated, angled view of the Project alignment and the vegetation and building screening along the roadway. Moreover, as shown on Figure 3.2-14b, Project-related change seen from Park Boulevard would be incremental and would not substantially alter the view of the alignment from Park Boulevard. Overall, the Project would not have a substantial effect on views from local scenic roadways in the Project area, and the resulting Aesthetics impacts from construction and operation/maintenance would be Less than Significant.

Impact AES-3: In non-urban areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings.

Construction

All Segments

LESS THAN SIGNIFICANT WITH MITIGATION. Construction-related Aesthetics impacts resulting from the temporary presence of equipment, materials, and work crews at Moraga and Oakland X substations, as well as along the Project alignment, including staging and work areas and stringing sites, have the potential to substantially degrade the existing visual character or quality of the site and its surroundings for the duration of construction. During construction, visual impacts would include the temporary presence of workers, temporary structures, construction equipment, and vehicles associated with the installation of poles, conductors, duct banks, and belowground conduits.

While APM AES-1 calls for construction staging and material storage/laydown areas to be in a clean and orderly state, the close proximity of these areas to roads, residences, and recreation areas, and their occupancy/use over a more extended period of time (rather than the more transient impacts of work areas along the Project route), suggests that the visibility of these facilities and their associated industrial clutter would result in a significant impact on the existing landscape character and public views in spite of implementation of APM AES-1. Therefore, Mitigation Measure (MM) AES-3a is required to supplement APM AES-1 to ensure that visibility into these facilities is sufficiently reduced such that the resulting visual construction impact would be less than significant.

Replacement of the power lines would occur within areas of recreational open space, wooded suburban development, urban residential and commercial development, and along transportation corridors. The installation of the underground conduit would occur in Park Boulevard. Although construction activities would be visible to motorists and a limited number of recreationists and residents at these locations, adjacent structures and vegetation would provide some measure of screening of these activities.

Project work areas would be mainly within or adjacent to the Project ROW, and on existing access routes and PG&E properties. For the most part, the Project would use the existing network of public roads to access structure work areas, pull and tension sites, excavation sites for underground conduit, and staging areas, with few temporary construction easements expected. In many cases, views of construction activities available to nearby residents would be limited and transient in nature as construction progresses along the route. Hillside residences generally are somewhat isolated and, for the most part, are surrounded to varying degrees by mature vegetation and intervening topography that limit open views across the landscape. Local roadways crossed by the Project, such as Skyline Boulevard and Manzanita Road, generally carry light and intermittent traffic and have a low residential density with abundant mature vegetation. Motorists in more heavily traveled locations, such as Park Boulevard, potentially would have more open views of temporary staging and laydown areas as well as construction activities where the overhead Project route crosses the roadway or underground conduit is installed. Where the Project crosses SR-13, visibility of construction activities generally would be fleeting given the angle of view and typical roadway speeds, and significant impacts associated with these construction activities would be Less than Significant. Construction is expected to take approximately 35 months, although construction activity would be visible for considerably less time at any particular location along the Project alignment.

Project construction would require minimal grading, and while some permanent removal of existing vegetation would be necessary, this would be limited for the most part to vegetation that encroaches on existing access and spur roads, ~~stringing~~ tension pull sites, construction laydown and work areas, staging yards, and helicopter landing zones to permit the safe operation of construction equipment. Locations of these areas would be selected to minimize the effects on existing vegetation, and in instances where tree removal is required, new replacement trees would be planted post construction as feasible. Thus, the overall visual effects of vegetation removal would generally be minor and temporary and not particularly noticeable to the public resulting in Less than Significant Aesthetics impacts.

Underground power line construction along Park Boulevard would include trenching work, the installation of transition poles, and the closure of one travel lane and one parking lane, with one lane remaining open to through traffic. Approximately 100 to 200 feet of trench would be open at any one time. Although construction would be visible to relatively large numbers of local motorists and residents overall, the visual effects would be limited to small areas at any one time, and significant Aesthetics impacts are not anticipated. After construction, the only visible aspect of the underground segment would be vault access covers spaced along the roadway and flush with the road surface.

Installation of replacement structures, temporary guard poles, and other structures would result in minor disturbance of land along the Project alignments. Temporary staging and work areas that would be established as part of the Project construction would be located where possible on previously disturbed land near or along the Project alignment. As outlined in APM AES-1, following the completion of construction, all areas temporarily disturbed by construction activities would be restored to preconstruction conditions as feasible, resulting in Aesthetics impacts that would be less than significant.

Operation and Maintenance

LESS THAN SIGNIFICANT. Table 3.2.3 summarizes the Aesthetics impacts after construction, as viewed from each of the 15 KOPs. Subsequent paragraphs present the impact analysis (under impact criterion AES-3) for each of the KOPs by segment.

Table 3.2-3. Aesthetics Impacts of Project

Key Observation Point (KOP)	Project Dominance	Visual Contrast	View Blockage/ Impairment	Overall Visual Change	Significance
Overhead Power Line Rebuild					
KOP 2 – Sibley Volcanic Regional Preserve McCosker Loop Trail	Co-dominant	Reduced	Reduced	Improved	Beneficial
KOP 3a – East Bay Skyline Trail (Bay Area Ridge Trail) Viewing Northeast	Subordinate	Low	Low	Low	Less than Significant
KOP 3b – East Bay Skyline Trail (Bay Area Ridge Trail) Viewing Southwest	Co-dominant	Low	Low	Low to Moderate	Less than Significant
KOP 4 – Manzanita Drive	Subordinate to Co-dominant	Reduced	Reduced	Improved	Beneficial
KOP 5 – Skyline Boulevard	Co-dominant	Low	Low	Low to Moderate	Less than Significant
KOP 6a – Balboa Drive at West Circle	Co-dominant to Dominant	Moderate to High	Moderate to High	Moderate to High	Less than Significant
KOP 6b – Thackeray Drive at Westover Drive	Subordinate	Low	Reduced	Low	Less than Significant
KOP 7 – Montclair Railroad Trail in Shepherd Canyon Park	Co-dominant	Low	Low	Low	Less than Significant
KOP 8a – Drake Drive at Rincon Drive	Subordinate to Co-dominant	Low	Low	Low	Less than Significant
KOP 8b – Drake Drive at Magellan Drive	Subordinate to Co-dominant	Reduced	Reduced	Improvement	Beneficial
KOP 10 – State Route 13 (Warren Freeway)	Co-dominant	Low	Reduced	Low	Less than Significant
KOP 13b – Northbound Park Boulevard	Co-dominant	Low	Low	Low to Moderate	Less than Significant
Overhead Power Line Removal					
KOP 16 – Estates Drive near Sandringham Road	Co-dominant	Moderate	Low to Moderate	Moderate	Less than Significant
KOP 17 – Hollywood Avenue near San Sebastian Avenue	None	None	None	Improvement	Beneficial
KOP 19 – Holman Road near Bates Road	None	None	None	Improvement	Beneficial

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT. The following discussion presents the impact analysis for the twelve representative KOPs established for the Overhead Power Line Removal segment.

KOP 2 – Sibley Volcanic Regional Preserve from McCosker Loop Trail. Figure 3.2-3a presents the existing view to the northeast toward the existing Project ROW, from the McCosker Loop Trail. Figure 3.2-3b presents a visual simulation of the replacement of the two existing, shorter (75 and 72 feet) LSTs with two taller (86 and 101 feet) TSPs and the removal of two smaller wood poles to their right (shown in the existing view and simulation). Because of the structural locations on the hilltop, the new structures would

appear of similar scale to the existing structures being replaced (low scale contrast), and the overall project dominance associated with the incremental change would be Co-dominant (see EIR Appendix E).

Compared with the complex form of the existing lattice towers, the simple, narrow profile of the new replacement structures reduces the structural form contrast but increases the vertical line contrast. The industrial character associated with the structurally complex lattice structures would also be reduced with the TSP structures, and the removal of two existing wood poles would also reduce the structural clutter. As a result, the overall visual contrast associated with the incremental Project changes would be Reduced. Additionally, view blockage/impairment of the background sky (higher value landscape feature) would be Reduced with the narrow forms of the new TSPs and the removal of the two existing wood poles.

Collectively, these incremental visual changes would slightly improve the existing landscape character visible from this public open space location. Combining the equally weighted Co-dominant project dominance, Reduced visual contrast, and Reduced view blockage/impairment results in an Improved overall visual change, which in the context of the existing landscape's Moderate to High overall visual sensitivity, results in an Aesthetics impact that would be Beneficial.

KOP 3a – East Bay Skyline Trail (Bay Area Ridge Trail) Viewing Northeast. Figure 3.2-4a presents the existing view to the northeast toward the existing Project ROW as it crosses the Sibley Volcanic Preserve from the East Bay Skyline Trail (Bay Area Ridge Trail). Figure 3.2-4b presents a visual simulation of the replacement of three existing pairs of structures closest to the viewpoint. Some of the replacement structures would be taller than the existing structures, but the height ranges (70 to 114 feet for the existing structures and 79 to 114 feet for the proposed structures) would be similar. As a result, the replacement structures would appear similar in scale to the existing structures (low scale contrast) and the overall project dominance associated with the incremental change would be Subordinate.

Compared with the existing mix of lattice and TSP structures, the similar mix of proposed replacement structures would result in low structural form and line contrast. Also, the associated industrial character would be similar for the existing and replacement structures. As a result, the overall visual contrast associated with the incremental Project changes would be Low. Additionally, the incremental increase in view blockage/impairment of the background hill slopes and sky would be minimal (Low) and essentially unnoticeable to the casual observer.

Collectively, these incremental visual changes would not measurably alter the existing landscape character visible from this public open space location. Combining the equally weighted Subordinate project dominance, Low visual contrast, and Low view blockage/impairment results in a Low overall visual change, which in the context of the existing landscape's Moderate to High overall visual sensitivity, results in an Aesthetics impact that would be Less than Significant.

KOP 3b – East Bay Skyline Trail (Bay Area Ridge Trail) Viewing Southwest. Figure 3.2-5a presents the existing view to the southwest toward the existing Project ROW from the East Bay Skyline Trail (Bay Area Ridge Trail). Figure 3.2-5b presents a visual simulation of the replacement of the two existing, shorter (74 feet and 75 feet) LSTs with two taller (126 and 136 feet) TSPs. The new structures would appear noticeably taller in scale relative to the existing structures being replaced (moderate scale contrast), and overall project dominance would be Co-dominant.

Compared with the complex form of the existing lattice towers, the simple, narrow profile of the new replacement structures reduces the structural form contrast but increases the vertical line contrast. The industrial character associated with the structurally complex lattice structures would also be reduced with the TSP structures. As a result, the overall visual contrast associated with this incremental change would be Low. Additionally, view blockage/impairment of the background sky (higher value landscape feature) would be similar (Low) with the narrower but taller forms of the new TSPs essentially unnoticeable to the casual observer.

Collectively, these incremental visual changes would not measurably alter the existing landscape character visible from this recreational trail location. Combining the equally weighted Co-dominant project dominance, Low visual contrast, and Low view blockage/impairment results in a Low to Moderate level of overall visual change, which in the context of the existing landscape's Moderate to High visual sensitivity, results in an Aesthetics impact that would be Less than Significant.

KOP 4 – Manzanita Drive. Figure 3.2-6a presents the existing view to the west from Manzanita Drive near The Hills Swim and Tennis Club. Figure 3.2-6b presents a visual simulation of the removal of the LST and TSP on the west side of Manzanita Drive as a result of the increased height of nearby Project structures just to the east of this viewpoint. Not visible in this view because of the steeply descending topography immediately west of Manzanita Drive, an additional existing Project structure within view of several residences near the Project ROW along Manzanita Drive to the west also would be removed. The removal of the Project structures would represent a noticeable reduction in project dominance (from Dominant) to Subordinate to Co-dominant, which would be solely associated with the overhead conductors that would remain.

Removal of the Project structures would result in Reduced overall visual contrast and view blockage/impairment. Collectively, these incremental visual changes would improve the existing landscape character visible from this residential location. Combining the equally weighted Subordinate to Co-dominant project dominance, Reduced visual contrast, and Reduced view blockage/impairment results in an Improved overall visual change, which in the context of the existing landscape's Moderate to High overall visual sensitivity, results in an Aesthetics impact that would be Beneficial.

KOP 5 – Skyline Boulevard. Figure 3.2-7a presents the existing view from northbound Skyline Boulevard, an Alameda County-designated scenic roadway, showing a motorist's view of the Project where it crosses the roadway. Figure 3.2-7b presents a visual simulation of the replacement LSP, which would be taller (133 feet versus 72 feet for the existing LSP) but identical in form to the existing structure and situated somewhat closer to the roadway edge. Also shown is the replacement LSP (126 feet tall) for the existing LST (77 feet tall). Because of the limited view of the replacement structures due to screening by foreground vegetation, the replacement structures would appear similar, though slightly larger in scale, relative to the existing structures (moderate scale contrast), and overall project dominance would remain Co-dominant.

Compared with the existing mix of LSP and LST structures, the similar mix of proposed replacement structures (both LSPs) would result in low structural form and line contrast. Also, the associated industrial character would be similar for the existing and replacement structures. As a result, the overall visual contrast associated with the incremental Project changes would be Low. Additionally, the incremental increase in view blockage/impairment of the background vegetation and sky would be Low and minimally noticeable to the casual observer, and the open, panoramic view toward the distant San Francisco Bay would not be obstructed by the Project.

Collectively, these incremental visual changes would not measurably alter the existing landscape character visible from this roadway location. Combining the equally weighted Co-dominant project dominance, Low visual contrast, and Low view blockage/impairment results in a Low to Moderate level of overall visual change, which in the context of the existing landscape's Moderate to High visual sensitivity, results in an Aesthetics impact that would be Less than Significant.

KOP 6a – Balboa Drive at West Circle. Figure 3.2-8a presents the existing view to the northeast from Balboa Drive at West Circle, a narrow hillside road that provides access to numerous hillside residences. Figure 3.2-8b presents a visual simulation of the replacement of the two existing LSTs (72 feet and 75 feet tall, as listed in EIR Appendix B [Project Description Supporting Tables]) in the foreground with two taller (98 feet) dead-end LSPs. Farther upslope, two new, taller LSPs and two new TSPs (ranging in height from 81 to 133 feet) would replace six existing LSTs ranging in height from 67 to 86 feet. The height increase

(approximately 34%) of the two foreground structures would result in a Co-dominant degree of project dominance when viewed from the road. The visually noticeable vertical forms and lines of the new foreground structures would result in an overall Moderate visual contrast relative to the existing landscape and Project features. The increased view blockage/impairment of the background sky due to the increased structure height would be partially offset by the reduced view blockage of the background vegetation due to the narrower structure form. As a result, view blockage/impairment would also be Moderate. Collectively, these visual changes represent an adverse, incremental visual change to the existing landscape character at this residential neighborhood location, which would be noticed by motorists, bicyclists, and residents.

Combining the equally weighted Co-dominant project dominance, Moderate visual contrast, and Moderate view blockage/impairment results in a Moderate degree of overall visual change, which in the context of the existing landscape's Moderate visual sensitivity, results in an Aesthetics impact that would be Less than Significant.

KOP 6b – Thackeray Drive at Westover Drive. Figure 3.2-9a presents the existing view to the northwest from Thackeray Drive at Westover Drive on the south side of Shepherd Canyon. This partially obstructed view of the Project ROW on the opposite side of the canyon would be available to local motorists and some residents. Figure 3.2-9b presents a visual simulation of the replacement of two existing LSTs (72 feet tall) and one LSP (75 feet tall) with two taller TSPs (91 and 112 feet tall), resulting in a net reduction of one structure in this view. Because of the structure locations on a hill slope, one of the new structures would appear of similar scale to the existing structures being replaced (low scale contrast), while one would appear noticeably larger (moderate scale contrast). These incremental scale changes would result in a Subordinate project dominance.

Compared with the complex forms of the existing lattice structures, the simple, narrow profiles of the new replacement structures viewed against a backdrop of mature tree canopy would lessen the structural form contrast, though the vertical line contrast would increase. The industrial character associated with the lattice structures would also be reduced with the fewer number and simpler-designed TSP structures. The overall visual contrast associated with the incremental Project changes would be Low, which is also influenced by the existing, foreground wood-pole utility line. Additionally, view blockage/impairment of the background tree canopy would be Reduced with the narrower profile of the replacement TSPs.

Collectively, these visual changes represent a slight incremental visual change to the existing landscape character at this residential neighborhood location. Combining the equally weighted Subordinate project dominance, Low visual contrast, and Reduced view blockage/impairment results in a Low degree of overall visual change, which in the context of the existing landscape's Moderate to High visual sensitivity, results in an Aesthetics impact that would be Less than Significant.

KOP 7 – Montclair Railroad Trail in Shepherd Canyon Park. Figure 3.2-10a presents the existing view to the north from Montclair Railroad Trail in Shepherd Canyon Park, a public open space that parallels the west side of Shepherd Canyon. Figure 3.2-10b presents a visual simulation of two TSPs that would be extended in height to 133 feet from 72 feet. Because of the limited view of the replacement structures due to screening by foreground, trail-side vegetation, and because the visual orientation of trail users is predominantly horizontal, the increased height of the replacement structures would likely go unnoticed by many viewers. To the extent they are noticed, they would appear similar, though slightly larger in scale, relative to the existing structures (moderate scale contrast), and overall project dominance would be Co-dominant.

The new structures would be identical in form to the existing structures (no change in form contrast) but the greater heights would result in low to moderate vertical line contrast. Also, the associated industrial character would be similar for the existing and replacement structures. As a result, the overall visual contrast associated with the incremental Project changes, would be Low. Additionally, the incremental

increase in view blockage/impairment of the background sky would be Low and minimally noticeable to the casual observer.

Collectively, these incremental visual changes would not measurably alter the existing landscape character visible from this recreational trail location. Combining the equally weighted Co-dominant project dominance, Low visual contrast, and Low view blockage/impairment results in a Low degree of overall visual change, which in the context of the existing landscape's Moderate to High visual sensitivity, results in an Aesthetics impact that would be Less than Significant.

KOP 8a – Drake Drive at Rincon Drive. Figure 3.2-11a presents the existing view to the south from Drake Drive at Rincon Drive along the southern edge of a hillside residential development situated immediately above Shepherd Canyon Park that closely parallels the Project ROW. Figure 3.2-11b presents a visual simulation of the replacement of two existing LSTs (100 feet and 98 feet tall) with two slightly taller (118 and 133 feet) LSPs. Like the existing structures, the replacement structures would be primarily silhouetted against the sky, and dense vegetation would largely screen the lower portions of the structures. As a result, the replacement structures would appear similar in scale to the existing structures (low scale contrast), and the incremental change in project dominance would be Subordinate to Co-dominant.

The upper sections of the replacement structures would not substantially deviate from the form of the existing structures, but the lower portion of the replacement structures would be noticeably narrower. The resulting structural form contrast would be Low, though the vertical line contrast would be low to moderate. The overall visual contrast would be rated Low. Additionally, the incremental increase in view blockage/impairment of the background vegetation and sky would be Low because, although the replacement structures would be noticeably taller (thus, blocking more of the sky), they would also be noticeably narrower (thus, blocking less of the sky and vegetation).

Collectively, these incremental visual changes would not measurably alter the existing landscape character visible from this residential roadway location. Combining the equally weighted Subordinate to Co-dominant project dominance and Low visual contrast and view blockage/impairment results in a Low degree of overall visual change, which in the context of the existing landscape's Moderate visual sensitivity, results in an Aesthetics impact that would be Less than Significant.

KOP 8b – Drake Drive at Magellan Drive. Figure 3.2-12a presents the existing view to the northeast from Drake Drive at Magellan Drive within a hillside residential development situated immediately above Shepherd Canyon Park. Figure 3.2-12b presents a visual simulation of the removal of a pair of existing LSPs behind the residence in the image as a result of the increased height of Project structures to the north and south of this location. The removal of the Project structures would represent a noticeable reduction in project dominance (from Dominant) to Subordinate to Co-dominant, which would be solely associated with the overhead conductors that would remain.

Removal of the Project structures would result in a Reduced overall visual contrast and view blockage/impairment. Collectively, these incremental visual changes would improve the existing landscape character visible from this residential location. Combining the equally weighted Subordinate to Co-dominant project dominance, Reduced visual contrast, and Reduced view blockage/impairment results in an improved overall visual change, which in the context of the existing landscape's Moderate overall visual sensitivity, results in an Aesthetics impact that would be Beneficial.

KOP 10 – State Route 13 (Warren Freeway). Figure 3.2-13a presents a freeway view of the Project crossing of SR-13, an Alameda County scenic roadway. Figure 3.2-13b presents a visual simulation of the replacement of the two existing, shorter (74 feet and 75 feet) LSTs with two taller (116 and 96 feet) TSPs and the removal of cellular antennas. The new structures would appear slightly taller in scale relative to the existing structures being replaced (low to moderate scale contrast), and overall project dominance would remain Co-dominant.

Compared with the complex form of the existing lattice towers and cellular antennas, the simple, narrow profile of the new replacement structures reduces the structural form contrast but increases the vertical line contrast. The industrial character associated with the existing, structurally complex lattice structures with cellular antennas would also be reduced with the TSP structures. As a result, overall visual contrast associated with this incremental change would be Low. Additionally, view blockage/impairment of the background vegetation and sky (higher value landscape features) would be slightly reduced with the taller but narrower forms of the new TSPs, though the solid mass of the replacement poles would not blend with the background vegetation as effectively as the existing lattice structures with their transparent character.

Collectively, these visual changes represent a slight, adverse, incremental visual change to the existing landscape character when viewed from this scenic roadway location. Combining the equally weighted Co-dominant project dominance, Low visual contrast, and Reduced view blockage results in a Low level of overall visual change, which in the context of the existing landscape's Moderate to High visual sensitivity, results in an Aesthetics impact that would be Less than Significant.

KOP 13b – Northbound Park Boulevard. Figure 3.2-14a presents the existing view to the northeast from northbound Park Boulevard where the Project crosses the roadway and ascends the largely wooded slope of Dimond Canyon. Figure 3.2-14b presents a visual simulation of the replacement of three existing pairs of LSTs (heights ranging from 77 feet to 78 feet) with three somewhat taller pairs of LSPs (heights ranging from 83 feet to 93 feet). The replacement structures would appear similar in scale to the existing structures (low scale contrast), and overall project dominance would remain unchanged at Co-dominant.

Compared to the existing lattice structures, the similar proposed replacement structures would result in low structural form and line contrast. Also, the associated industrial character would be similar for the existing and replacement structures. As a result, the overall visual contrast associated with the incremental Project changes would be Low. Additionally, the incremental difference in view blockage/impairment of the background hill slopes and sky would be Low and essentially unnoticeable to the casual observer as the somewhat greater view blockage of the taller structures is offset by the reduction in view blockage due to the slimmer profile of the replacement structures.

Collectively, these incremental visual changes would not measurably alter the existing landscape character visible from this public roadway location. Combining the equally weighted Co-dominant project dominance, Low visual contrast, and Low view blockage/impairment results in a Low to Moderate level of overall visual change, which in the context of the existing landscape's Moderate to High visual sensitivity, results in an Aesthetics impact that would be Less than Significant.

Overhead Power Line Removal

LESS THAN SIGNIFICANT. The relocation of a 1.2-mile segment of the Project alignment underground would result in the permanent removal of 15~~6~~ power line structures along the existing ROW between Estates Drive and Oakland X Substation. The structure removals include locations where the existing project ROW currently crosses dense, residential neighborhoods and afford close-range views of Project structures. The following discussion presents the impact analysis for the three representative KOPs selected for the Underground Power Line segment.

KOP 16 – Estates Drive near Sandringham Road. Figure 3.2-15a presents a foreground view of the Project from Estates Drive, a well-used roadway within a dense, residential community. Figure 3.2-15b presents a visual simulation of the replacement of two adjacent LSTs (75 feet and 76 feet tall, respectively) with two pairs of taller riser TSPs (81 feet for the southern pair and 96 feet for the northern/closer pair). The new structures would appear slightly taller in scale relative to the existing structures being replaced (increased scale contrast), and the resulting incremental increase in project dominance would be Co-dominant. The simulation also shows the necessary removal of two trees located on Estates Drive.

Compared with the complex form of the existing lattice towers, the narrow, but unusual, profile of the new replacement structures would slightly reduce the structural form contrast but increase the vertical line contrast. The reduction in form contrast would also be partially offset by the increased number of replacement structures (four instead of the existing two). The industrial character associated with the structurally complex LSTs would also be slightly reduced with the TSP structures. The resulting overall visual contrast would be Moderate, which also takes into account the Project TSP similarities with the form and line of the much smaller roadside wood-pole utility lines along Estates Drive and Park Boulevard. Additionally, view blockage/impairment of the background sky (higher value landscape feature) would be slightly increased with the taller, but narrower forms, and increased number of the new TSPs.

Collectively, these visual changes represent a slight, adverse, incremental visual change to the existing landscape character when viewed from this residential roadway location. Combining the equally weighted Co-dominant project dominance, Moderate visual contrast, and Low to Moderate view blockage/impairment results in a Moderate level of overall visual change, which in the context of the existing landscape's Moderate to High visual sensitivity, results in an Aesthetics impact that would be Less than Significant.

KOP 17 – Hollywood Avenue near San Sebastian Avenue. Figure 3.2-16a presents a foreground view of the Project along Hollywood Avenue, a residential street near Park Boulevard. This view to the northwest captures a pair of existing LSTs at the end of Hollywood Avenue where they extend well above the distant tree canopy and constitute dominant landscape elements in the view. Figure 3.2-16b presents a visual simulation of the removal of the existing LSTs due to the relocation and undergrounding of this segment of the Project. The removal of the Project structures represents the elimination of the Project's project dominance, visual contrast, and view blockage/impairment at this location.

Removal of the Project structures would result in an overall visual change Improvement to the existing landscape character visible from KOP 17 and nearby residences, and the resulting Aesthetics impact would be Beneficial.

KOP 19 – Holman Road near Bates Road. Figure 3.2-17a presents a foreground view of the Project directly behind a residence facing the Holman Road/Bates Road intersection. This view to the northeast captures a pair of visually dominant, existing LSTs silhouetted against the sky. Figure 3.2-17b presents a visual simulation of the removal of the existing LSTs due to the relocation and undergrounding of this segment of the Project. The removal of the Project structures represents the elimination of the Project's project dominance, visual contrast, and view blockage/impairment at this location.

Removal of the Project structures would result in an overall visual change improvement to the existing landscape character visible from KOP 19 and nearby residences, and the resulting Aesthetics impact would be Beneficial.

Underground Power Line

Visual impacts along the underground portion of the Project would occur only during construction. Once in operation, the only visual evidence of the Project would be access covers at vaults located along the underground alignment. These would be flush with the road surface and would not create a significant impact. Occasional maintenance and inspection would occur at individual vaults and would be temporary. This would be a less-than-significant impact.

Mitigation Measures for Impact AES-3

MM AES-3a Screen construction activities from view. See full text in Section 3.2.4 (Mitigation Measures).

With implementation of MM AES-3a, temporary visual impacts from construction staging and material storage/laydown areas would be reduced to a less than a significant level.

Although the MOX Project would not substantially alter or degrade the existing visual character of the landscape, substantial visual change and a significant, unavoidable Aesthetics impact would occur when viewed from one KOP (KOP 6a). No feasible mitigation has been identified to reduce this impact to a less than a significant level.

Impact AES-4: In urban areas, conflict with applicable zoning and other regulations governing scenic quality.

Construction

All Segments

LESS THAN SIGNIFICANT WITH MITIGATION. Construction impacts would be as described under Impact AES-3 above. Specifically, while APM AES-1 calls for construction staging and material storage/laydown areas to be in a clean and orderly state, the close proximity of these areas to roads, residences, recreation areas, and sensitive landscapes, as protected by public policy, and their occupancy/use over a more extended period of time (rather than the more transient impacts of work areas along the Project route), suggests that the visibility of these facilities and their associated industrial clutter would result in a significant impact on the existing landscape character and public views, and inconsistencies with established public policy, in spite of implementation of APM AES-1. Therefore, MM AES-3a is required to supplement APM AES-1 to ensure that visibility into these facilities is sufficiently reduced such that the resulting visual construction impact would be less than significant.

Mitigation Measures for Impact AES-4

MM AES-3a Screen construction activities from view. See full text in Section 3.2.4 (Mitigation Measures).

With implementation of MM AES-3a, the Project would not conflict with applicable zoning and other regulations governing scenic quality. Impacts would be less than significant.

Operation and Maintenance

All Segments

LESS THAN SIGNIFICANT (NO POLICY INCONSISTENCIES). Absent CPUC overriding jurisdiction, twenty-three statements of Aesthetics guidance, goals, and policies from nine jurisdictions would apply to the Project. Based on the analysis presented in this section, the Project would be consistent with all applicable guidance, goals, and policies, which would result in a Less-than-Significant Aesthetics impact for Impact Criterion AES-4. Table 3.2-4 presents a summary of Project consistency with the relevant guidance, goals, and policies.

Table 3.2-4. Consistency with Applicable Regulations

Regulatory Provision	Consistency
FEDERAL	
National Trails System Act of 1968 The East Bay Skyline National Recreation Trail, one of the 1,200 designated National Recreation Trails in the United States, is overlain with segments of the Bay Area Ridge Trail, a planned 550-mile multi-use trail along ridgelines ringing the San Francisco Bay Area. The 31-mile Skyline Trail traverses six of the EBRPD parks and preserves and is crossed by the Project where it passes through Sibley Volcanic Regional Preserve and Huckleberry Botanic Regional Preserve (EBRPD, 2023).	**Consistent.** The Project would be confined to the existing power line ROW and replacement structures would be in approximately the same location as existing structures. While the replacement structures would be taller than the existing structures, the incremental visual change would not substantially alter or degrade the existing landscape character visible from the trail, and the resulting Aesthetics impact would be Less than Significant (see impact discussions for KOPs 3a and 3b).

Regulatory Provision	Consistency
STATE	
California Scenic Highway Program The California Scenic Highway Program includes highways that are either eligible for designation as scenic highways or that have been designated. The nearest designated state scenic highway is I-580, which passes the western end of the Project route approximately 600 feet to the southwest of Oakland X Substation.	**Consistent.** Intervening vegetation and buildings generally screen views of the Project from this highway.
LOCAL	
~~**Alameda County General Plan, Open Space Element**~~ ~~The Open Space Element of the *Alameda County General Plan* (Alameda County, 1994a) includes a list of principles that are designed to protect open space including:~~ ~~■ Principle: Utility Lines to be Consolidated and Located to Avoid Scenic Areas.~~ ~~Wherever feasible, power and pipe utility lines should be consolidated to prevent further severance of open space lands. Utility lines and aqueducts in open space area should be located so as to avoid areas of outstanding beauty.~~	~~**Consistent.** The Project would be confined to the existing power line ROW and the replacement structures would be in approximately the same location as existing structures. Additionally, the Project would cross a very limited amount of Residential – Canyon Open Space in Alameda County. Although visual modifications to the landscape would be experienced to varying degrees by residents, motorists, bicyclists, and recreation visitors, temporary and permanent visual change resulting from the replacement of the existing structures would not substantially alter nor degrade the existing landscape character within open space lands in Alameda County.~~
~~**Alameda County General Plan, Scenic Route Element**~~ ~~The plan objectives (Alameda County, 1994b) are to conserve, enhance, and protect scenic views observable from scenic routes. The Project intersects or comes near to the following County scenic routes:~~ ~~■ Skyline Boulevard – crossed by the Project~~ ~~■ Warren Freeway (SR-13) – crossed by the Project~~ ~~■ Park Boulevard – crossed by the Project~~ ~~■ I-580 – passes approximately 600 feet west of Oakland X Substation, but the power lines are generally not visible.~~	~~**Consistent.** Some of the power line replacement structures would potentially be visible from Alameda County scenic routes in the Project area such as Skyline Boulevard, Warren Freeway (SR-13), Park Boulevard, and I-580. Although some Project components would be visible from these more urban locations, these views occur within the context of existing utility lines and related infrastructure that align these roadways. As demonstrated in the KOP 5 visual simulation, Project-related change would not substantially affect the view from Skyline Boulevard.~~ ~~In the case of the SR-13 (KOP 10) visual simulation; Figure 3.2-13b), affected views of the Project alignment would be fleeting given typical highway speeds along this stretch of roadway. Therefore, the Project would not have a substantial effect on views from SR-13.~~ ~~Regarding Project views from Park Boulevard (KOP 13b visual simulation; Figure 3.2-14b), the replacement lattice structures would not noticeably alter the existing landscape character established by the existing lattice structures. Therefore, Project-related change would not substantially affect views of the Project from Park Boulevard.~~ ~~With respect to I-580, the existing aboveground structures near Oakland X Substation and I-580 are to be undergrounded as part of the Project. Therefore, views from I-580 would not be adversely affected by the Project, and the Project, overall, would not adversely affect views from local scenic roadways in the Project area.~~

Regulatory Provision	Consistency
Contra Costa County 2045 General Plan, Conservation, Open Space, and Working Lands Element ■ Goal COS-12. Protect natural features with high scenic value, such as visual landmarks, major ridges, prominent hillsides, and stands of mature trees. • Policy COS-P12.2. Require redesign of project components that negatively impact viewshed or the visual quality of the area. • Policy COS-P12.3. Prohibit development within 100 vertical feet of the top of designated scenic ridges and within 50 vertical feet of other visually prominent ridgelines. Exceptions may be considered on existing legal lots where no other feasible building sites exist, and for infrastructure that requires high-elevation siting, such as wind turbines, communications towers, and water tanks. When siting buildings or infrastructure on or near ridges is unavoidable, require appropriate measures, such as screening, undergrounding, or camouflaging to mitigate visual impacts. • Policy COS-P12.4. Preserve the scenic qualities of hillsides by encouraging designs that are sensitive to a site's topography and prohibiting unnecessary grading and vegetation removal. • Policy COS-P12.5. Require restoration of natural contours and vegetation after grading and other land disturbances. • Policy COS-P12.6. Prohibit extreme topographic modification, such as filling canyons or removing prominent hilltops. Exemptions may be considered for landfills, mining operations, and public or semi-public projects that necessitate such modifications. • Policy COS-P12.7. Support preservation and enhancement of natural and human-made features that contribute to the scenic quality of landscape and viewshed along designated scenic routes and discourage projects that interfere with public views of those features. • Policy COS-P12.8. Require a visual impact analysis for projects with potential to significantly impact public views along designated scenic routes. • Policy COS-P12.9. Enable flexibility in the design of project along scenic routes and support innovative solutions to protect views and visual quality.	**Consistent.** The Project would be confined to the existing power line ROW. Replacement structures would be located in approximately the same location as existing structures, and in one location (Structures ES8A & B) the number of visible structures would be reduced. Although visual modifications to the landscape (e.g., taller structures, more visually prominent conductors, and modified access roads) would be experienced to varying degrees by residents, motorists, bicyclists, and recreation visitors, temporary and permanent visual changes resulting from the replacement of the existing structures would not substantially alter or degrade the existing landscape character, scenic qualities of hillsides, or landscapes along designated scenic routes (Pinehurst Road) and ridges, as demonstrated in the visual simulations for KOPs 2, 3a, and 3b (Figures 3.2-3b, -4b, and -5b). Because the Project would be confined to the existing ROW, visual impacts to ridgelines would be minimized; no additional grading or vegetation removal would be required; and no extreme topographic modification would be necessary. Additionally, by maintaining the Project within the existing ROW and at the existing structure locations, the existing scenic quality of the overall landscape would be maintained, and new blockage/impairment of public views of scenic resources would be avoided.
East Bay Municipal Utility District East Bay Watershed Master Plan ■ USL.17 – Prohibit management practices or development proposals that would require large-scale modification of the Upper San Leandro Reservoir watershed landscape, especially in areas that are highly visible from Redwood Road, Anthony Chabot Regional Park, and other public viewpoints.	**Consistent.** The Project proposes to upgrade and replace existing power line structures. However, the upgrades are not considered a large-scale modification. In addition, Redwood Road, Anthony Chabot Regional Park, and other public viewpoints near the Upper San Leandro Reservoir watershed landscape are not near or within the Project area. Therefore, there would be no visual impacts to the identified viewpoints.

Regulatory Provision	Consistency
East Bay Regional Park District Master Plan ■ PRPT 28: The District will work in cooperation with the utility companies to place existing overhead utilities underground (unless so doing conflicts with applicable codes) as soon as practical and will work with other agencies to reduce visual impacts on adjacent lands. The District will seek to avoid the construction of high voltage power lines within the parklands, particularly in … preserve areas. ■ PRPT 29: The District will keep its lands, including all ridges and peaks, free of additional communication facilities in order to maintain open viewshed, natural conditions, and public use as well as to limit vehicular and service activities.	**Consistent.** Aboveground Project replacement structures would be largely imperceptible because of distance, screening by existing vegetation, and urban foreground and backdrop conditions. Although visual modifications to the landscape would be experienced to varying degrees by park users, temporary and permanent visual changes resulting from replacement of the existing power line structures would not substantially alter nor degrade the existing landscape character within the Project area, as demonstrated in the visual simulations for KOPs 2, 3a, and 3b (Figures 3.2-3b, -4b, and -5b). Additionally, the Project does not include additional communication facilities.
City of Oakland General Plan, Scenic Highways Element The Scenic Highways Element (City of Oakland, 1974) addresses the preservation and enhancement of those distinctly attractive roadways that traverse the city and the visual corridors that surround them. Both Skyline Boulevard and I-580 are designated as scenic routes. ■ Goal: To protect and enhance the distinctive character of scenic routes within the City. ■ General Policies • Policy 6: Overhead utilities should be undergrounded along all freeways, scenic routes, and major streets. Programs should be developed to increase the present rate of undergrounding existing overhead utilities (p. 25). ■ Specific Policy Related to Skyline Boulevard. • Policy 1: New development or modifications to existing development which interferes with significant views experienced by motorists or pedestrians from the roadway should be prohibited, unless such prohibition will deny reasonable use of the property (p. 26). ■ S-10 Scenic Route Combining Zone Regulations, Section 6562 Design Review Criteria, (b): That the proposed development will, as far as practicable, maintain existing vistas or panoramas which can be seen from the abutting public road and maintain the visual value of the total setting or character of the surrounding area (p. 37).	**Consistent.** As discussed below for the Land Use & Transportation Element, because of limited visibility of the Project (due to screening by vegetation and structures, travel speeds, and view orientations), the Project would not substantially affect views from scenic roadways in the Project area including I-580, Skyline Boulevard, Warren Freeway, or Park Boulevard. Additionally, the western-most segment of the Project is proposed to be removed from residential neighborhoods and placed underground in Park Boulevard. Collectively, these attributes of the Project would affirm consistency with Policy 6. The Project would cross Skyline Boulevard along a partially wooded stretch of roadway that affords a limited view of the San Francisco Bay. Project modifications would include replacement of the existing LSP at this location with a taller LSP; however, based on its siting near the roadway edge at an area with steeply descending terrain, the Project structure would not alter existing distant views of the Bay as seen by motorists, pedestrians, or bicyclists, and the Project would be consistent with Policy 1.
City of Oakland General Plan, Open Space, Conservation, and Recreation Element (1996) The Open Space Conservation and Recreation Element (City of Oakland, 1996) contains provisions for protecting and enhancing visual resources in the city, including the following. ■ Policy OS-10.1: View Protection: Protect the character of existing scenic views in Oakland, paying particular attention to: (a) views of the Oakland Hills from the flatlands; (b) views of downtown and Lake Merritt;	**Consistent.** With the permanent undergrounding of several lattice towers along the southern-most segment of Project ROW (east of the transition at Estates Drive and Park Boulevard), visibility of this portion of the Project from the flatlands would be eliminated. While modifications to Oakland X Substation would not be visible from outside the substation, one of three new riser poles that would connect the underground portion to Oakland X Substation could potentially be visible to motorists from I-580 at the Park Boulevard under cross-

Regulatory Provision	Consistency
(c) views of the shoreline; and (d) panoramic views from Skyline Boulevard, Grizzly Peak Road, and other hillside locations (p. 2-65).	ing where dense vegetation lining the freeway embankment gives way to an open view of the substation. However, given the motorists' perpendicular view angle and high travel speeds at this location, visibility would be fleeting, and the riser poles would be seen in the context of other utility infrastructure, including light standards of similar form, and the removal of several existing aboveground structures. At the Project's crossing of Skyline Boulevard, modifications would be substantially screened by roadside vegetation and would include replacement of the existing LSP with a taller LSP. However, based on its siting near the roadway edge in an area with steeply descending terrain, the Project structure would not alter existing panoramic views of the Bay as seen by motorists, pedestrians, or bicyclists. As a result, the Project would be consistent with Policy OS-10.1.
City of Oakland General Plan, Land Use & Transportation Element The Land Use & Transportation Element (City of Oakland, 2023), Policy Framework, addresses the need to underground existing utility lines. ■ Policy N12.4 Undergrounding Utility Lines: Electrical, telephone, and related distribution lines should be undergrounded in commercial and residential areas, except where special local conditions such as limited visibility of the poles and wires make this unneeded. They should also be underground in appropriate institutional, industrial, and other areas, and generally along freeways, scenic routes, and heavily traveled streets. Programs should lead systematically toward the eventual undergrounding of all existing lines in such places. Where significant utility extensions are taking place in these areas, such as in new subdivisions, utilities should be installed underground from the start.	**Consistent.** The Project is located within a dedicated utility ROW. As discussed in the individual KOP analyses under Impacts AES-2 and AES-3, because of limited visibility of the Project (due to screening by vegetation and structures and travel speeds and view orientations), the Project would not substantially affect views from scenic roadways in the Project area including I-580, Skyline Boulevard, Warren Freeway, or Park Boulevard. Additionally, the western-most segment of the Project is proposed to be removed from residential neighborhoods and undergrounded in Park Boulevard. Collectively, these attributes of the Project would affirm consistency with Policy N12.4.
City of Orinda General Plan, Land Use and Circulation Element ■ Implementing Policy P. The following routes are designated Scenic Corridors on the General Plan: • Moraga Way from its intersection with Camino Pablo south to the City Limits. • Camino Pablo from its intersection with Santa Maria Way north to the City limits. • Highway 24, designated as a California Scenic Highway within Orinda City Limits.	**Consistent.** The Project does not cross, and is not visible from, any of these scenic corridors.

Regulatory Provision	Consistency
City of Orinda General Plan, Conservation Element ■ Policy 4.1.1 G Protect visually prominent ridgelines and hillsides from development. ■ Policy 4.1.1 N. Encourage undergrounding of power lines and replacement of utility towers with single poles.	**Consistent.** Project power line components in Orinda (three structure pairs covering a distance of approximately 0.45 mile) will be replaced in kind (LSTs) and will not noticeably alter visually prominent ridgelines or hillsides or distant views of the overall surrounding area. Additionally, the relatively limited visibility of this short segment of the Project would not warrant undergrounding. Therefore, the Project would be consistent with the City of Orinda General Plan policies.
City of Piedmont General Plan ■ Goal 27: City Identity and Aesthetics. Ensure that streets, parks, civic buildings, and other aspects of the "public realm" contribute to Piedmont's overall identity, beauty, and visual quality. • Policy 27.3: View Preservation. Recognize and protect significant views in the city, particularly Piedmont's characteristic views of the San Francisco and Oakland skylines, Lake Merritt and San Francisco Bay, the Bay and Golden Gate Bridges, and surrounding hills, canyons, and geological features. Discourage the obstruction of such views by upper level additions, tall structures, and devices such as communication towers. Similarly, tree planting should avoid species or locations that will lead to the obstruction of desirable views. • Policy 27.8: Utility Undergrounding. Support neighborhood efforts to underground utilities throughout Piedmont, with due consideration given to the level of community support and the financial impacts on the City and its residents. Underground utilities shall be required for any new subdivision.	**Consistent.** Within the City of Piedmont, the Project would remove four existing lattice structures and install one new tubular steel transition riser pole (at the intersection of Estates Drive and Sandringham Road), resulting in a net benefit to view preservation. Although an additional riser pole would be installed near Estates Drive and Park Boulevard, outside of the City of Piedmont, the new tubular steel riser poles would be seen in the context of existing utility poles and light poles and would result in a net reduction of three transmission structures within the City limits. Therefore, the Project would result in a visual improvement within the City of Piedmont, which would represent consistency with Goal 27, Policy 27.3, and Policy 27.8.

Impact AES-5: Create a new source of substantial light or glare that would adversely affect daytime or nighttime views.

Construction

All Segments

LESS THAN SIGNIFICANT. The Project is predominantly situated in a setting where lighting sources tend to be localized and associated with residences and roadways. Although there is some street lighting in the Power Line Rebuild segment, street lighting is widespread in the Overhead Power Line Removal and Underground Power Line segments, and it includes some traffic signals, especially along Park Boulevard west of the Estates Drive intersection. Although Project construction is expected to occur mostly during daylight hours, nighttime work may be necessary that would require limited, temporary lighting at some work areas. In addition, for the duration of construction, staging yards are expected to use nighttime security lighting. Given the limited amount of night lighting sources in portions of the Project area, construction lighting used along the Project alignment may create a new source of substantial light, particularly in areas east of the Oakland Hills summit. However, the night lighting would be temporary due to the transient nature of construction along the route, and as specified in APM AES-1, these lighting sources would be

directed on site and away from potentially sensitive receptors and would have lamp shields to prevent light spillover effects. Therefore, impacts are expected to be less than significant under Impact AES-5.

Operation and Maintenance

All Segments

LESS THAN SIGNIFICANT (Glare). Glare exists when a high degree of contrast between bright and dark areas in a field of view makes it difficult for the human eye to adjust to differences in brightness. At high levels, glare can make it difficult to see, such as when driving westward at sunset. Glare from new Project replacement structures and conductors has the potential for impacts in some locations, particularly at roadway crossings and near residences. New Project components adjacent to Oakland X Substation (riser poles and associated conduits and insulators) would be a non-reflective, neutral- gray color, and galvanized steel structures would weather to a dull, non-reflective patina that would minimize the potential effect of glare. Therefore, APM AES-2, which calls for the use of a dulled galvanized or Corten finish on replacement structures and non-specular conductors, would minimize the potential effect of glare resulting in a Less than Significant impact under Impact AES-5.

LESS THAN SIGNIFICANT (Nighttime Lighting). No new lighting is proposed along the rebuilt power lines or within Moraga and Oakland X substations. While nighttime operation and maintenance work for the Project is not planned, it may occur on an emergency basis. Nighttime lighting for work would be infrequent if it occurs, and would be temporary, representing a minor incremental change to existing nighttime lighting conditions within the Project area. Additionally, the Federal Aviation Administration (FAA) screening tool was used to review the rebuilt power lines at 60 percent design. A determination of no hazard to air navigation was provided by the FAA for all structures screened. Supporting documentation is provided in Appendix D, FAA Determinations. Therefore, nighttime lighting impacts resulting from the Project would be less than significant under Impact AES-5.

3.2.4. Mitigation Measures

MM AES-3a **Screen construction activities from view.** Construction yards, staging areas, and material and equipment storage areas shall be visually screened using temporary screening fencing. Fencing shall be of an appropriate structure, material, and color for each specific location, as determined in coordination with the appropriate local (County or City) authority. This requirement shall not apply if PG&E can demonstrate that installing temporary fencing will introduce a safety hazard or that construction yards are located away from areas of high public visibility including public roads, residential areas, and public recreational facilities. For any site that PG&E proposes to exempt from the screening requirement, PG&E shall define the site on a detailed map demonstrating its visibility from nearby roads, residences, or recreational facilities submitted to the CPUC for review and approval at least 60 days prior to the start of construction at, or use of, that site.

3.2.5. References

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3.3. Air Quality

This section discusses potential air quality impacts associated with the proposed Project's construction, operation, and maintenance, including both regional and site-specific concerns. Project-relate air emissions will occur within the San Francisco Bay Area Air Basin (SFBAAB) under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD).

Primary air emissions from Project construction include emissions associated with fugitive dust, heavy construction equipment, portable generators, helicopter usage, material and equipment transport trucks, vendor delivery trucks, support vehicles, and construction workers commuting to and from Project sites. Following construction of the Project, operation and maintenance activities would consist of routine inspection, repair, and maintenance activities, which would be conducted as they are now under existing conditions.

Air emissions evaluated include reactive organic gases (ROG), carbon monoxide (CO), nitrogen oxides (NOx), particulate matter less than 10 micrometers in aerodynamic diameter (PM10), particulate matter less than 2.5 micrometers in aerodynamic diameter (PM2.5), and sulfur dioxide (SO_2). Greenhouse gas (GHG) emissions are discussed separately in Section 3.9, Greenhouse Gas Emissions. PG&E has proposed numerous APMs as part of the Project, including APMs addressing air quality. The analysis concludes that impacts to air quality will be less than significant as described in Section 3.3.3.3.

The scoping effort conducted by the CPUC from February 25 through March 27, 2025, resulted in no public comments relating to air quality.

3.3.1. Environmental Setting and Methodology

3.3.1.1. Environmental Setting

The proposed Project would be located in the City of Orinda, unincorporated areas of Contra Costa County, and the cities of Oakland and Piedmont within Alameda County, all of which lie within the SFBAAB. SFBAAB is characterized by complex terrain consisting of bays, coastal mountain ranges, and inland valleys, which distort normal wind flow patterns. The Coast Range splits, resulting in a western coast gap (the Golden Gate) and an eastern coast gap (the Carquinez Strait), both of which allow air to flow in and out of the SFBAAB and the Central Valley (BAAQMD, 2017b).

The climate in the SFBAAB is dominated by the strength and location of a semi-permanent, subtropical high-pressure cell. During the summer, the Pacific high-pressure cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below to the surface because of the northwesterly flow produces a band of cold water off the California coast. The cool and moisture-laden air approaching the coast from the Pacific Ocean is further cooled by the presence of the cold water band, resulting in condensation and the presence of fog and stratus clouds along the Northern California coast. In the winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms. Weak inversions coupled with moderate winds result in an overall low air pollution potential (BAAQMD, 2017b).

The SFBAAB is characterized by moderately wet winters and dry summers. Winter rains account for about 75 percent of the average annual rainfall. The amount of annual precipitation can vary greatly from one part of the SFBAAB to another, even within short distances. In general, total annual rainfall can reach 40 inches in the mountains but is often less than 16 inches in sheltered valleys (BAAQMD, 2017b).

3.3.1.2. Ambient Air Quality

The California Air Resources Board (CARB) maintains ambient air monitoring stations for criteria pollutants throughout California. The air monitoring station closest to the Project area is on 21st Street in Oakland, approximately 3 miles from the proposed Project area. Data from this location were used in this study for ozone, CO, nitrogen dioxide (NO_2), and PM2.5. Because the Oakland location does not monitor for PM10, data for PM10 were taken from the air monitoring station located on Rumrill Boulevard in San Pablo. This site was conservatively used based on its relative proximity (approximately 12 miles) and similar orientation as the Oakland location with the Diablo Mountain Range to the east and the San Francisco Bay to the west. Table 3.3-1 summarizes available data from these air monitoring stations during the 3 years (2020 to 2022). As shown, multiple exceedances of the particulate matter National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) have been recorded recently.

Table 3.3-1. Ambient Criteria Pollutants Concentration Data in Oakland and San Pablo

		Maximum Concentrations and Frequencies of Exceeded Standards		
Pollutant	**Metric**	**2021**	**2022**	**2023**
Ozone[a]	Maximum 1-Hour Concentration (ppm)	0.067	0.054	0.054
	Days > 0.090 ppm (CAAQS)	0	0	0
	Maximum 8-Hour Concentration (ppm)	0.046	0.041	0.045
	Days > 0.070 ppm (NAAQS/CAAQS)	0	0	0
CO[a]	Maximum 1-Hour Concentration (ppm)	2.3	2.2	1.1
	Days > 35 ppm (NAAQS)	0	0	0
	Days > 20 ppm (CAAQS)	No data	No data	No data
	Maximum 8-Hour Concentration (ppm)	1.8	1.8	
	Days > 9.0 ppm (NAAQS/CAAQS)	0	0	
NO_2[a]	Maximum 1-Hour Concentration (ppm)	0.050	0.044	0.048
	Days > 0.18 ppm (CAAQS)	0	0	
	Days > 0.10 ppm (NAAQS)	0	0	
	Annual Average Concentration (ppm)	0.009	0.011	0.008
	Days > 0.030 ppm (CAAQS)	No data	No data	No data
PM10[b]	Maximum 24-Hour Concentration (µg/m^3)	37	42	54.8
	Days > 50 µg/m^3 (CAAQS)	0	0	1
	Days > 150 µg/m^3 (NAAQS)	0	0	0
	Annual Average Concentration (µg/m^3)	18.7	20.8	18.4
	Days > 20 µg/m^3 (CAAQS)	No data	No data	No data
PM2.5[a]	Maximum 24-Hour Concentration (µg/m^3)	25.4	33.8	42.8
	Days > 35 µg/m^3 (NAAQS)	0	0	1
	Annual Average Concentration (µg/m^3)	7.5	8.1	6.8
	Days > 12 µg/m^3 (NAAQS/CAAQS)[c]	No data	No data	No data

Sources: CARB 2024c; EPA 2024b

[a] Data from the monitoring station located at 1100 21st Street in Oakland, CA (CARB#:60349).

[b] Data from the monitoring station located at 1865 Rumrill Boulevard in San Pablo, CA (CARB#:07447).

[c] Data are presented for comparison to the NAAQS available at the time monitoring data were collected, and not the new, lower standard of 9 µg/m^3, which took effect on May 6, 2024.

> = greater than

µg/m^3 = microgram(s) per cubic meter

ppm = parts per million (by volume)

The U.S. Environmental Protection Agency (EPA) classifies areas as being in attainment or nonattainment with the National Ambient Air Quality Standards (NAAQS) for each criteria pollutant. A region that meets the NAAQS for a pollutant is designated as being in attainment for that pollutant. A region that does not meet the NAAQS for a pollutant is designated as being in nonattainment for that pollutant. An area that was previously designated as a nonattainment area but has met the standard and has been reclassified by EPA as in attainment with a maintenance plan is a maintenance area.

Attainment status for the Project area is summarized in Table 3.3-2. Under the NAAQS, the Project area is currently designated as nonattainment for the ozone and PM2.5 standards, as maintenance for the CO standard, and as attainment or unclassified for the PM10, NO_2, SO_2, and lead standards. Under the California Ambient Air Quality Standards (CAAQS), the Project area is currently designated as nonattainment for the ozone, PM10, and PM2.5 standards and as attainment or unclassified for all other pollutant standards.

Table 3.3-2. Attainment Status for the Project Area

Pollutant	NAAQS	CAAQS
Ozone	Nonattainment (Marginal)	Nonattainment
PM10	Attainment/Unclassified	Nonattainment
PM2.5	Nonattainment (Moderate)	Nonattainment
CO	Maintenance (Moderate)	Attainment
NO_2	Attainment/Unclassified	Attainment
SO_2	Attainment/Unclassified	Attainment
Lead (particulate)	Attainment/Unclassified	Attainment
Hydrogen Sulfide	No Standard	Unclassified
Sulfates	No Standard	Attainment
Visibility-Reducing Particles	No Standard	Unclassified
Vinyl Chloride	No Standard	No information Available

Sources: CARB 2024b; EPA 2024a

An area that is nonattainment for a particular pollutant and averaging period means that the air quality in that area does not meet the NAAQS and/or CAAQS. As a result, the states are required to submit a State Implementation Plan (SIP) to the EPA detailing how the standards will be attained over time. Thresholds of significance in areas of nonattainment are more stringent than areas of attainment.

Health Effects of Criteria Air Pollutants

The nonattainment designations for ozone and particulate matter indicate that the proposed Project area experiences the adverse human health effects of exposure to criteria air pollutants. Because the CAAQS are set at levels to adequately protect the health of the public, and air quality management agencies have determined that concentrations of ozone and PM10 for the proposed Project area occur at nonattainment levels for the CAAQS, adverse health effects associated with exposure to ozone and PM10 occur as part of the baseline and existing ambient air quality conditions. The following information summarizes the adverse health effects of the criteria air pollutants.

Ozone. Ozone is not directly emitted from stationary or mobile sources but is formed as the result of chemical reactions in the atmosphere between directly emitted volatile organic compounds (VOC) including ROG, with NOx in the presence of sunlight. High ozone concentrations can aggravate respiratory and cardio-vascular diseases, irritate eyes, impair cardiopulmonary function, and cause damage to vegetation.

Particulate Matter (PM10) and Fine Particulate Matter (PM2.5). PM10 can be emitted directly, or it can be formed many miles downwind from emission sources when various precursor pollutants interact in the

atmosphere. PM2.5 is derived mainly either from the combustion of materials, or from precursor gases (SOx, ROG, and NOx) through complex reactions in the atmosphere. PM2.5 consists mostly of sulfates, nitrates, ammonium, elemental carbon, and a small portion of organic and inorganic compounds. Particulate matter can aggravate respiratory diseases, result in reduced lung function, increase and cause chest discomfort, and cause reduced visibility.

Carbon Monoxide (CO). The highest concentrations of CO occur when low wind speeds and a stable atmosphere trap the pollution emitted at or near ground level. These conditions occur frequently in the wintertime late in the afternoon, persist during the night and may extend one or two hours after sunrise. In the Project area, CO concentrations are well below the state and federal ambient air quality standards. CO reduces tolerance from exercise, can cause impairment of mental function, impairment of fetal development, aggravate some heart diseases (angina), and cause death at high levels of exposure.

Nitrogen Dioxide. Approximately 90 percent of the NOx emitted from combustion sources is nitric oxide (NO), while the balance is NO_2. NO is oxidized in the atmosphere to NO_2, but some level of photochemical activity is needed for this conversion. The highest concentrations of NO_2 typically occur during the fall. The winter atmospheric conditions can trap emissions near the ground level, but lacking substantial photochemical activity (sunlight), NO_2 levels are relatively low. In the summer, the conversion rates of NO to NO_2 are high, but the relatively high temperatures and windy conditions disperse pollutants, preventing the accumulation of NO_2. The NO_2 concentrations in the Project area are well below the state and federal ambient air quality standards. NO_2 can aggravate respiratory diseases, reduce visibility, reduce plant growth, and form acid rain.

Sulfur Dioxide. Sulfur dioxide is typically emitted as a result of the combustion of a fuel containing sulfur. Overall SO_2 emissions are limited due to the limited number of major stationary sources and the regulatory limits on motor vehicle fuel sulfur content. The SO_2 concentrations in the Project area are well below the state and federal ambient air quality standards. SO_2 can irritate the upper respiratory tract and be injurious to lung tissue causing reduced lung function, including asthma and emphysema. SO_2 can cause plant leaves to be yellow, and be destructive to metals, textiles, leather, finishes, and coatings. SO_2 can also limit visibility.

Toxic Air Contaminant and Odorous Emissions

In addition to the criteria pollutants, U.S. EPA and California also regulate emissions of hazardous air pollutants (HAPs) and toxics. Toxic air contaminants (TACs) are air pollutants that may lead to serious illness or increased mortality, or which may pose a present or potential hazard to human health (California Health and Safety Code Section 39655), even when present in relatively low concentration.

TACs include airborne inorganic and organic compounds that can have both short-term (acute) and long-term (carcinogenic, chronic, and mutagenic) impacts on human health. Odorous compounds include those that can be detected by the human olfactory system, such as hydrogen sulfide and other sulfurous compounds.

Odorous emissions typically are regulated by local air districts under nuisance prohibitory rules. Because odor generally is a subjective phenomenon that affects people differently, development of odor emissions standards has proven impractical. Therefore, regulators have relied on the nuisance standard to assist in enforcing control of odorous emissions. Determination of the presence of a nuisance emission is based on the number of odor complaints received by the air district during an odor episode.

3.3.1.3. Sensitive Receptors

Sensitive receptors include hospitals, residences, schools, daycare facilities, elderly housing, convalescent facilities, prisons, dormitories, and parks. These are places where the occupants may be relatively more susceptible to the adverse effects of exposure to TAC emissions and other pollutants. As described in

Chapter 3, Project Description, the proposed Project would rebuild infrastructure in the cities of Orinda, Oakland, and Piedmont and, as well as in an unincorporated portion of Contra Costa County. Land uses surrounding the proposed Project within cities primarily consist of residential, utility, and resource conservation (parks/open space). Land use surrounding the Project features located in unincorporated Contra Costa County are predominantly parks and recreation (open space).

There are more than 4,000 residences, approximately 2 elderly housing facilities, approximately 10 daycare facilities, approximately 10 schools, and approximately 10 parks located within 1,000 feet of the proposed Project. Areas of residential sensitive receptors within 1,000 feet of the Project are shown on Figure 3.11-1 in Appendix A. Table 3.3-3 provides a list of the schools, daycare facilities, elderly housing facilities, and parks located within 1,000 feet of the Project. There are no other non-residential receptors, such as hospitals, convalescent facilities, prisons, or dormitories, within 1,000 feet of the Project.

Table 3.3-3. Sensitive Receptors –Daycare Facilities, Schools, Elderly Housing, and Parks

Receptor Type	Name	Address
Daycare Facility	Academia de mi Abuela	2162 Mountain Blvd, Oakland
Daycare Facility	Sequoia Nursery School	2666 Mountain Blvd, Oakland
Daycare Facility	KSS Immersion Preschool of Oakland – Lincoln Highlands	2540 Charleston St, Oakland
Daycare Facility	Gan Mah Tov Preschool	3778 Park Blvd, Oakland
Daycare Facility	Duck Pond Preschool	3947 Park Blvd, Oakland
Daycare Facility	Les Petits Francophones	4101 Park Blvd, Oakland
School and Daycare Facility	Joaquin Miller Elementary School	5525 Ascot Dr, Oakland
School and Daycare Facility	Crocker Highlands Elementary School	525 Midcrest Rd, Oakland
School and Daycare Facility	Glenview Elementary School	4215 La Cresta Ave, Oakland
School and Daycare Facility	Growing Light Montessori School of Oakland	4700 Lincoln Ave, Oakland
School	Montera Middle School	5525 Ascot Dr, Oakland
School	Head Royce School	4315 Lincoln Ave, Oakland
School	Ability Now Bay Area	4500 Lincoln Avenue, Oakland
School	Corpus Christi Elementary School	One Estates Dr, Piedmont
School	Edna Brewer Middle School	3748 13th Ave, Oakland
School	Oakland High School	1023 MacArthur Blvd, Oakland
Elderly Housing	Park Glenview Senior Apartments	3761 Park Blvd Way, Oakland
Elderly Housing	Satellite Senior Home	4135 Park Blvd, Oakland
Park	East Bay Municipal Utility District Watershed	Contra Costa County
Park	Huckleberry Botanic Regional Preserve	7087 Skyline Blvd, Oakland
Park	Sibley Volcanic Regional Preserve	6800 Skyline Blvd, Oakland
Park	Oakland Regional Trails	Alameda County
Park	Skyline National Trail	Alameda County
Park	Shepherd Canyon Park	6000 Shepherd Canyon Rd, Oakland
Park	Marjorie Saunders Park	2588 Scout Rd, Oakland
Park	Joaquin Miller Park	3300 Joaquin Miller Rd, Oakland
Park	Dimond Canyon Park	4499 Bridgeview Dr, Oakland
Park	Dimond Park	3860 Hanly Rd, Oakland

Source: PG&E, 2024

3.3.2. Regulatory Setting

3.3.2.1. Federal

Clean Air Act and National Ambient Air Quality Standards

The federal Clean Air Act (CAA) establishes the statutory framework for regulation of air quality in the United States. Pursuant to this act, the EPA has established various regulations to achieve and maintain acceptable air quality, including the adoption of NAAQS, mandatory SIP or maintenance plan requirements to achieve and maintain NAAQS, and emission standards for both stationary and mobile sources of air pollution. NAAQS were first established in 1970 for six pollutants: CO, ozone, PM10 and PM2.5, NO_2, SO_2, and lead. These pollutants are commonly referred to as criteria pollutants because they are considered the most prevalent air pollutants known to be hazardous to human health. The NAAQS contain primary standards that protect public health and secondary standards that protect public welfare. A summary of the NAAQS and the CAAQS is provided in Table 3.3-4.

Table 3.3-4. National and California Ambient Air Quality Standards

			NAAQS[b]	
Pollutant	**Averaging Time**	**CAAQS[a]**	**Primary[c]**	**Secondary[d]**
Ozone	8 hours	0.070 ppm	0.070 ppm	0.070 ppm
	1 hour	0.09 ppm	N/A	N/A
PM10	Annual arithmetic mean	20 µg/m^3	N/A	N/A
	24 hours	50 µg/m^3	150 µg/m^3	150 µg/m^3
PM2.5	Annual arithmetic mean	12 µg/m^3[e]	12 µg/m^3	15 µg/m^3
	24 hours	N/A	35 µg/m^3	35 µg/m^3
CO	8 hours	9 ppm	9 ppm	N/A
	1 hour	20 ppm	35 ppm	N/A
NO_2	Annual arithmetic mean	0.03 ppm	0.053 ppm	0.053 ppm
	1 hour	0.18 ppm	0.100 ppm	N/A
SO_2	24 hours	0.04 ppm	N/A	N/A
	3 hours	N/A	N/A	0.5 ppm
	1 hour	0.25 ppm	0.075 ppm[f]	N/A
Lead[f]	Calendar quarter	N/A	1.5 µg/m^3 (certain areas)	1.5 µg/m^3
	Rolling 3 month average	N/A	0.15 µg/m^3	N/A
	30 day average	1.5 µg/m^3	N/A	N/A
Visibility reducing particles	8 hours	N/A[g]	N/A	N/A
Sulfates	24 hours	25 µg/m^3	N/A	N/A
Hydrogen sulfide	1 hour	0.03 ppm	N/A	N/A
Vinyl chloride[h]	24 hours	0.01 ppm	N/A	N/A

Source: CARB 2016

[a] CAAQS for ozone, CO, SO_2 (1 hour and 24 hour), NO_2, and suspended particulate matter (PM10, PM2.5, and visibility-reducing particles) are not to be exceeded. All others are not to be equaled or exceeded.

[b] NAAQS other than ozone, particulate matter, and those based on annual averages or annual arithmetic means are not to be exceeded more than once per year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration greater than 150 µg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, is equal to or less than the standard.

[c] NAAQS Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[d] NAAQS Secondary Standards: The levels of air quality necessary to protect the public welfare from known or anticipated adverse effects of a pollutant.

[e] The EPA recently adopted a lower annual PM2.5 standard of 9 µg/m^3, which took effect on May 6, 2024.

[f] Final rule signed June 2, 2010. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 parts per billion.
[g] In 1989, CARB converted the general statewide 10-mile visibility standard to instrumental equivalents, which is "extinction of 0.23 per kilometer".
[h] CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined. CARB made this determination following the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
N/A = No standard exists for this pollutant averaging period

EPA classifies areas as being in attainment or nonattainment with the NAAQS for each criteria pollutant. The 1977 CAA amendment requires each state to develop and maintain a SIP for each nonattainment criteria pollutant. The SIP serves as a tool to help avoid and minimize emissions of nonattainment criteria pollutants and their precursor pollutants and achieve compliance with the NAAQS. In 1990, the CAA was amended to strengthen regulation of both stationary and mobile emission sources.

3.3.2.2. State

California Clean Air Act and Air Quality Standards

CARB is the state agency responsible for California air quality management, including establishment of CAAQS, mobile source emission standards, and GHG regulations, as well as oversight of regional air quality districts and preparation of implementation plans, including regulations for stationary sources of air pollution. Except for the 1-hour NO_2 and SO_2 standards, the CAAQS generally are more stringent and include more pollutants than the NAAQS (refer to Table 3.3-4). California specifies four additional criteria pollutants: visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. Similar to the EPA, CARB designates counties in California as being in attainment or nonattainment for the CAAQS (refer to Table 3.3-2).

The California CAA, which was approved in 1988, requires each local air district, where ambient concentrations violate the CAAQS, to prepare an air quality management plan to achieve compliance with the CAAQS as a part of the SIP. CARB has ultimate responsibility for the SIP for nonattainment pollutants but relies on each local air district to adopt mandatory statewide programs and provide additional strategies for sources under its jurisdiction. The SIPs are a compilation of new and previously submitted plans, programs (monitoring, modeling, and permitting), district rules, state regulations, and federal controls. Local air districts and other agencies prepare SIP elements and submit them to CARB for approval. CARB forwards SIP revisions to EPA for approval and publication in the Federal Register.

Air Toxics

California's Air Toxic "Hot Spots" Information and Assessment Act (AB 2588), enacted in 1987, identifies TAC hot spots where emissions from specific sources may expose individuals to an elevated risk of adverse health effects, particularly cancer or reproductive harm. TACs also are referred to as HAPs. AB 2588 requires that a business or other establishment identified as a significant source of toxic emissions provide the affected population with information about health risks posed by the emissions. Diesel particulate matter (DPM) is the primary TAC emitted by construction activities.

CARB has adopted the Diesel Risk Reduction Plan (CARB, 2000) and a series of airborne toxic control measures (ATCMs) for mobile and stationary sources, which are intended to reduce overall diesel exhaust emissions in California. CARB also has adopted ATCMs for controlling naturally occurring asbestos. CARB and local air districts have authority to enforce the federal National Emission Standards for Hazardous Air Pollutants regulations for asbestos. Key ATCMs and CARB regulations relevant to this project are described as follows:

- **ATCM for DPM from Portable Engines Rated at 50 Horsepower and Greater.** To reduce DPM emissions throughout the state, CARB has established the ATCM for DPM from Portable Engines Rated at 50 Horsepower and Greater (13 CCR Section 93116). This ATCM requires portable diesel-fueled engines

having a maximum rating of 50 horsepower (hp) and greater to meet fleet-average DPM emissions standards.

- **ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling.** CARB has established the ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling to reduce public exposure to DPM and other pollutants by establishing idling restrictions, emission standards, and other requirements for heavy-duty diesel engines (13 CCR Section 2485). This ATCM applies to diesel-fueled commercial motor vehicles with a gross vehicle weight rating greater than 10,000 pounds that are licensed for operation on highways. Under this ATCM, vehicles will not idle for more than 5 consecutive minutes in any location. There also are provisions for alternative idle reduction technologies, such as internal combustion engine auxiliary power systems, including required compliance with emissions performance specifications.
- **Regulation for In-Use Off-Road Diesel-Fueled Fleets.** CARB has established the Regulation for In-Use Off-Road Diesel-Fueled Fleets to reduce NOx, DPM, and other criteria pollutant emissions from in-use off-road diesel-fueled vehicles (13 CCR Section 2449). This regulation applies to all self-propelled off-road diesel vehicles rated 25 hp or greater, including vehicles that are rented or leased, and requires restricted vehicle idling time, reporting of vehicle use, and compliance with fleet-average emission standards. It also provides a schedule by which lower-tiered engines cannot be added to a vehicle fleet.
- **Statewide Portable Equipment Registration Program.** Voluntary registration under the Statewide PERP allows owners or operators of portable engines to operate their equipment throughout California without having to obtain individual air district permits (13 CCR Sections 2450 through 2465). Diesel engines eligible for PERP registration must not be self-propelling, must be certified to Tier 4 emissions standards, and must not reside in the same location longer than 12 consecutive months. Examples of portable equipment include generators, plate compactors, drills, and welders.
- **Asbestos ATCM for Construction, Grading, Quarrying, and Surface-Mining Operations.** CARB has established the Asbestos ATCM for Construction, Grading, Quarrying, and Surface-Mining Operations to minimize the generation of asbestos from earth disturbance or construction activities (13 CCR Section 93105). The Asbestos ATCM applies to any project that will include sites to be disturbed in a geographic ultramafic rock unit area or an area where naturally occurring asbestos (NOA), serpentine, or ultramafic rocks are determined to be present. The Asbestos ATCM establishes notification, management practices, mitigation plans, transport and disposal, and administrative (recordkeeping and reporting) requirements for subject projects to reduce the generation of asbestos from all aspects of construction, grading, quarrying, and mining operations. The Project is neither located in an area where NOA has historically been encountered (Churchill and Hill, 2000; USGS 2011), nor is it expected based on the known types of soil in the project vicinity. If NOA is encountered during construction, the Project will comply with the requirements of the Asbestos ATCM.

3.3.2.3. Regional

Air District Regulations

The Project is within the jurisdiction of the BAAQMD. The BAAQMD is the regional agency charged with preparing, adopting, and implementing emission control measures and standards for stationary sources of air pollution pursuant to delegated state and federal authority. Because the Project will not involve the construction and long-term operation of new stationary sources of criteria pollutants or TACs, such as emergency generators, there are no permitting regulations relevant to the Project. However, the Project will be subject to the trackout minimization provisions of BAAQMD Regulation 6, Rule 6, described below, based on the total land area covered by construction activities exceeding 1 acre, as well as the asbestos removal provisions of BAAQMD Regulation 11, Rule 2. “Trackout” includes 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. As described in the following subsections, the proposed Project would meet the BAAQMD trackout minimization provisions through implementation of the APMs discussed in Section 3.3.3.1.

BAAQMD Regulation 6, Rule 6. This rule aims to limit the quantity of particulate matter in the atmosphere through control of trackout of solid materials onto paved public roads outside the boundaries of Large Bulk Material Sites, Large Construction Sites, and Large Disturbed Surface sites including landfills. Fugitive dust visible emissions during cleanup of trackout shall not exceed 20 percent opacity for a period or aggregate periods of more than 3 minutes in any 60-minute period. Any site that produces trackout shall monitor the trackout and maintain proper documentation according to the rule.

BAAQMD Regulation 11, Rule 2. This rule aims to control emissions of asbestos during demolition and establish appropriate waste disposal procedures for asbestos-containing materials. Demolition is defined as the wrecking, moving, or dismantling of any load-supporting structural member, or portion thereof, of a building or facility and includes, but is not limited to, any related cutting, disjointing, stripping, or removal of structural elements. Under this rule, visible emissions of asbestos-containing material are strictly prohibited. To prevent such emissions, BAAQMD provides explicit procedures by which asbestos-containing materials should be treated during cutting, stripping, demolition, removal, handling, and disposal. The affected structure shall also be thoroughly surveyed prior to commencement of demolition. A written plan or notification of intent to demolish, even if there is no asbestos present, shall be provided to BAAQMD at least 10 days prior to commencement of demolition.

Air Quality Plans

Under the California CAA, which was approved in 1988 and amended in 1992, BAAQMD is required to develop an air quality plan to achieve and maintain compliance with federal and state nonattainment criteria pollutants within the air district. In response, BAAQMD has developed the 2017 Bay Area Clean Air Plan to achieve and maintain compliance with the state and federal ozone and particulate matter standards. This plan, which was adopted in April 2017, provides a regional strategy to protect public health and the climate through a wide range of control measures designed to decrease emissions of ozone, particulate matter, and TACs. These emission reductions will be achieved primarily through the reduction of fossil fuel combustion, but also through minimization of methane leaks associated with natural gas distribution, improved building energy efficiency, and the promotion and advancement of clean vehicles. To fulfill state ozone planning requirements, the 2017 control strategy also includes all feasible measures to reduce emissions of ozone precursors (ROG and NOx) and reduce transport of ozone and its precursors to neighboring air basins (BAAQMD, 2017a; BAAQMD, 2024b).

Additionally, monitoring data indicate that PM2.5 levels have decreased in the Bay Area since 2008. As a result, CARB submitted a “clean data finding” request to the EPA on behalf of BAAQMD on December 8, 2011. This request was approved by the EPA on January 9, 2013, and suspends key SIP requirements if monitoring data continue to show attainment of the standard. Despite this approval, the SFBAAB will continue to be designated as nonattainment for the federal 24-hour PM2.5 standard until BAAQMD submits a redesignation request and a PM2.5 maintenance plan (BAAQMD, 2024a).

BAAQMD CEQA Guidelines

BAAQMD adopted CEQA Guidelines in December 1999 to assist local jurisdictions and lead agencies in complying with the requirements of CEQA regarding potentially adverse impacts to air quality. BAAQMD updated its CEQA Guidelines in June 2010 to reference its newly adopted thresholds of significance. These thresholds of significance were challenged in court but were ultimately upheld by the California Supreme Court. BAAQMD published a revised version of its CEQA Guidelines in May 2017 (BAAQMD, 2017b) and

again in April 2023, following 2022 updates to its CEQA significance thresholds for climate impacts from land use projects (housing and commercial [office and retail] uses) and plans (BAAQMD, 2023; BAAQMD, 2022). Lead agencies may, at their discretion, use BAAQMD's current thresholds of significance to help inform environmental review for projects in the CEQA process. The current BAAQMD CEQA Guidelines provide lead agencies with recommendations for calculating air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures (BAAQMD, 2023; BAAQMD, 2022).

3.3.2.4. Local

Because the CPUC has exclusive jurisdiction over Project siting, design, and construction, the Project is not subject to local (city and county) discretionary regulations except for air districts and Certified Unified Program Agencies with respect to air quality and hazardous waste regulations, respectively. However, plans and policies for the City of Orinda, Contra Costa County, the City of Oakland, and the City of Piedmont are considered for informational purposes to assist with the CEQA review process, based on the expected location of project construction activities. These counties and cities are considered local agencies that must comply with their own plans and policies, as described in the following subsections.

City of Orinda

The City of Orinda's Municipal Code contains provisions governing construction and operational activities that may affect air quality, including the following (City of Orinda, 2024):

- **17.15.2, General Performance Standards.** The performance standards for air contaminants require compliance with the rules, regulations, and standards of BAAQMD. These provisions also require submittal of any BAAQMD-issued permits with the Zoning Administrator prior to receiving approval by the City.
- **17.38.2, Demolition Permit.** Demolition permits are required and will not be issued by the City until all prior approvals and permits have been obtained for the replacement structure, including building permits.

In addition, the goals and policies identified in the City of Orinda General Plan to increase energy conservation and renewable energy resources will have the added benefit of reducing criteria pollutant and TAC emissions associated with the combustion of fossil fuels (City of Orinda, 2023). These policies are discussed in more detail in Section 3.6, Energy.

Contra Costa County

The goals and policies identified in the Contra Costa County General Plan and Climate Action Plan to decrease energy use, improve energy efficiency, develop renewable energy, and reduce vehicle miles traveled will have the added benefit of reducing criteria pollutant and TAC emissions associated with the combustion of fossil fuels (Contra Costa County, 2024). These policies are discussed in more detail in Section 3.6, Energy.

City of Oakland

The City of Oakland's Municipal and Planning Codes contain provisions governing construction and operational activities that may affect air quality, including the following (City of Oakland, 2024b):

- **15.36, Demolition Permits.** This provision requires a demolition permit prior to commencement of structure demolition. A demolition permit can be obtained without a building permit if the structure to be demolished is part of a project with a valid conditional use permit or planned unit development approval. Throughout all phases of work, best management practices shall be used to prevent fugitive dust nuisance and the discharge of any air contaminants that will violate city or regional air pollution

control rules, regulations, ordinances, or statutes. A dust control plan also may be required as a condition of the issued demolition permit.

- **17.120.080, Performance Standards**. Particulate matter and air contaminants. Under this provision, all industrial activities near residential zones shall not emit particulate matter or air contaminants which are readily detectable without instruments by the average person at or beyond any lot line of the lot containing such activities.

In addition, the goals and policies identified in the City of Oakland's *2030 Equitable Climate Action Plan* to increase energy conservation and renewable energy resources will have the added benefit of reducing criteria pollutant and TAC emissions associated with the combustion of fossil fuels (City of Oakland, 2024a). These policies are discussed in more detail in Section 3.6, Energy.

City of Piedmont

The objectives identified in the City of Piedmont's Climate Action Plan 2.0 to increase renewable energy consumption, reduce energy consumption, and accelerate the adoption of electric vehicles will have the added benefit of reducing criteria pollutant and TAC emissions associated with the combustion of fossil fuels (City of Piedmont, 2024). These objectives are discussed in more detail in Section 3.6, Energy.

3.3.3. Environmental Impacts of the Proposed Project

3.3.3.1. Impact Analysis Approach

Short-term construction emissions of ROG, CO, NOx, PM10, PM2.5, and SO_2 were evaluated. Construction emissions from off-road construction equipment, portable generators, and fugitive dust were estimated using the methodologies and emission factors described in the California Emissions Estimator Model (CalEEMod) User's Guide (CAPCOA, 2022). On-road vehicle emissions were estimated using the methodologies described in the CalEEMod User's Guide (CAPCOA, 2022) and emission factors were obtained from the EMFAC2021 emissions model (CARB, 2024a). PG&E's estimates for helicopter emissions use factors from the Swiss Federal Office of Civil Aviation (FOCA) Guidance on the Determination of Helicopter Emissions, assuming up to three landing and takeoffs (LTO) and five or six hours of in-flight operation per day per helicopter. Projected construction emissions were estimated for each year based on the anticipated project schedule and activities at each of the project construction sites. Although most construction activities were evaluated as occurring in 2027, construction emission estimates were developed using equipment and vehicle emission factors for calendar year 2026 fleet, which is the year in which construction was expected to begin at the time of this evaluation. After PG&E completed the evaluation, the anticipated construction schedule moved to start later, in 2028. Assuming the 2026 fleet provides for a conservatively higher emissions estimate as equipment and vehicle emission factors are expected to improve each year based on fleet turnover and developments in control technologies and the use of newer, cleaner equipment and vehicles over time. Detailed construction emission calculations are presented in Appendix A of PG&E's PEA, including the assumptions employed, these have been independently reviewed by the CPUC and found to be reasonable (PG&E, 2024).

Because the Project involves the rebuilding of existing infrastructure, there would be no notable change to current operation and maintenance activities. Operation and maintenance activities would consist of routine inspection, repair, and maintenance activities, conducted as they are under existing conditions. After construction is complete, no substantial change in long-term emissions would occur with the Project. For this reason, air emissions associated with operation and maintenance activities were not quantified.

The impact analysis includes measures to reduce potential impacts on air quality through the implementation of APMs defined in the PEA. Several APMs discussed in other sections would help reduce fugitive dust and criteria pollutants from construction activities, including APM GHG-1, which includes measures to reduce energy and fuel use such as construction worker carpooling. In addition, APM HYD-1, which requires

erosion control measures during construction as part of the Stormwater Pollution Prevention Plan, and APM AES-1, which includes revegetating disturbed areas after construction, would help reduce fugitive dust emissions, although these APMs were not included in calculations of emissions reductions. APM AIR-1 and APM AIR-3 were included in the calculations of emissions reductions.

Additional measures to reduce air emissions include the following APMs:

Table 3.3-5. Applicant Proposed Measures – Air Quality

APM	Description
Air Quality	
APM AIR-1	**Dust Control During Construction**. PG&E will implement measures to control fugitive dust consistent with BAAQMD's Basic Best Management Practices (BAAQMD, 2023) as follows: ■ All exposed surfaces within the active construction area (for example, parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day as necessary to contain dust. ■ All haul trucks transporting soil, sand, or other loose material offsite will be covered. ■ All visible mud or dirt trackout onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. ■ All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph). ■ All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. ■ All grading activities shall be suspended when average wind speeds exceed 20 mph. If excavating soils when average wind speeds exceed 20 mph, soil piles will be lightly sprayed with water to contain dust to the work area. ■ Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations. Where project activities are within 1,000 feet of residential areas, PG&E will also implement the following additional BMPs, consistent with BAAQMD's Enhanced BMPs (BAAQMD, 2023): ■ Limit the simultaneous occurrence of excavation, grading, and ground-disturbing construction activities. ■ Minimize the amount of excavated material or waste materials stored at the site. ■ Stabilize soil where project grading occurred and the area is inactive for at least 14 calendar days. Soil stabilization measures may include wood mulch, gravel, seeding or application of other non-toxic soil stabilizer consistent with APM HYD-1.
APM AIR-2	**Asbestos Management**. If any load-bearing structure (poles, towers, concrete pads) is to be removed, this project will require asbestos testing and notification to BAAQMD. Notify the Environmental Field Specialist (EFS) at least 45 days prior to work commencing. BAAQMD must be notified at least 10 working days prior to work (demolition) commencing. If the construction start date changes, notify the EFS immediately as notification to BAAQMD may need to be resubmitted. EFS is responsible for obtaining any necessary permits from BAAQMD prior to the start of work.
APM AIR-3	**Minimize Construction Equipment Exhaust**. PG&E will minimize construction equipment exhaust as follows: ■ Use low-emission or electric construction equipment where feasible. ■ Ensure that cranes, off-highway trucks, and tractors/loaders/backhoes used during project construction will comply with Tier 4 emissions standards, pending availability. ■ Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following startup that limit their availability for use following startup. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of

APM	Description
	5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction supervisors will include briefings to crews on vehicle use as part of preconstruction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.

3.3.3.2. Impact Significance Criteria

Project impacts related to air quality were evaluated against the CEQA significance criteria and are discussed in the following sections. The impact analysis evaluates potential proposed Project impacts during the construction phase and the operation and maintenance phase.

Significance Criteria

The significance criteria listed below are based on Appendix G of the CEQA Guidelines:

Would the proposed Project:

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

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project-related impacts on air quality were evaluated for each of the criteria listed above.

The CEQA Guidelines state that the significance criteria established by the air quality management or air pollution control district may be relied on to make impact determinations. The BAAQMD's 2022 CEQA Guidelines (BAAQMD, 2023) provide recommended air quality emission thresholds for CO, NOx, ROG, PM10, PM2.5, and TACs for evaluating the significance of project emissions. The CPUC has determined it is appropriate to rely on the BAAQMD thresholds in this EIR. Therefore, if the emissions are below the BAAQMD significance thresholds, impacts would be considered less than significant. If the construction- or operations-phase emissions are greater than the BAAQMD significance thresholds, impacts during that phase would be considered significant. Table 3.3-6 presents the BAAQMD air quality significance thresholds applicable to the Project (BAAQMD, 2023).

Table 3.3-6. BAAQMD Air Quality Thresholds of Significance

	Construction Related	Operational	
Pollutant	Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/day)	Maximum Annual Emissions (tpy)
ROG	54	54	10
NOX	54	54	10
PM10	82 (exhaust) BMPs (fugitive dust)	82	15
PM2.5	54 (exhaust) BMPs (fugitive dust)	54	10

	Construction Related	Operational	
Pollutant	**Average Daily Emissions (lbs/day)**	**Average Daily Emissions (lbs/day)**	**Maximum Annual Emissions (tpy)**
CO[a]	None	9.0 ppm (8-hour average) 20.0 ppm (1-hour average)	
TACs		Cancer Risk > 10.0 in 1 million Chronic Hazard Index > 1.0 Acute Hazard Index > 1.0 $PM_{2.5}$ Increase > 0.3 µg/m^3 (annual average)	

Source: BAAQMD, 2023
[a] If a project meets all of BAAQMD's screening criteria, modeling would not be required to demonstrate compliance with these significance thresholds for localized CO impacts.
BMPs = best management practices
lbs/day = pound(s) per day
tpy = ton(s) per year

3.3.3.3. Impacts and Mitigation Measures

As described in Chapter 3, Project Description, the proposed Project would include rebuilding the four PG&E existing 115 kV circuit lines and structures and minor modifications to Moraga and Oakland X substations. Approximately 4 miles of the existing 5 miles of overhead lines would be rebuilt overhead, and approximately 1 mile would be underground in city streets. Project operation and maintenance would be conducted with existing staff using existing access.

Impact AQ-1: Conflict with or obstruct implementation of an applicable air quality plan.

Construction

LESS THAN SIGNIFICANT. The proposed Project would comply with all applicable federal, state, and local regulations, as discussed in the following paragraphs. Since the regional air regulations and rules are developed to ensure the implementation of the regional air quality plans, compliance with these regulations indicates that the Project's activities would not obstruct implementation of the air quality plans of the region. Construction emissions for the proposed Project would be localized and short term, over the course of approximately 35 months. Additionally, construction would be required to follow all applicable rules and regulations, and the construction workforce would not contribute to permanent population or employment growth in the area. In addition to stabilization of disturbed areas during construction (APM AIR-1), post-construction activities would include site restoration and revegetation to reduce potential for continued fugitive dust emissions from exposed soil. For example, APM AES-1 for Aesthetic impacts would be implemented after construction to return staging areas and work areas to pre-project conditions, including revegetating or repaving disturbed areas. Therefore, the proposed Project would not conflict with or obstruct implementation of the applicable air quality plan and impacts during construction would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. The proposed Project would repair or replace existing infrastructure and facilities that are already being serviced with operation and maintenance. These duties would not substantially change from current O&M of the existing facilities. No new full-time staffing or induced population growth would occur. Operation and maintenance of the proposed Project would not conflict with or obstruct implementation of the applicable air quality plans. For this reason, the change in operational air emissions due to the proposed Project would be minimal, and as such would not conflict with or obstruct implementation of the applicable air quality plan and impacts would be less than significant.

Impact AQ-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

Construction

LESS THAN SIGNIFICANT. Construction activities would cause temporary air pollutant emissions. The proposed Project construction activities would occur at multiple sites between 2026 and 2030 and include 115kV overhead rebuilds, removals, underground powerline construction, and substation upgrades at the Moraga and Oakland X substations. A summary of the proposed Project's average daily rate of construction emissions is provided in Table 3.3-7. The estimated emissions include offroad construction equipment, on road vehicles including worker commuter vehicles, material and equipment transport trucks, vendor delivery trucks, construction support vehicles, helicopters, and fugitive dust associated with earthmoving activities and vehicle travel on paved and unpaved roads. Implementation of the CDFW Bay Area Operations and Maintenance Incidental Take Permit (ITP), Item 5.11, would remove mud and accumulated soils from construction vehicles and equipment to the maximum extent possible and would clean construction vehicles and equipment before entering a new work site in the unpaved areas of the eastern section of the project. Details of the emission calculations are provided in the Applicant's PEA Appendix A, and have been independently reviewed and confirmed (PG&E, 2024, Appendix A). APMs are implemented as, and assumed to be, part of the Project for purposes of this analysis; so construction emissions are shown with APMs implemented.

Table 3.3-7. Estimated Average Daily Construction Emissions

	Average Daily Emissions (lbs/day)					
Construction Period	**ROG**	**CO**	**NOx**	**SO2**	**PM10**	**PM2.5**
Construction with APMs	16.4	119.2	49.5	9.0	15.1	4.9
BAAQMD Construction Significance Thresholds	54	N/A	54	N/A	82	54
Exceeds Threshold?	No	---	No	---	No	No

Source: PG&E, 2024, Appendix I Note: PM_{10} and $PM_{2.5}$ emissions represent both exhaust and fugitive dust emissions, even though the BAAQMD's significance thresholds are specific to exhaust.
N/A = Not available (no significance threshold exists)

Construction emissions with incorporation of APM AIR-1, APM AIR-3, and APM GHG-1 would be lower than the BAAQMD's CEQA thresholds for all criteria pollutants, as such, impacts would be less than significant. The average daily construction emissions for the proposed Project including all segments, components, and phases are described in Table 3.3-7. The overall averages take into consideration construction in multiple segments of the Project according to PG&E's anticipated phasing and timing. In addition to the overall averages, average daily emissions were also estimated for each phase of the rebuild and are provided for informational purposes.

Overhead Power Line Rebuild

Emissions reported for the construction of the overhead power line rebuild include rebuilding lines overhead and removing existing lines east of Estates Drive. Activities would include right of way clearing, construction of access roads, guard structures, foundations, replacement structures, transition structures, riser structures, replacing conductors and restoration.

Table 3.3-8. Estimated Average Daily Construction Emissions – Overhead Power Line Rebuild

	Average Daily Emissions (lbs/day)					
Construction Period	**ROG**	**CO**	**NOx**	**SO2**	**PM10**	**PM2.5**
Construction with APMs	10.7	77.1	28.4	8.8	10.2	2.5
BAAQMD Construction Significance Thresholds	54	N/A	54	N/A	82	54

	Average Daily Emissions (lbs/day)					
Construction Period	**ROG**	**CO**	**NOx**	**SO2**	**PM10**	**PM2.5**
Exceeds Threshold?	No	---	No	---	No	No

Source: PG&E, 2024; Appendix I
Note: PM10 and PM2.5 emissions represent both exhaust and fugitive dust emissions, even though the BAAQMD's significance thresholds are specific to exhaust.
N/A = Not available (no significance threshold exists)

Table 3.3-8 shows average daily emissions during the overhead power line rebuild with APMs are less than BAAQMD construction significance thresholds.

Overhead Power Line Removal

Emissions reported for the construction of the existing overhead power line includes removal of existing structures and conductors west of Estates Drive. Construction activities associated with this phase include right of way clearing, structure removal, and restoration.

Table 3.3-9. Estimated Average Daily Construction Emissions – Existing Overhead Power Line

	Average Daily Emissions (lbs/day)					
Construction Period	**ROG**	**CO**	**NOx**	**SO2**	**PM10**	**PM2.5**
Construction with APMs	0.5	4.6	0.8	0.0	0.3	0.2
BAAQMD Construction Significance Thresholds	54	N/A	54	N/A	82	54
Exceeds Threshold?	No	---	No	---	No	No

Source: PG&E, 2024; Appendix I
Note: PM10 and PM2.5 emissions represent both exhaust and fugitive dust emissions, even though the BAAQMD's significance thresholds are specific to exhaust.
N/A = Not available (no significance threshold exists)

Table 3.3-9 shows average daily emissions during overhead power line removal with APMs are less than BAAQMD construction significance thresholds.

Underground Power Line

Underground power line construction includes excavation of soil, pavement, concrete, and road base, trenching and duct bank installation, cable installation, and cable splicing and termination.

Table 3.3-10. Estimated Average Daily Construction Emissions – Underground Power Line

	Average Daily Emissions (lbs/day)					
Construction Period	**ROG**	**CO**	**NOx**	**SO2**	**PM10**	**PM2.5**
Construction with APMs	6.2	58.4	21.0	0.2	5.3	2.4
BAAQMD Construction Significance Thresholds	54	N/A	54	N/A	82	54
Exceeds Threshold?	No	---	No	---	No	No

Source: PG&E, 2024; Appendix I
Note: PM10 and PM2.5 emissions represent both exhaust and fugitive dust emissions, even though the BAAQMD's significance thresholds are specific to exhaust.
N/A = Not available (no significance threshold exists)

Table 3.3-10 shows average daily emissions during underground power line installation with APMs are less than BAAQMD construction significance thresholds.

Moraga Substation

Substation modification includes buses, circuit breakers, air switch replacements, and upgrades of new relays and associated mounting infrastructure.

Table 3.3-11. Estimated Average Daily Construction Emissions – Moraga Substation

	Average Daily Emissions (lbs/day)					
Construction Period	**ROG**	**CO**	**NOx**	**SO2**	**PM10**	**PM2.5**
Construction with APMs	0.0	0.1	0.0	0.0	0.0	0.0
BAAQMD Construction Significance Thresholds	54	N/A	54	N/A	82	54
Exceeds Threshold?	No	---	No	---	No	No

Source: PG&E, 2024; Appendix I
Note: PM10 and PM2.5 emissions represent both exhaust and fugitive dust emissions, even though the BAAQMD's significance thresholds are specific to exhaust.
N/A = Not available (no significance threshold exists)

Table 3.3-11 shows average daily emissions during Moraga Substation modification with APMs are less than BAAQMD construction significance thresholds.

Oakland X Substation

LESS THAN SIGNIFICANT. Substation modification includes buses, circuit breakers, air switch replacements, and upgrades of new relays and associated mounting infrastructure.

Table 3.3-12. Estimated Average Daily Construction Emissions – Oakland X Substation

	Average Daily Emissions (lbs/day)					
Construction Period	**ROG**	**CO**	**NOx**	**SO2**	**PM10**	**PM2.5**
Construction with APMs	0.0	0.3	0.0	0.0	0.1	0.0
BAAQMD Construction Significance Thresholds	54	N/A	54	N/A	82	54
Exceeds Threshold?	No	---	No	---	No	No

Source: PG&E, 2024; Appendix I
Note: PM10 and PM2.5 emissions represent both exhaust and fugitive dust emissions, even though the BAAQMD's significance thresholds are specific to exhaust.
N/A = Not available (no significance threshold exists)

Table 3.3-12 shows average daily emissions during Oakland X Substation modification with APMs are less than BAAQMD construction significance thresholds, and as such impacts associated with the Oakland X Substation upgrades are less than significant.

Construction emissions with incorporation of APM AIR-1, APM AIR-3, and APM GHG-1 would be lower than the BAAQMD's CEQA thresholds for all criteria pollutants, as such, impacts would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. Under baseline conditions, operation and maintenance activities occur along the electrical lines and at the substations as necessary for routine upkeep of the existing facilities. The proposed Project would create no additional permanent full-time positions for routine operation and maintenance. Ongoing O&M would cause minor amounts of tailpipe and fugitive emissions from equipment and motor vehicles, similar to current conditions, and as needed for occasional repairs, though there would involve no material changes in the types or locations of worker vehicle trips. Emissions from O&M activities would not substantially change from baseline levels and as such would be less than significant.

Impact AQ-3: Expose sensitive receptors to substantial pollutant concentrations.

Construction

LESS THAN SIGNIFICANT. Sensitive receptors, including approximately 4,000 residences, approximately 2 elderly housing facilities, approximately 10 daycare facilities, approximately 10 schools, and approximately 10 parks, would be within 1,000 feet of Project activities. Construction activities would result in local construction-related emissions, including diesel particular matter (DPM) and other TACs, which could cause increased health risk near the site. As described above, the proposed Project's criteria pollutant emissions would be below the BAAQMD's and City of Oakland's significance thresholds with implementation of APM AIR-1, AIR-3, and APM GHG-1. As such, emissions would not occur at rates likely to cause substantial localized pollutant concentrations for sensitive receptors.

As described in BAAQMD's CEQA Guidelines, "current models and methodologies for conducting health risk assessments are associated with longer-term exposure periods of 9, 40, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities" (BAAQMD, 2017b). For these reasons, a quantitative health risk assessment was not considered necessary or appropriate for construction of the proposed Project. Since construction-related emissions would be short-term and dispersed across the region, the duration of exposure at any one sensitive receptor along the proposed Project would be limited. As such, the impact of potentially exposing sensitive receptors to substantial pollutant concentrations would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. The proposed Project's operation emissions of criteria pollutants would not change substantially from baseline levels. As such, the proposed Project's operation and maintenance would not expose sensitive receptors to substantial health risks from criteria pollutant emissions and the impact to sensitive receptors of air pollutants during operation and maintenance would be less than significant.

Impact AQ-4: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Construction, Operations and Maintenance

LESS THAN SIGNIFICANT. Construction and operation of the proposed Project would not include any notable source of odors, or other emissions that would adversely affect a substantial number of people. Project-related activities would occur in compliance with local air district rules and regulations prohibiting nuisances and would not create objectionable odors affecting a substantial number of people. This impact would be less than significant, and no mitigation is required.

3.3.4. Mitigation Measures

No mitigation is required.

3.3.5. References

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3.4. Biological Resources

This section describes biological resources (vegetation, wildlife, and aquatic resources) in the Project area and within the larger biological study area (BSA). The section identifies potential impacts on sensitive habitats and species that could result from the construction and operation of the Project. This section incorporates information from PG&E's Proponent's Environmental Assessment (PEA) and does not further cite the PEA as a data source. All PEA information has been independently reviewed by the EIR team.

Appendix F to this EIR presents tables and data that support the EIR contents. This section also references specific sections of the PEA's Biological Resources section for data on surveys and the environmental setting. The full PEA is available on the CPUC's MOX Project website.[24]

The scoping effort conducted by CPUC in February and March 2025 resulted in several public comments and concerns relating to biological resources. Public concerns related to biological resources communicated in the scoping process are listed below and were considered in the CEQA analysis:

- Incorporate buffer zones to limit Project activities to areas outside of and away from sensitive habitats, that at a minimum for smaller streams include a 50-foot riparian buffer and larger buffers for mainstem streams and rivers. Consult with CDFW if needed to determine appropriate buffers to reduce impacts to sensitive species and critical habitat to less-than-significant levels.
- Establish a complete inventory of special-status species with the potential to occur within the Project area. Require detailed habitat assessments by a qualified biologist along the Project area to determine the presence of suitable habitat for individual plant and wildlife species and perform protocol-level surveys if habitat exists to determine the presence or absence of special-status species. Provide appropriate mitigation measures to ensure impacts to these species are reduced to less-than-significant levels if they are documented within the Project area. Apply for a California Endangered Species Act (CESA) take authorization under an Incidental Take Permit (ITP) if impacts to CESA-listed species cannot be avoided.
- Recommend the Draft EIR include all effective and feasible design features and measures to avoid or reduce collision and electrocution risks on volant (birds and bats) species. Ensure the Project is consistent with the Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006.
- Define the term and seasonal work window of Project activities, as the timeframe will aid in assessing impacts on species in the Project area and allow for the development of appropriate compensatory mitigation.
- Include mapping of the geology and hydrology of the Project area as well as mapping and description of any drilling activities including detailed locations and depths of underground lines that may pass under sensitive habitats.
- Consider if dewatering activities associated with drilling may be necessary.
- Obtain a Lake and Streambed Alteration Agreement for any drilling activities that may affect the bed, bank, or channel of a lake or stream.
- Identify the amount of vegetation removal that would be required, and whether this would include tree removal and other vegetation impacts. The City of Orinda may not support the removal of trees, particularly trees protected under the Orinda Municipal Code without proper analysis permits and/or restitution.
- Analyze impacts on Sausal Creek, which has a native population of Rainbow Trout and other aquatic species, from erosion and sedimentation associated with the power line and maintenance in Shepherd Canyon.

[24] https://ia.cpuc.ca.gov/environment/info/aspen/moraga-oakland/toc-pea.htm

- Address EBMUD concerns regarding California red-legged frog and Alameda whipsnake, which are mostly covered by the BAHCP and EBMUD assumes that the EIR would have avoidance measures.
- EBMUD assumes nesting bird surveys would be required and EBMUD wants to ensure that PG&E checks in with EBMUD prior to construction and has access to EBMUD's known nest locations (bald eagles, golden eagles, red tailed hawks).

3.4.1. Environmental Setting

3.4.1.1. Methodology and Biological Study Areas

This section summarizes the methods used to identify biological resources, including waters, wetlands and other sensitive natural vegetation communities, and special-status plants and wildlife species, and to analyze potential impacts. Protocol-level botanical surveys targeting special-status plants and sensitive natural communities with the potential to occur are summarized in PEA appendices:

- PEA Appendix B1: Botanical Resources Survey Report[25]
- PEA Appendix B2: Aquatic Resources Delineation Report[26]
- PEA Appendix B3: Wildlife Assessment Report[27]
- PEA Appendix B4 to B6: Species Lists (Special-Status Species Tables, Species Lists, Nesting Birds: Species-Specific Buffers for PG&E Activities)[28]

A modified list of special status species based on record searches conducted by CPUC is provided in Appendix F.

PG&E used different study areas and survey areas for each type of biological resource (botanical, wildlife, aquatic resources). "Study Area" refers to the area reviewed during the desktop analysis, and "Survey Area" refers to the area that was surveyed in the field. These areas are the same for botanical and aquatic resources, but different for wildlife. A detailed description of the biological survey and study areas is in PEA Section 5.4.1.1 (Methodology and Biological Study Areas).

For this EIR, the Project areas are defined below.

- **Project footprint**: The Project footprint is defined as the area that may be directly affected by the proposed Project and represents the maximum extent of ground-disturbing activities at potential work areas and access roads. Potential work areas include existing and proposed replacement structure locations, existing substation properties, staging areas, and helicopter landing zones.
- **Biological Study Area (BSA)**: The BSA covers the Project footprint plus a 1,000-foot-wide buffer around the Project footprint. The BSA was used during the desktop reviews and is the term used when describing the Project's existing setting. The BSA area included approximately 2,258 acres, with approximately 1,968 acres for the main portion of the Project and approximately 290 acres for the potential staging areas near the community of Wilder and off of SR 24.
  - **Botanical Study and Survey Area**: An approximately 247-acre area that included the Project footprint and specific buffers around specific aspects of the Project:
    - A 250-foot-wide buffer around the existing power lines and potential work areas between Moraga Substation and Manzanita Drive.
    - A 50-foot-wide buffer was used around the power lines and work areas from Manzanita Drive to Park Boulevard at Estates Drive excluding adjacent private property and around each structure work location between Park Boulevard and Oakland X Substation.

[25] https://ia.cpuc.ca.gov/environment/info/aspen/moraga-oakland/pea/Appx_B1_PEA_MOX_Botanical_Report.pdf
[26] https://ia.cpuc.ca.gov/environment/info/aspen/moraga-oakland/pea/Appx_B2_PEA_MOX_Aquatic_Resources_Report.pdf
[27] https://ia.cpuc.ca.gov/environment/info/aspen/moraga-oakland/pea/Appx_B3_PEA_MOX_Wildlife_Assessment_Report.pdf
[28] https://ia.cpuc.ca.gov/environment/info/aspen/moraga-oakland/pea/Appx_B4_B5_B6_PEA_MOX_BIO_Species_Birds.pdf

    - A 25-foot-wide buffer was used around the existing unpaved access roads between Moraga Substation and Manzanita Drive and underground route options west of SR-13.
  - **Aquatic Study and Survey Area:** An approximately 226 acres area that included a 100-foot-wide buffer around potential work areas (including staging areas and helicopter landing zones) and a 10-foot-wide buffer on either side of existing unpaved access roads.
  - **Wildlife Study and Survey Area**: The wildlife study area covers the Project footprint plus a 1,000-foot-wide buffer around the Project footprint (same as the BSA). Only a subset of this study area was surveyed, an approximately 171-acre area, and included the Project footprint and specific buffers around specific aspects of the Project:
    - 50-foot-wide buffer around the existing power lines and potential work areas.
    - 25-foot-wide buffer around access roads.
    - No wildlife field survey was conducted for the proposed underground segment west of the Park Boulevard and Estates Drive intersection.

As used in this EIR, the term "special-status species" is defined to include plants and animals meeting one or more of the following criteria:

- Listed, proposed for listing, or candidate for listing as threatened or endangered under the federal Endangered Species Act (FESA; 50 Code of Federal Regulations [CFR] 17.11 for wildlife; 50 CFR 17.12 for plants; and various notices in the *Federal Register* for proposed and candidate species)
- Listed under the California Endangered Species Act (CESA) as threatened or endangered, or proposed or candidates for listing
- Designated as rare under the Native Plant Protection Act
- Species that otherwise meet the definition of rare, threatened, or endangered species under CEQA Guidelines Section 15380. This includes:
  - Species listed by the California Native Plant Society (CNPS) in the online version of its Inventory of Rare, Threatened, and Endangered Plants of California (CNPS, 2022) as California Rare Plant Rank (CRPR) 1A, 1B, 2A and 2B. Species with a CRPR 3 (review list) and 4 (watch list) are discussed further in PG&E's PEA Appendix B1.
  - Special-status wildlife includes species that meet one or more of the following criteria:
    - Listed, proposed for listing, or candidate for listing as threatened or endangered under FESA
    - Listed or candidate for listing as threatened or endangered under CESA
    - Designated as a Species of Special Concern (SSC), Watch List (WL) Species, or a Fully Protected Species by the CDFW (CDFW, 2023a)
    - Designated as a Bird of Conservation Concern (BCC) by the USFWS
    - Bird species protected under the federal Bald and Golden Eagle Protection Act (BGEPA)
    - Bat species considered by the Western Bat Working Group (WBWG) Regional Bat Species Priority Matrix as "Red or High"; these species are considered "imperiled or are at high risk of imperilment" (WBWG, 2017)
- Natural communities are considered sensitive if they are ranked as critically imperiled (S1), imperiled (S2), or vulnerable (S3) on the CDFW and List of California Sensitive Natural Communities (CDFW, 2023b).

Database and Literature Review

PG&E conducted biological database queries and reviewed literature sources for information on special-status plants, natural communities, and wildlife that might have potential to occur in the BSA (see PEA Appendix B5). Pertinent biological database queries were re-run and additional database queries were conducted. Literature sources reviewed are also provided below. Database queries and literature searches include:

- USFWS Information for Planning and Consultation (IPaC) (USFWS, 2025) – BSA boundaries.
- California Natural Diversity Database (CNDDB) (CDFW, 2025) – Oakland East quadrangle and eight surrounding quadrangles.
- CNPS online Inventory of Rare, Threatened, and Endangered Plants of California (CNPS, 2025) – Oakland East quadrangle and eight surrounding quadrangles.
- Biogeographic Information System (BIOS) (CDFW, 2025)
- iNaturalist, a citizen science group that assists with identification of plants and animals (iNaturalist, 2025)
- eBird, a Cornell Lab of Ornithology project that collects information on bird species (eBird, 2025)
- Calflora database on wild California plants (Calfora, 2025)
- Aerial photographs
- The PG&E O&M BAHCP, to obtain information about covered activities and covered species (PG&E, 2017)
- Jepson Manual: Vascular Plants of California (Baldwin et al., 2012)
- Database of Rare, Unusual, and Significant Plants of Alameda and Contra Costa Counties (Lake, 2021).

Field Surveys

PG&E biologists surveyed all undeveloped areas in the defined field survey areas that might include habitat for sensitive biological resources (see PEA Section 5.4.1.1). A biological site visit with CPUC staff and PG&E was also conducted on December 4, 2024.

Likelihood of Presence of Special-Status Species

Using the information generated from literature and database reviews, followed by review of PG&E's plant and general wildlife field surveys, the list of special-status species with the potential to occur was refined to reflect the species that may occur within the BSA. The likelihood of special-status species occurrence was determined based on natural history parameters and the species' range, habitat, foraging needs, migration routes, and reproductive requirements using the following general categories:

- **Present** — Wildlife field reconnaissance surveys or rare plant protocol-level surveys documented the occurrence, or the BAHCP shows modeled habitat for the species.
- **High Potential** — The species has a strong likelihood to be found in the BSA prior to or during construction, but it has not been directly observed to date during Project surveys. The likelihood that a species may occur is based on the following considerations: (1) suitable habitat that meets the life history requirements of the species is present on or near the BSA; (2) migration routes or corridors are near or within the BSA; (3) records of sighting are documented on or near the BSA; and (4) there is an absence of invasive predators (for example, bullfrogs). The main assumption is that records of occurrence have been documented within or near the BSA, the BSA falls within the range of the species, and suitable habitat is present within the study areas, but it is undetermined whether the habitat is currently occupied.

- **Moderate Potential** —There is a possibility that the species can be found in the BSA prior to or during construction, but it has not been directly observed to date. The likelihood that a species may occur is based on the following conditions: (1) suitable habitat that meets the life history requirements of the species is present on or near the BSA; (2) migration routes or corridors are near or within the BSA; and (3) there is an absence of invasive predators (for example, bullfrogs). The main assumption is that the BSA falls within the range of the species, suitable habitat is present, but no records of sighting are located within or near the BSA and it is undetermined whether the habitat is currently occupied.
- **Low Potential** —The species is not likely to occur in the BSA based on the following considerations: (1) lack of suitable habitat and features that are required to satisfy the life history requirements of the species (for example, absence of foraging habitat, lack of reproductive areas, and lack of sheltering areas); (2) presence of barriers to migration/dispersal; (3) presence of predators or invasive species that inhibit survival or occupation (for example, the presence of bullfrogs or invasive fish); (4) lack of hibernacula, hibernation areas, or estivation areas onsite.
- **Not Expected** — Suitable habitat does not exist in the BSA, the species is restricted to or known to be present only within a specific area outside of the BSA.

3.4.1.2. Regional and Project Area Setting

Regional Setting

The BSA is in the East Bay Hills – Mount Diablo and East Bay Terraces and Alluvium ecological subregions of the Central California Coast section ecological unit (USDA, 1997) and is within the San Leandro Creek and Sausal Creek watersheds. The 10 tributary creeks in the San Leandro Creek Watershed drain to Upper San Leandro Reservoir, Lake Chabot, or San Leandro Creek. Within the Sausal Creek Watershed, three main tributaries flow to Sausal Creek, which ultimately drains into the Oakland Estuary.

Hydrology is influenced by precipitation, surface water runoff, groundwater discharge, geologic stratigraphy, topography, and soil permeability. A total of eight drainages are mapped in the BSA (Sowers et al., 2010), five of which are named and three unnamed. The named drainages from east to west are Moraga Creek, San Leandro Creek, Shephard Creek, Sausal Creek, and Palo Seco Creek. San Leandro Creek drains the BSA between Gudde Ridge and Manzanita Drive/Skyline Boulevard and flows south-southeast into San Leandro Reservoir. Shephard Creek drains the upper Berkeley Hills east of SR-13 via Shepherd Canyon and flows southwest into Sausal Creek, which flows into Palo Seco Creek at SR-13. Sausal Creek flows south-southwest out of the Berkeley Hills through Dimond Canyon and ultimately drains into the Oakland Estuary near Alameda Island.

Local Setting

The BSA includes a combination of open space and parklands and urban development. Land includes PG&E fee and easement property, EBRPD land, EBMUD land, private property, and City of Oakland Parks land and includes various access routes that pass through private property (detailed Project maps are provided in 25 sheets on Figure 2.1-2, Proposed Project Detail Map, in EIR Appendix A). The Project area would be accessed from city streets and unpaved EBRPD and EBMUD trails and access roads. The BSA includes sections of EBRPD's Huckleberry Botanic Regional Preserve, Sibley Volcanic Regional Preserve (including the McCosker Loop Trail), and City of Oakland's Shepherd Canyon and Dimond Canyon parks. There are two staging areas in Sibley Volcanic Regional Preserve approximately 2.2 miles west-northwest of Moraga Substation.

The BSA east of Manzanita Drive is dominated by undeveloped open space. The east-facing slopes in this portion of the BSA are dominated largely by grassland and oak woodland vegetation communities, while the shadier canyon bottoms support riparian communities. The BSA west of Manzanita Drive is dominated

by residential areas largely surrounded by oak woodland communities with scattered grasslands, with natural areas becoming increasingly fragmented by residences as one moves west.

Topography and Climate

Elevations in the BSA range from approximately 620 feet near Moraga Substation to approximately 1,360 feet near Manzanita Drive, then dropping westward to approximately 60 feet near Oakland X Substation. The staging areas in Sibley Volcanic Regional Preserve are approximately 1,300 feet in elevation. The regional climate is characterized by mild winters and hot, dry summers. Average total precipitation is 23 inches. Monthly temperature ranges from 52 degrees Fahrenheit (°F) to 67°F with an annual average temperature of 59.5°F.

Land Use

The BSA encompasses a variety of land uses, including undeveloped EBRPD lands, EBMUD lands, Oakland Parks lands, Montclair Golf Course, Montera Middle School, Corpus Christi School, PG&E fee and easement lands, and private residential properties (see Figure 2.1-2, Proposed Project Detail Map, in EIR Appendix A). Multiple paved streets cross the BSA, primarily west of Manzanita Drive. Much of the undeveloped open space is open to the public for recreational use.

Three native plant restoration project sites occur in the BSA: two in Shepherd Canyon and one along the Project's walking access along Bridgeview Trail in Dimond Canyon. An unofficial BMX bike park is located near structures EN21 and ES23 immediately north of Oakland Fire Station No. 24 on Shepherd Canyon Road. Cattle graze in eastern portions of EBRPD's Huckleberry Botanic Regional Preserve.

3.4.1.3. Vegetation Communities, Land Cover, and Wildlife Habitats

Vegetation mapping is based on Conservation Lands Network (CLN) Vegetation (BAOSC, 2019) mapping for the entire BSA and refined to the List of California Vegetation Alliances (Holland, 1986) and classifications presented in the *Manual of California Vegetation* (MCV, Sawyer et al., 2009) within the botanical survey area (see PG&E's PEA Appendix B1 and Table F-1, F-2, and F-3 in Appendix F). See Appendix F to this EIR for additional information regarding vegetation classification.

Described broadly, natural communities present in the botanical study and survey area, classified based on Holland 1986, include Non-Native Grassland, Native Grassland, Valley Needlegrass Grassland, Valley Wildrye Grassland, Central Coast Riparian Scrub, Northern Coyote Brush Scrub, Northern Maritime Chaparral, Ruderal, California Bay Forest, Coast Live Oak Woodland, Upland Redwood Forest, Urban Mix, and Freshwater Seep. Other land cover types mapped (not described in Holland) in the botanical study and survey area include Construction Site, Park, Restoration Site, Unpaved Roads, and Urban. Paved surface streets are included in the Urban land cover type. Vegetation communities are described in more detail in EIR Appendix F.

Descriptions of the vegetation communities present in the botanical study and survey area are presented in EIR Appendix F and PG&E's PEA Appendix B1.

3.4.1.4. Wetlands and Other Aquatic Resources

Aquatic resources observed along the power lines mostly occur along access routes; however, several aquatic resources were identified adjacent to or within proposed work areas (see PG&E's PEA Appendix B2). The aquatic resource delineation identified five wetlands comprising approximately 0.13 acre, approximately 0.36 acre (approximately 1,748 linear feet) of riverine-intermittent waters, approximately 0.029 acre (approximately 411 linear feet) of riverine-ephemeral waters, and approximately 1,514 linear feet of culverted waters. Wetlands and Other Aquatic Resources are shown on Figure 3.4-4 (Aquatic Resources Delineation Map).

Wetlands

Five wetlands were delineated within the aquatic study and survey area. A wetland complex consisting of three separate features (W-01a, W-01b, and W-01c) was delineated along Edgewood Road east of the proposed staging area on Wilder Road. These wetlands are formed from groundwater discharge at the base of a hillslope. Local topography is flat to slightly concave. Two wetlands were delineated on hillslopes adjacent to the proposed staging area just southeast of power line pole ES8A&B. Wetland hydrology appeared to be associated with hillslope seeps. The local topography was flat to slightly convex. A total of approximately 0.133 acre of wetlands was delineated within the aquatic study and survey area. All delineated wetlands appeared to be isolated wetlands without direct surface connection to any waters of the United States. Therefore, W 01a, W-01b, W-01c, W-02, and W-03 are potentially waters of the State and unlikely to be waters of the U.S.

Other Aquatic Resources

Riverine – Intermittent

Ten (10) intermittent drainages were delineated within the aquatic study and survey area. A break in the bank slope and changes in species cover and composition were the most common indicators of the ordinary high-water mark used in the delineation (Lichvar and McColley, 2008). One of the intermittent drainages, Alder Creek, was recently daylighted and restored on EBRPD property along Fire Trail 61-16 off Pinehurst Road. Intermittent drainages delineated within the aquatic study and survey area total approximately 0.357 acre and approximately 1,750 linear feet. All delineated Riverine Intermittent features are both waters of the U.S. and waters of the State.

Riverine – Ephemeral

Five ephemeral drainages were delineated within the aquatic study and survey area. Ephemeral drainages cross many parts of the aquatic study and survey area, draining water from surrounding hillslopes in the upper watersheds. Ephemeral flow regime was distinguished from intermittent flow regime primarily based on stream order, channel slope, and presence/absence of flow following recent storm events. Ephemeral drainages delineated within the aquatic study and survey area total approximately 0.029 acre and approximately 465 linear feet. All delineated Riverine Ephemeral features are potentially waters of the State and unlikely to be waters of the U.S. based on the updated definition of tributaries defined as relatively permanent, standing, or continuously flowing bodies of water.

Culverted Waters

“Culverted waters” are piped connections between upstream and downstream segments of potentially jurisdictional waters. Ten culverted water features were mapped within the aquatic study and survey area. These features convey potential waters of the U.S. under roadways and access routes. A total of 1,514 linear feet of culverted waters were delineated within the aquatic study and survey area. CW-6 is the only culverted water that is potentially water of the State and unlikely to be water of the U.S. since it only conveys water flow into R-7, which is an ephemeral feature.

3.4.1.5. Common Wildlife

Common wildlife species that were documented during the field surveys or have the potential to occur in the Project Area. These include some species that have been designated as “watch list” species by USFS or CDFW or as “special animals” by CDFW. These designations do not typically warrant protections under the ESA, CESA, or other federal, state, or local regulations.

The Biological Study Area and has the potential to support a variety of common wildlife that use the grassland, riparian, scrub, chaparral, woodland, forest, and urban communities. Riparian communities and communities with native vegetation are considered to have the greatest intrinsic value to wildlife species,

as they support foraging, breeding, and refugia options to many species. Leaf litter, organic and coarse woody debris, natural tree cavities, rocky pilings, burrows, among others, are all important habitat features for various terrestrial species. The region supports a diverse assemblage of species, particularly in the eastern overhead rebuild segment that overlaps undeveloped lands.

Appendix B3 of the PEA (PG&E, 2024) provides a list of wildlife species observed during the wildlife field survey.

3.4.1.6. Special-Status Plant and Wildlife Species and Habitats

The CNDDB, CNPS, and USFWS database searches conducted by PG&E identified 93 special-status species within approximately 5 miles of the BSA, including 62 special-status plant species and 31 special-status wildlife species (PEA Appendix B4 and Appendix B5). CNDDB occurrence records are listed and USFWS critical habitat are shown on Figures 3.4-5a (Animals: CNDDB Occurrences and USFWS Critical Habitat within 5 Miles of the Biological Study Area) and 3.4-5b (Plants: CNDDB Occurrences and USFWS Critical Habitat within 5 Miles of the Biological Study Area). These figures also show USFWS-designated critical habitat for Alameda whipsnake (*Masticophis lateralis euryxanthus*).

Database searches were verified by CPUC staff, and additional databases were researched and added, as necessary, and are included in Table F-4 and F-5 in EIR Appendix F. This section describes special-status plant species observed (present) during botanical field surveys and any plant or wildlife species considered likely to occur, that have potential to occur, or that are seasonally present in the BSA. Special-status species that are unlikely to be found in the BSA are not discussed in this section but are included in PEA Appendix B3.

Special-status Plant Species

During the CNDDB, USFWS, and CNPS records searches conducted by PG&E, a total of 62 special-status plant species were identified within 5 miles of the BSA. Twelve of these species were determined to have moderate to high potential to occur in the BSA based on the presence of potentially suitable habitat and known occurrences in the vicinity. No additional special-status plant species with potential to occur in the BSA were identified during the records search conducted by CPUC.

PG&E's protocol-level rare plant surveys focused on special-status plant species with a moderate to high potential to occur. Details including listing status and potential for occurrence of the special-status species are presented in Table F-4 in EIR Appendix F and described in detail in PEA Appendix B1, Botanical Resources Survey Report. Description of plant species with a moderate to high potential to occur, but were not found during protocol level surveys, are also included below. The remaining species were eliminated from further consideration because their required soil types do not occur in the Project area, or the Project area is outside of the species' elevation range.

Three special-status plant species were observed in the botanical study and survey area during the 2021 botanical surveys, including federal- and state-listed pallid manzanita *(Arctostaphylos pallida),* CRPR 1B.2 Jepson's button thistle *(Eryngium jepsonii)*, and CRPR 4 Oakland star-tulip *(Calochortus umbellatus)*. Refer to Figure 3.4-5b (Plants: CNDDB Occurrences and USFWS Critical Habitat within 5 Miles of the Biological Study Area) for a list of species occurrences, plant species observed during the Project botanical survey, and CNDDB Sensitive Natural Communities within 5 miles of the Project.

Based on a nine-quadrangle search around the Project area, two moss species are known from the region: slender silver moss (*Anomobryum julaceum*; CRPR 4.2) and minute pocket moss (*Fissidens pauperculus*; CRPR 1B.2). Regionally, slender silver moss distribution occurs in hotter, drier areas farther inland (Mount Diablo and Mayacamas Mountains) compared to the study area; it was not expected to occur and, therefore, was not considered a target of protocol-level rare plant surveys. Locally, minute pocket moss occurs on the west side of the Oakland/Berkeley Hills where summer fog occurs most regularly. Although

a portion of the study area is located west of this divide, the locations of protocol-level surveys were in the Project alignment, on ridge tops in full sun or partial shade conditions. Minute pocket moss requires habitat of flooded rocks, often in rapidly flowing streams and on wet rock walls of streams and seeps. This type of habitat was not available in this portion of the study area and, therefore, minute pocket moss was not expected to occur and not considered a target of protocol-level rare plant surveys.

The CDFW Scoping Letter in response to the proposed Project Notice of Preparation identified the following special-status plant species with the potential to occur: pallid manzanita, robust spineflower (*Chorizanthe robusta* var. *robusta*), Presidio clarkia (*Clarkia franciscana*), and San Francisco popcorn flower (*Plagiobothrys diffuses*). As discussed above, pallid manzanita was observed during botanical surveys. Based on PEA Appendix B4, robust spineflower is not expected to occur as suitable habitat does not exist in the BSA. Presidio clarkia and San Francisco popcorn flower have a low potential to occur as only marginal habitat exists in the BSA.

Detailed descriptions of special-status plant species with a moderate or higher potential to occur are presented in EIR Appendix F.

Special-status Wildlife Species

The records search conducted by PG&E identified 31 special-status wildlife species within 5 miles of the Project footprint. Suitable habitat for 12 of the 31 species was identified in the wildlife survey area. These 12 species were either observed during the wildlife assessment or determined to have a moderate or high potential to occur. Protocol-level surveys were not conducted for these species. These species are described in Table F-5 in EIR Appendix F. The remaining species that were determined to be unlikely to occur or have a low potential to occur are discussed in PEA Appendix B3.

Additional special-status wildlife species were identified during the records search conducted by the CPUC. These include seven additional bird species that are CDFW species of special concern, fully protected, or watch list species, including sharp-shinned hawk (*Accipiter striatus*), northern harrier (*Circus hudsonius*), white tailed kite (*Elanus leucurus*), merlin (*Falco columbarius*), bald eagle (*Haliaeetus leucocephalus*), osprey (*Pandion haliaetus*), and yellow warbler (*Setophaga petechia*).

The CDFW Scoping Letter identified the following special-status wildlife species with the potential to occur in the Project area: central California coast steelhead DPS (*Oncorhynchus mykiss* pop. 8), Central Valley steelhead DPS (*O. mykiss* pop 11), grasshopper sparrow (*Ammodramus savannarum*), long-eared owl (*Asio otus*), white-tailed kite, bald eagle, loggerhead shrike (*Lanius ludovicianus*), yellow warbler, northern California ringtail (*Bassariscus astutus raptor*), and American badger (*Taxidea taxus*). None of these species, with the exception of American badger, were identified in the PEA. American badger was determined to have a low potential to occur due to the absence of large burrows in the BSA and only historical records within 5 miles.

The Project is outside the range of the Central Valley Steelhead, but within the range of central California coast steelhead. Per the NOAA Fisheries Coastal Multispecies Plan for Central California Coast Steelhead, the upper reaches of San Leandro Creek are inaccessible to anadromous fish due to the Lake Chabot Dam (NOAA, 2016). Sausal Creek is undergrounded as a culvert or storm drain at its outfall at the Tidal Canal, and in various sections along the creek (Alameda County, 2025). The Project does not provide habitat for central California coast steelhead.

Grasshopper sparrow, long-eared owl, white-tailed kite, bald eagle, loggerhead shrike, and yellow warbler have moderate potential to nest and/or forage in the BSA and are described in Appendix F of this EIR. Ringtail records are not tracked by CNDDB; however, the Project is within the range and predicted habitat and has a moderate potential to occur and is also discussed.

Additional detail on the following species is presented in Section 1.4 of Appendix F:

- Crotch's bumble bee (*Bombus crotchii*)
- Monarch butterfly (*Danaus plexippus plexippus*)
- Foothill yellow-legged frog (*Rana boylii*)
- California red-legged frog (*Rana draytonii*)
- Northwestern pond turtle (*Actinemys marmorata*)
- Alameda whipsnake (*Masticophis lateralis euryxanthus*)
- Cooper's Hawk (*Accipiter cooperii*)
- Sharp-shinned Hawk (*Accipiter striatus*)
- Grasshopper sparrow (*Ammodramus savannarum*)
- Golden Eagle (*Aquila chrysaetos*)
- Long-eared owl (*Asio otus*)
- White-tailed kite (*Elanus leucurus*)
- Northern Harrier (*Circus hudsonius*)
- Merlin (*Falco columbarius*)
- American Peregrine Falcon (*Falco peregrinus anatum*)
- Bald Eagle (*Haliaeetus leucocephalus*)
- Osprey (*Pandion haliaetus*)
- Yellow warbler (*Setophaga petechia*)
- Pallid Bat (*Antrozous pallidus*)
- Northern California Ringtail (*Bassariscus astutus raptor*)
- Townsend's Big-eared Bat (*Corynorhinus townsendii*)
- Western Red Bat (*Lasiurus blossevillii*)
- San Francisco Dusky-footed Woodrat (*Neotoma fuscipes annectens*)

3.4.1.7. Critical Habitat: Alameda Whipsnake and California Red-legged Frog

There is critical habitat designated by the USFWS for the Alameda whipsnake within the BSA. A total of 1,231 acres of the BSA is located within USFWS-designated Critical Habitat Unit 6 – Caldecott Tunnel (See Figure 3 of PEA Appendix B3, Wildlife Assessment Report). Specifically, the BSA overlaps critical habitat between Moraga Substation and Manzanita Drive/Skyline Boulevard.

The nearest critical habitat unit for California red-legged frog (CCS-1) is located approximately 4.5 miles north of the BSA. No critical habitat has been designated for foothill yellow-legged frog.

3.4.1.8. Native Wildlife Corridors and Nursery Sites

Aquatic habitats in the vicinity of the Project footprint could potentially provide migratory pathways for aquatic species, including California red-legged frog, foothill yellow-legged frog, and Northwestern pond turtle. Upland habitats provide dispersal habitat for CRLF and Alameda whipsnake. The Project footprint overlaps BAHCP modeled habitats for both species (Attachment B of PEA Appendix B3, Wildlife Assessment Report). Migratory birds may move through the BSA during work activities and may nest in the vicinity. There are no known spawning areas for native fish, fawning areas for deer, maternal roosts for bats, or known bird nesting rookeries within the BSA.

The eastern portion of the Project (Eastport Canyon; east of Manzanita Drive) has been mapped as an "irreplaceable and essential corridor" in CDFW's Terrestrial Connectivity Areas of Conservation Emphasis dataset (CDFW, 2017) and shown on Figure 3.4-10 (CDFW Terrestrial Connectivity) in EIR Appendix A.

The California Essential Habitat Connectivity Project (CEHC) maps a statewide network of relatively intact Natural Landscape Blocks connected by Essential Connectivity Areas focusing attention on large areas important to maintaining ecological integrity at the broadest scale. The middle of Eastport Canyon has

been mapped as a natural landscape block (defined as an existing natural open space having relatively high ecological integrity). The surrounding area, which overlaps the entire eastern portion of the Project footprint, is part of the Mt. Allison-Briones Hills Essential Connectivity Area. The east side of the Canyon was mapped as the East Bay Hills-Diablo Range critical linkage. Small natural areas (small landscape blocks) have been mapped along Sheperd Canyon Road; some work areas within the central portion of the Project alignment overlap these areas. The eastern portion of the Project area was also identified as part of the Science and Collaboration for Connected Wildlands and Bay Area Open Space Council as an important open space and wildlife corridor.

3.4.1.9. PG&E's Bay Area Habitat Conservation Plan (BAHCP)

PG&E prepared a multi-species Habitat Conservation Plan (HCP) for routine operation and maintenance (O&M) activities in the Bay Area region of its service area to comply with the Federal Endangered Species Act (FESA) by applying for a Section 10(a)(1)(B) permit. The Bay Area HCP (BAHCP) is designed to provide an approach to FESA compliance and long-term species conservation, while allowing PG&E to continue to conduct current and future O&M activities (PG&E, 2017).

The BAHCP covers 18[29] wildlife and 13 plant species (referred to as "covered species") for 33 routine O&M activities for PG&E's electric and gas operations. Twelve covered species have designated critical habitat within the BAHCP Plan Area. The BAHCP addresses impacts from day-to-day O&M activities as well as large maintenance improvement projects that require extensive planning and coordination and assumes that any activity could be implemented in a given year. The BAHCP covers the Bay Area region of its service area and includes Sonoma, Marin, Napa, Solano, Contra Costa, Alameda, Santa Clara, San Mateo, and San Francisco Counties.

Modeled habitat for several of the covered species was mapped in the BAHCP as part of the conservation planning process to determine where potential impacts occur and their extent. The BAHCP addresses impacts to these species that may result from covered O&M activities and details the measures to avoid, minimize, and mitigate said impacts (PG&E, 2017). The BAHCP is available at https://ecos.fws.gov/docs/plan_documents/thcp/thcp_2897.pdf. The following terms from Chapter 10 of the BAHCP are used to define habitat ranges:

- **Modeled Habitat.** The characterization of the species-specific habitat based on known species' ranges, species' life history needs, and multiple datasets. A guiding tool for calculating effects less than 0.1 acre, and a general tool for screening of larger activities.
- **Hot Zone.** Area containing a known localized population of covered species with a small and well defined range, and where the species would be most likely to be affected should covered activities occur there. There are no designated hot zones in the Project area.
- **Map Book Zone (MBZ)**. Area of occupied or potentially occupied plant habitat as determined by previous PG&E botanical surveys. Species-specific AMMs, designed to minimize impacts to specific covered wildlife species, are implemented as applicable. The only MBZ in the Project BSA is a pallid manzanita MBZ which overlaps the pallid manzanita occurrences identified in CNDDB listings.

The proposed Project is considered a PG&E O&M activity and is covered under the BAHCP. The proposed Project includes less than 2 miles in natural or agricultural areas and falls within a combination of covered activities, including E9, Line Reconductoring; E12, New Distribution and Transmission Line Construction or Relocation; and E 13, Tower Line Construction. E9, Line Reconductoring, which covers reconductoring activities, including use of pull sites and work areas as well as temporary clearance structures at road or utility crossings. Activities E12 and E13 cover installation or replacement of poles or towers with associated

[29] The BAHCP covers two Distinct Population Segments (DPS) of California tiger salamander (Central California DPS and Sonoma County DPS). However, California tiger salamander is one species (*Ambystoma californiense*).

staging areas and laydown areas and, if needed, new unsurfaced access road or repair or replacements of degraded access roads. PG&E's Response to Data Request 1, Bio-2, states that a single activity, E-9 Line Reconductoring, which is found in both the BAHCP and the CDFW ITP, applies to the proposed Project, and includes tower replacement (PG&E, 2025a).

All covered activities require implementation of field protocols, which are general measures designed to avoid or minimize potential impacts on biological resources and covered species. Federal listed species with the potential to occur or are known to occur in the Project area include Pallid manzanita, California red-legged frog, and Alameda whipsnake. The Project overlaps pallid manzanita MBZs. This BAHCP covered plant species was observed during the 2021 botanical surveys.

3.4.1.10. CDFW Regional Incidental Take Permit

PG&E has obtained an Incidental Take Permit (ITP) under Section 2081 of the California Endangered Species Act (CESA) with the CDFW. The ITP covers PG&E's San Francisco Bay Area O&M and minor new construction activities for its natural gas and electric lines, and establishes a comprehensive approach to avoid, minimize, and fully mitigate impacts on covered species and habitat (collectively "covered activities"). The ITP provides incidental take coverage for three species: Alameda whipsnake, California tiger salamander, and California freshwater shrimp. The geographic scope of the ITP encompasses the project BSA and authorizes take of Alameda whipsnake. Measures relevant to Alameda whipsnake are included in Appendix F of this EIR.

Prior to issuance of the ITP, an EIR was prepared by CDFW in support of PG&E's application for the ITP (CDFW, 2022a). The ITP FEIR presented APMs designed to minimize impacts to state-listed and other special-status species. The ITP issued in 2022 includes APMs and conditions of approval, collectively referred to in this section as ITP measures or ITP APMs, to minimize impacts to state listed and other special-status species (CDFW, 2022b).

During construction of the proposed Project, PG&E would implement the measures from the BAHCP and the ITP as well as the ITP FEIR APMs. Construction practices and the Project-specific APMs are designed to be compatible with the BAHCP measures, which have been reviewed and approved previously by USFWS, and also are compatible with the ITP approved by CDFW and the ITP FEIR measures issued by CDFW.

3.4.1.11. Biological Resource Management Areas

The BSA includes two resource management areas: EBRPD's Sibley Volcanic Regional Preserve and the Huckleberry Botanical Regional Preserve. The Project's two isolated staging areas are located within the Sibley Preserve. Work areas in the central portion of the Project area along Manzanita Drive overlap the boundary of the Huckleberry Botanical Regional Preserve.

The Project alignment overlaps the Moraga Creek Open Space Area and Indian Valley Preserve Area Conservation Easement, also held by Wildlife Heritage Foundation, near Moraga Substation. PG&E has three easements, allowing for access and maintenance of the alignment within this Conservation Easement. EBRPD also holds two small Conservation Easements, located along the western edge of the Project area, bordering the residential neighborhood of Sibley Volcanic and Huckleberry Regional Preserves. A Project staging area on Manzanita Drive is directly adjacent to the Huckleberry Regional Preserve Conservation Easement. The Western Hills Open Space Area Conservation Easement held by the Wildlife Heritage Foundation is located directly adjacent to the Sibley Volcanic Regional Preserve and 0.25 mile east of the Project's two isolated staging areas.

3.4.2. Regulatory Setting

3.4.2.1. Federal

Federal Energy Regulation Commission

Most of PG&E's system 60 kV or higher is part of the electric grid controlled by the California Independent System Operator (CAISO), and therefore, under the jurisdiction of the Federal Energy Regulatory Commission (FERC). FERC requires utilities to adopt and maintain minimum clearance standards between vegetation and transmission voltage power lines to reduce wildfire risk. These clearances vary depending on voltage. In most cases, the minimum clearances required in state regulations are greater than the federal requirement. In California, for example, CPUC has adopted General Order (GO) 95, discussed under State regulations, rather than the North American Electric Reliability Corporation (NERC) standards as the electric safety standard for the State.

Endangered Species Act

The FESA (16 United States Code [USC] 1531–1544), as amended, protects plants, fish, and wildlife that are listed as endangered or threatened by the USFWS or the National Marine Fisheries Service (NMFS). Section 9 of the FESA prohibits the "take" of listed fish and wildlife, where "take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 CFR 17.3). For plants, this statute prohibits removing, possessing, maliciously damaging, or destroying any listed plant under federal jurisdiction and removing, cutting, digging up, damaging, or destroying any listed plant in knowing violation of state law (16 USC 1538).

The FESA allows for issuance of incidental take permits to private parties either in conjunction with an HCP or as part of a Section 7 consultation (which is discussed in the following paragraph). Under Section 10 of the FESA, a private party may obtain incidental take coverage by preparing an HCP to cover target species within the project footprint, identifying impacts to the covered species, and presenting the measures that would be undertaken to avoid, minimize, and mitigate these impacts. As described in Section 3.4.1.9, PG&E obtained an HCP for its overall Operations and Management Program that is applicable to a number of species on the MOX Project.

Under Section 7 of the FESA, federal agencies are required to consult with USFWS and NMFS, as applicable, if their actions—including permit approvals or funding—may affect a federally listed species (including plants) or designated critical habitat. If the project is likely to adversely affect a species, the federal agency would initiate formal consultation with the USFWS or NMFS, which would issue a Biological Opinion as to whether the proposed agency action is likely to jeopardize the continued existence of a listed species (jeopardy) or adversely modify critical habitat (adverse modification). As part of the Biological Opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity, provided that the action would not jeopardize the continued existence of the species or adversely modify designated critical habitat.

Migratory Bird Treaty Act

The MBTA of 1918 (16 USC 703–711) protects all migratory birds, including active nests and eggs. Birds protected under the MBTA include all native waterfowl, shorebirds, hawks, eagles, owls, doves, and other common birds such as ravens, crows, sparrows, finches, swallows, and others, including their body parts (for example, feathers and plumes), active nests, and eggs. A complete list of protected species can be found in 50 CFR 10.13. Enforcement of the provisions of the federal MBTA is the responsibility of USFWS.

Bald and Golden Eagle Protection Act

The BGEPA (16 USC 668) prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" Bald Eagles, including their parts, nests, or eggs. The Act provides criminal and civil penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any Bald Eagle... [or any Golden Eagle], alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." "Disturb" is defined as "agitate or bother a Bald or Golden Eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an Eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

Waters and Wetlands: Clean Water Act Sections 401 and 404

The purpose of the Clean Water Act (CWA) (33 USC 1251 et seq.) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Waters of the United States include rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3).

The USACE issues permits for work in wetlands and other waters of the United States based on guidelines established under Section 404 of the CWA. This regulation prohibits the discharge of dredged or fill material into waters of the United States, including wetlands, without a permit from the USACE. The U.S. Environmental Protection Agency also has authority over wetlands and may, under Section 404(c) of the CWA, veto a USACE permit.

Section 401 of the CWA requires all Section 404 permit actions to obtain a Water Quality Certification or waiver.

3.4.2.2. State

California Public Utilities Commission

General Order (GO) 95 regulates all aspects of design, construction, and operations and maintenance (O&M) of electrical power lines and fire safety hazards for utilities subject to its jurisdiction. Rule 35 discusses Vegetation Management requirements where overhead conductors traverse trees and vegetation. Requirements include removal of tree and vegetation hazards that may fall on lines and vegetation clearance around power lines. Appendix E, Guidelines to Rule 35, recommends minimum clearances between vegetation and energized conducted and associated live parts. GO 165 establishes inspection cycles for electrical distribution and transmission facilities in order to ensure safe and high-quality electrical service.

California Endangered Species Act

Sections 2050–2098 of the CFGC prohibit the take of state-listed endangered and threatened species unless specifically authorized by the CDFW. The state definition of "take" is to hunt, pursue, catch, capture, or kill a member of a listed species or attempt to do so. CDFW administers CFGC and authorizes take through permits or memorandums of understanding issued under Section 2081 of CFGC, or through a consistency determination issued under Section 2080.1. Section 2090 of CFGC requires state agencies to comply with threatened and endangered species protection and recovery and to promote conservation of these species.

Protection for Lakes and Streams

CDFW requires a Lake or Streambed Alteration Notification, pursuant to CFGC Section 1600 et seq., for project activities affecting bed, bank, or channel of lakes or streams and associated riparian habitat. Notification is required for any activity that may substantially divert or obstruct the natural flow; change or use material from the bed, channel, or bank, including associated riparian or wetland resources; or deposit or dispose of material where it may pass into a river, lake, or stream.

Fully Protected Species

CFGC designates certain fish and wildlife species as "fully protected" under Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish). Fully protected species may not be taken or possessed at any time, and no permits may be issued for the project for incidental take of these species.[30]

Protection for Birds

CFGC Section 3503 et seq. states that 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. Section 3503.5 makes it unlawful to take, possess, or destroy any birds in the orders of Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such birds with limited exceptions.

Native Plant Protection Act of 1973

The Native Plant Protection Act of 1973 (CFGC Sections 1900 to 1913) includes provisions that prohibit the taking of endangered or rare native plants. CDFW administers the Native Plant Protection Act and generally regards as rare many plants listed with a CRPR 1A, 1B, 2A, and 2B of the CNPS Inventory of Rare, Threatened, and Endangered Plants of California. In addition, sometimes CRPR 3 and 4 plants are considered if the population has local significance in the area and is impacted by the project.

Section 1913(b) includes a specific provision to allow for the incidental removal of endangered or rare plant species, if not otherwise salvaged by CDFW, within a ROW to allow a public utility to fulfill its obligation to provide service to the public.

California Species of Special Concern

"Species of Special Concern" is a category conferred by CDFW to fish and wildlife species that meet the state definition of threatened or endangered, but have not been formally listed (for example, federally or state-listed species), or are considered at risk of qualifying for threatened or endangered status in the future based on known threats. SSC is an administrative classification only, but these species should be considered "special status" for the purposes of the CEQA analysis.

Porter-Cologne Water Quality Control Act

The State Water Resources Control Board (SWRCB) and the nine RWQCBs have jurisdiction over all surface water and groundwater in California, including wetlands, headwaters, and riparian areas. The SWRCB or applicable RWQCB must issue waste discharge requirements for any activity that discharges waste that could affect the quality of waters of the state.

[30] While take of fully protected species may be authorized by CDFW under a Natural Community Conservation Plan (NCCP), the PG&E project is not covered by an NCCP, so this permitting option is not available.

3.4.2.3. Local

Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the Project, the MOX Project is not subject to local (city and county) discretionary regulations except for air districts and Certified Unified Program Agencies with respect to air quality and hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process. This section includes a summary of local or regional plans, policies, or regulations that identify sensitive or special-status species in the Project footprint, as well as local policies or ordinances that protect biological resources.

City of Orinda General Plan

The state-mandated Conservation Element can be found in Chapter 4, Environmental Resources, of the City of Orinda General Plan, which establishes policies for the conservation of natural resources in Orinda. Topics addressed include historical and archaeological resources; wildlife and wildlife habitats; creeks and drainages; water quality; flood hazards and control; mineral resources; and air quality. The General Plan supports the protection, preservation, restoration, and enhancement of habitats of state or federally listed rare, threatened, endangered, and other sensitive and special-status species, and promotes maintenance of open space and practices that conserve natural resources (City of Orinda, 1987).

Tree Management

Chapter 17.21 of the City of Orinda Ordinance Code outlines management of trees on public and private property. A permit is required to remove trees designated as protected. Protected trees include certain oak species (*Quercus* spp.), native riparian trees, or trees on vacant/undeveloped assessor's parcel that meet the City's size requirements.

Heritage Trees

Per Chapter 17.24.2 of the City of Orinda Ordinance Code, a heritage tree is designated by the city council as such because of the tree's association with some person or event of historical significance or because of size (exceeds 15 inches in diameter), condition, or aesthetic qualities. A permit is required to trim/prune or remove a designated heritage tree. However, if pruning is necessary either to prevent interference with or to maintain a public utility facility, no permit is required but pruning must conform to accepted arboricultural procedures.

Watercourse Maintenance, Alteration, and Protection

Chapter 18.03 of the City of Orinda Ordinance Code provides for the implementation of water quality, drainage, environmental, and riparian vegetation provisions of the Orinda General Plan and state and federal law. The ordinance includes requirements for the protection of native riparian vegetation and riparian wildlife habitats. A permit must be obtained from the planning director prior to impacting a watercourse, such as dredging or removal/alteration of vegetation at or near the watercourse. The city may impose conditions of approval in approving the permit, including riparian habitat restoration under Chapter 18.04 of the ordinance code. However, a permit is not required for this Project.

Contra Costa County

General Plan Conservation, Open Space, and Working Lands Element

The Conservation, Open Space, and Working Lands Element promotes conservation, preservation and enhancement of the county's diverse natural resources and includes the open space framework, agricultural resources and working lands, ecological resources and natural systems, water resources, historic and cultural resources, scenic resource, mineral resources, energy resources, and conservation, and open space. This includes preservation and enhancement of ecological resources and wildlife habitat, including

protection of watercourses, riparian corridors, wetlands areas and upland habitat (Contra Costa County, 2024).

The East Contra Costa County Habitat Conservancy oversees implementation of the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP), which provides regional conservation and development guidelines to protect natural resources while improving and streamlining the permit process for projects that will impact endangered species and sensitive habitat (Contra Costa County, 2024). The Project is not located within the East Contra Costa County HCP/NCCP.

Heritage Trees

Chapter 816-4 of the Contra Costa County Ordinance Code regulates the removal of heritage trees and mandates adequate protection of heritage trees during construction. A heritage tree is defined as:

- A tree 72 inches or more in circumference measured 4.5 feet above the natural grade; or
- Any tree or group of trees particularly worthy of protection, and specifically designated as a heritage tree by the board of supervisors pursuant to the provisions of this chapter, because of:
  - Having historical or ecological interest or significance
  - Being dependent upon each other for health or survival
  - Being considered an outstanding specimen of its species as to such factors as location, size, age, rarity, shape, or health

Designated heritage trees may not be removed without a permit. However, a permit is not required for trimming, pruning, or maintenance of a heritage tree as long as it does not result in destruction nor substantially change the tree's form or shape. Encroachment into the dripline of a heritage tree (or radius of 12 feet from the trunk) during construction or excavation must incorporate measures as deemed necessary by the building inspection department to minimize damage. Permission is required prior to backfilling.

Tree Protection and Preservation

Chapter 816-6 of the Contra Costa Ordinance Code provides for the preservation of certain protected trees in unincorporated areas of the county. Protected trees include those found in a riparian, foothill woodland, or oak savannah area or as otherwise defined in 816-6.6004. A permit is required to trim or remove a protected tree or encroach upon the tree dripline. However, trimming and clearing within public agency or utility easements and ROWs for maintenance of the easement or ROW would not require a tree permit.

City of Oakland General Plan

The Open Space Conservation and Recreation Element of the City of Oakland General Plan establishes policies for the conservation of natural resources in Oakland. Topics addressed include soil resources and land stability; mineral resources; plant and animal resources; hydrology and water quality; energy, and air quality. The General Plan supports the protection, preservation, restoration, and enhancement of habitats of state or federally listed rare, threatened, endangered, and other sensitive and special-status species, and outlines the policies for conservation and use of the city's natural resources (City of Oakland, 1996).

Tree Protection Ordinance

The City's Tree Protection Ordinance (Oakland Municipal Code (OMC) Chapter 12.36) requires a permit for removal of protected trees. Protected trees include *Quercus agrifolia* (California or coast live oak) measuring four inches diameter at breast height (dbh) or larger, and any other tree measuring nine inches dbh or larger except eucalyptus and *Pinus radiata* (Monterey pine); provided, however, that Monterey pine trees on City property and in development-related situations where more than five Monterey pine trees per acre are proposed to be removed are considered to be protected trees.

Creek Protection Ordinance

The City's Creek Protection Ordinance, Storm Water Management and Discharge Control (OMC Chapter 13.16) is to ensure the health, safety, and general welfare of city citizens and to protect biological resources. The intent is to protect and enhance the water quality of our watercourses, water bodies, and wetlands in a manner pursuant to and consistent with the federal Clean Water Act.

City of Piedmont General Plan

The Natural Resources and Sustainability Element of the City of Piedmont General Plan establishes policies for the protection and management of earth, water, air, and biological resources in the City of Piedmont. It provides policies and actions on issues such as creek protection, hillside grading, air and water quality, and management of the city's "urban forest." The General Plan supports the protection, preservation, restoration, and enhancement of habitats of state or federally listed rare, threatened, endangered, and other sensitive and special-status species, and favors sustainable development within central locations (City of Piedmont, 2024a).

City Trees and Heritage Tree Program

The City maintains over 8,000 trees in the Piedmont's streets, parks, and public spaces, including regular pruning, care, and inspection. When trees are removed, the City makes every effort to replace it with a tree appropriate for that location (Piedmont, 2024a). The Piedmont Heritage Tree Program was created by the City Council to recognize and identify special and distinctive trees that are noteworthy by their size, unique species, prominent location, or historical context. The Park currently has designated 28 trees (or group of trees) as Heritage Trees. Both the overhead removal and underground portion of the Project do not impact any Heritage trees (Piedmont, 2024b).

3.4.3. Environmental Impacts of the Proposed Project

The impact assessment presented in this EIR was conducted to identify and disclose potential direct, indirect, and cumulative impacts of the proposed Project and alternatives. The analysis of the proposed Project presented in this section is based on the biological resources on the Project site, described in Section 3.4.1 (Environmental Setting) and in the supporting biological resources reports prepared by PG&E. Alternatives are described and analyzed in Chapter 4 of this EIR and cumulative impacts are analyzed in Chapter 5.

3.4.3.1. Significance Criteria

According to Section 15382 of the CEQA Guidelines, a significant effect on the environment means "… a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project…" As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Section 15064(d) and 15358 further defines direct and indirect impacts.

- **Direct Impact**: A direct impact is a physical change in the environment which is caused by and immediately related to the project, such as dust, noise, traffic, and occurs in the same time and place. Examples of potential direct impacts to biological resources include mortality, injury, or displacement of special-status plants or animals; loss or degradation of native habitat; interference with wildlife movement or migration; and disturbance to plants, animals, and habitat from noise, light, or dust.
- **Indirect Impact**: An indirect impact is a physical change in the environment which is not immediately related to the project, are caused by the project later in time or farther removed in distance, but are still reasonably foreseeable. Examples of potential indirect impacts that occur later in time or farther removed in distance, include erosion, sedimentation, introduction of invasive species, or increased predation on native wildlife due to habitat alterations (e.g., perch sites or "subsidies" for predators).

- **Permanent and Temporary Impacts.** Permanent impacts include the conversion of land to a new use or vegetation community, such as the placement of new structures. Temporary impacts are considered activities that are of short duration (i.e., 6 to 12 months) and that do not result in a permanent land use conversion.

The significance criteria used to evaluate the Project impacts on biological resources under CEQA are based on Appendix G of the CEQA Guidelines. An impact on a biological resource would be significant if implementation of the Project would:

- **BIO-1**: 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.
- **BIO-2**: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- **BIO-3**: Have a substantial adverse effect on state or federally protected wetlands (including marsh, vernal pool, coastal, and others) through direct removal, filling, hydrological interruption, or other means.
- **BIO-4**: 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.
- **BIO-5**: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- **BIO-6**: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

The Project's potential effects on biological resources also were evaluated using the CPUC's Additional CEQA Impact Questions for Biological Resources in the *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing and Proponent's Environmental Assessments* (CPUC, 2019). Based on the CPUC guidance, this EIR also evaluates whether the Project would:

- **BIO-7**: Create a substantial collision or electrocution risk for birds or bats.

Impact Assessment Methodology

Impacts to biological resources were assessed through consideration of effects on the landscape, habitat, community, and species level for the Project and proposed alternatives. Impacts refer to grading and ground disturbance, vegetation management, road improvements, and long-term O&M activities that would be implemented under each of the Project's components.

3.4.3.2. Project Commitments and Mitigation Approach

The analysis identifies and describes the proposed Project's expected impacts to biological resources. Acres of impact to vegetation communities and jurisdictional waters are presented to identify the type and scale of effect to habitat. Potential direct or indirect impacts to special-status species are described.

Impacts to biological resources are evaluated based on the Project description (EIR Chapter 2), which includes PG&E's Applicant Proposed Measures (APMs) that PG&E has committed to implement as part of its construction and operations process. As described in Sections 3.4.1.9 and 3.4.1.10, the USFWS and CDFW have approved separate plans that include PG&E's commitments to implement a wide range of protective measures. The impact analysis considers whether the impacts from implementation of the Project (including implementation of APMs and commitments made in the BAHCP and the CDFW ITP) would be

significant. If impacts are determined to be significant, Project-specific mitigation measures are recommended.

3.4.3.3. Applicant Proposed Measures

PG&E has committed to several types of impact-reduction measures that are applicable to the proposed Project. As described in Section 3.4.1.9, the Project falls entirely within the coverage area for the BAHCP approved by the USFWS and the CDFW Regional ITP. PG&E APMs include measures from the BAHCP, O&M ITP, and O&M ITP EIR. The full language and detailed requirements of these APMs are provided in EIR Appendix F, Section F.5. These commitments apply to the proposed Project. The relevant plans and permits include the following:

- BAHCP Field Protocols (FPs) – FPs are PG&E general measures designed to avoid or minimize potential impacts on biological resources and covered species.
- BAHCP Avoidance and Minimization Measures (AMMs) – AMMs are BAHCP measures utilized by PG&E to avoid and minimize impacts on covered species and habitat resulting from covered activities. These measures are specific to hot zones (the Project does not overlap any hot zones) and covered wildlife and plant species.
- Bay Area Operations & Maintenance (O&M) Project Incidental Take Permit (ITP) – CDFW ITP for the BAHCP. The ITP includes General Provisions as Conditions of Approval, which are measures that apply to all Covered Activities within the BAHCP, including areas used for vehicle, aircraft ingress and egress, staging and parking, and noise and vibration generating activities that may or would cause take.
- Bay Area O&M ITP Final Environmental Impact Report (ITP EIR) – CDFW directed preparation of an EIR in conformance with CEQA and CEQA guidelines for PG&E's covered activities for which CDFW is issuing an ITP. The ITP EIR included Applicant Proposed Measures and mitigation measures. Mitigation in the ITP EIR is based on acreages of estimated and actual habitat losses for covered activities.

In addition to the two species covered under the BAHCP (California red-legged frog; Alameda whipsnake), and Alameda whipsnakes coverage under the ITP, several other special-status or protected species potentially may be impacted by the Project. These species include Crotch's bumble bee, monarch butterfly, foothill yellow-legged frog, Northwestern pond turtle, San Francisco dusky-footed woodrat, bats, and nesting birds. The BAHCP and ITP adopt measures such as restricted work area access, speed limits, training and monitoring, equipment inspection, erosion control, trench inspections and ramps for wildlife, and other general measures that extend protection to non-covered species. The ITP FEIR APMs also provide protection for non-covered species, including bats and nesting birds. PG&E developed the following additional Project-specific APMs (Moraga–Oakland X 115 kV Rebuild [MOX] APMs), as shown in Table 3.4-1, for species not covered by the BAHCP or ITP to be implemented to further minimize impacts as appropriate.

Table 3.4-1. Project Specific Applicant Proposed Measures for the Moraga-Oakland X Project for Species Not Covered in the BAHCP/ITP

Measure No.	Text
MOX APM BIO-1	**Preconstruction Surveys and Biological Monitoring.** To reduce impacts to sensitive biological resources that may be present within and adjacent to work areas, clearance surveys and preconstruction surveys will be implemented at the discretion of the PG&E biologist.
MOX APM BIO-2	**Crotch's Bumble Bee and Monarch Butterfly**. The CDFW ITP FEIR concluded that implementation of the HCP and ITP measures (such as FP-01 through FP-04, FP-07, FP-10, FP-11, FP-12, and FP-14) will reduce the level of impact to less than significant for the Crotch's bumble bee;

Measure No.	Text
	in this APM, these same measures are being extended to include the Monarch butterfly, which was not addressed in the HCP or ITP.
MOX APM BIO-3	**Foothill Yellow-legged Frog**. Applicable measures from PG&E's BAHCP, including FP-01 through FP-08, FP-10 through FP-17, and AMM Wetland-2 (Tables 5.4-9 and 5.4-10) also will minimize impacts to FYLF. All special-status amphibians encountered in the work areas will be reported to the project biologist or PG&E Environmental staff and allowed to leave the work area in accordance with ITP FEIR APM BIO-2 (Table 5.4-12).
MOX APM BIO-4	**Northwestern Pond Turtle.** The measures FP-01 through FP-17 from PG&E's BAHCP and AMM Wetland-2 to minimize potential impacts to CRLF and wetlands also will minimize impacts to Northwestern pond turtle (Tables 5.4-9 and 5.4-10).
MOX APM BIO-5	**Nesting Birds.** PG&E will implement FP-01 through FP-18 from PG&E's Bay Area O&M HCP as well as ITP FEIR APM BIO-6 to avoid and minimize impacts to nesting birds (Tables 5.4-9 and 5.4-12). As both helicopter and drone use are proposed for this project, the established nest buffers will include vertical buffers based on the horizontal ground buffers presented in Nesting Birds: Species-Specific Buffers for PG&E Activities (Appendix B6).
MOX APM BIO-6	**San Francisco Dusky-footed Woodrat.** Measures FP-01 through FP-17 from the BAHCP (Table 5.4-9) also will reduce impacts to dusky-footed woodrat. Any woodrat nests encountered in the work areas during covered activities will be reported to the project biologist or PG&E Environmental staff and individuals, if found, will be allowed to leave the work area (ITP FEIR APM BIO-2) (Table 5.4-12). If active nests are identified and cannot be avoided, PG&E will implement the dismantling and relocation measures described in Attachment D of Appendix B3.

3.4.3.4. Project Components

The MOX Project would include upgrades to approximately 5-miles of four existing overhead 115 kV circuit lines and structures, and minor modifications to Moraga and Oakland X substations. The two existing parallel double-circuit 115 kV power lines (for a total of four circuits) are located within existing PG&E land rights. The Project would rebuild the four overhead lines into four hybrid lines, with hybrid defined as lines between the two substations having both overhead and underground portions. Approximately 4 miles of the existing 5 miles of overhead lines would be rebuilt overhead, and approximately 1 mile would be rebuilt in city streets. Project operation and maintenance would be conducted with existing staffing using existing access. Analysis of the Project components are broken down between construction and operations and maintenance. Below is a summary of Project components. A full Project description is included in EIR Chapter 2 (Project Description).

- **Overhead Power Line Rebuild** – Rebuild the two existing double-circuit 115 kV power lines from Moraga Substation to the transition-to-underground structures located near the intersection of Estates Drive and Park Boulevard. For each pair of structures between EN1/ES1 and EN28/ES30 that is being replaced, PG&E expects to construct the replacement foundations, install the new structures, and transfer the existing conductor to pulleys on the new structures. After construction, each of the two northern circuits (1 and 2) would be approximately 5.17 miles long. Each of the two southern circuits (3 and 4) would be approximately 5.14 miles long.
- **Overhead Power Line Removal** – When existing overhead power line components are no longer needed, the conductors would be removed from the existing structures one span at a time, and then unneeded existing structures would be removed. Approximately 4.66 circuit miles (1.13 to 1.20 miles per circuit) would be removed where the power line is replaced underground. As a result of undergrounding part of the line, approximately 22 existing structures supporting overhead lines would be removed. No existing structures are expected to be abandoned in place. Foundations are expected to be removed up to 3 feet below grade in coordination with landowner preferences. Direct-bury poles would be

removed entirely. As work is completed at each work site, the surplus materials, equipment, and construction debris located at the site will be collected and removed. As part of the final construction activities, PG&E would restore disturbed areas, repave removed or damaged paved surfaces, restore landscaping or vegetation as necessary, and clean up the job site.

- **Underground Power Line** – The underground component of the rebuilt power lines would include installation of vaults, duct banks, and a cable system in city streets using open trench construction. Circuits 1 and 2 would transition to underground from their respective transition structures near the intersection of Estates Drive and Park Boulevard. These circuits would continue in one double duct bank in Estates Drive, Park Boulevard, and Park Boulevard Way to Oakland X Substation. Circuits 3 and 4 would transition to underground from their respective transition structures on the south side of Park Boulevard near Estates Drive. These circuits would continue in one double duct bank in Park Boulevard and Park Boulevard Way, on the other side of the roadway from Circuits 1 and 2, toward Oakland X Substation. Transition structures on substation property would raise the underground lines to the existing connection points on the east side of the substation building.
- **Substation Modifications** - Upgrades at Moraga and Oakland X substations are needed to align with the connecting rebuilt lines. Modifications are expected to include replacing 115 kV substation components and updating system protection schemes, including telecommunication upgrades. No building or enclosure modifications are anticipated at either substation. Fences may need to be temporarily removed to facilitate safe construction and would be replaced in the original location. Line equipment, communication equipment, and control systems to support the operation of the rebuilt lines will be upgraded or installed within the footprint of the existing substations.
- **Operations and Maintenance** - Following construction of the Project, operation and maintenance activities would consist of routine inspection, repair, and maintenance activities, which would be conducted as they are under existing conditions for existing facilities modified as part of this Project. This includes vegetation management to ensure that vegetation near power lines and substations that are posing a safety concern are addressed. Current ongoing vegetation management programs are sufficient for the power lines, substations, and access roads, and no additional activities would be required under the proposed Project.

Ground disturbing activities will be required during construction. Because these impacts will occur during the overhead power line rebuild portion of the project, they are analyzed under that section. Potential ground disturbing activities include the following:

- Two isolated staging areas located off Quarry Road within EBRPD's Sibley Volcanic Regional Preserve. Some vegetation removal and minor grading may be required in preparation for equipment staging, which may result in impacts to scrub habitat immediately adjacent to the work areas.
- Immediately west of Moraga Substation, where a network of access roads leads north to a staging area located at the southeastern end of the community of Wilder (Wilder LZ/SA). This staging area is elevated and will require some grading to establish an access route for vehicles.
- Work areas and staging areas along the circuit east of Manzanita Drive/Skyline Boulevard where vegetation removal and grading will be required.
- The access route to the staging area near structure EN9. The access route is an old two-track trail that is overgrown and cut off by a moderate landslide. Impacts are expected to mapped scrub habitat.
- Construction of foundations for the replacement structures.
- The proposed Project spans three main sections of land use. Impact analysis may vary between the three sections, with species potential or impacts greater at specific sections. Details are provided in the impact analysis that follows. Below is a summary of land use distinctions.

- **Eastern Undeveloped Lands** – open space areas in the eastern section of the overhead rebuild Project, from Moraga Substation west to Manzanita Drive/Skyline Blvd. This section of the overhead rebuild spans Critical Habitat for Alameda whipsnake, California red-legged frog modeled potential breeding habitat, Natural Landscape Blocks and Essential Corridors, and parks and recreational areas (East Bay Regional Park District (EBRPD) and East Bay Municipal Utility District (EBMUD) Property). This section is primarily in unincorporated Contra Costa County.
- **Middle Overhead Rebuild** – A mixture of hillside residential, mixed uses, resource conservation areas, and urban parks in the middle section of the overhead rebuild project, between Manzanita Drive/ Skyline Blvd west, over State Route 13, to the underground transitions near Estates Drive and Park Boulevard. This section includes Shepherd Canyon Park and various other City of Oakland and City of Piedmont parks and is primarily within the "wildland urban interface." This section is primarily in Alameda County and the City of Oakland.
- **Urban Underground** – Mixed residential, commercial, and institutional uses, from the underground transitions near Estates Drive and Park Boulevard to Oakland X Substation. Underground lines would be installed in existing roads and urban infrastructure. This section is located in Alameda County, including the cities of Oakland and Piedmont.

Issues Not Discussed Further

Substation Modifications. Upgrades at Moraga and Oakland X Substations are needed to align with the connecting rebuilt lines. Because all work would occur within the existing facility footprints and would be consistent with the type of activities conducted for ongoing maintenance with limited potential for ground disturbance, the substation modifications would not result in physical environmental changes that could have a substantial adverse effect on special-status species, sensitive natural communities, or wetlands; interfere substantially with the movement of any native resident or migratory fish or wildlife species; conflict with any local policies or ordinances protecting biological resources; conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan; or create a substantial collision or electrocution risk for birds or bats. For these reasons, proposed substation modification work would not result in environmental impacts and are not addressed further in this section.

3.4.4. Impact Analysis and Mitigation Measures

The impact analysis in this section evaluates the potential direct and indirect effects to biological resources due to implementation of the proposed Project. It also identifies mitigation measures to reduce these impacts to less than significant levels.

Impact BIO-1: 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.

Construction

Overhead Power Line Rebuild

PLANTS

LESS THAN SIGNIFICANT WITH MITIGATION. The Project area provides suitable habitat for special status plant species. Three special-status plant species, pallid manzanita (federal and state listed), Jepson's button thistle (CNPS List 1b), and Oakland star-tulip (CNPS List 4), were found within the botanical study and

survey area. There are also 11 plants with a moderate or higher potential to occur in the Project area: bent-flower fiddleneck, California androsace, big-scale balsamroot, western leatherwood, fragrant fritillary, Diablo helianthella, Santa Cruz tarplant, bristly leptosiphon, Oregon meconella, Mt. Diablo cottonweed, and most beautiful jewelflower. Though these species were not observed in the botanical survey area during the appropriate blooming period in 2021, quality habitat exists in the Project area, and populations of these species can vary annually based on precipitation, natural or human disturbances, and other environmental factors. Given that the Project schedule anticipates a start date of 2028 and a completion date of 2031, these species have the potential to occur in the Project area in the future.

Direct impacts could occur if individual plants were damaged or destroyed as a result of vegetation trimming or removal prior to construction activities for grading, staging, or vehicle access. Damaged plants may experience altered growth and development or reduced or eliminated seed-set and reproduction, or result in direct mortality. Plants could also be damaged or destroyed by crews or inadvertently targeted during vegetation removal. Direct impacts could occur if plants are exposed to excess levels of fugitive dust. Dust can have deleterious physiological effects on plants and may affect plant reproduction and other natural processes, such as photosynthesis. Fugitive dust could be generated by heavy equipment during grading and use of access roads. Impacts to plants could also occur due to accidental spills of hazardous materials, which could result in direct mortality of the plants and soil contamination that reduces future species' vitality. No herbicides or pesticides are expected to be used during construction. Work in areas that contain pathogens and revegetation activities may inadvertently introduce or spread the root fungus *Phytophthora* species, which could kill sensitive native species, including pallid manzanita.

Indirect impacts could include loss or degradation of habitat from soil compaction, erosion, or the spread of invasive weeds. Invasive weeds are more adapted to compacted or damaged soil, can outcompete or replace native vegetation, and can also increase the risk of wildfire. Compaction and erosion can affect the topsoil, which contains nutrients or mycorrhizae necessary for the health and reproduction of plants. Removal of vegetation roots could lead to soil erosion and sedimentation, degrading habitat conditions within or outside of the Project area.

Permanent impacts on special-status plant species include construction of foundations for replacement structures. Temporary impacts on special-status species include establishment of staging areas, activities in work areas, and vegetation removal for vehicle access. Impacts would be more severe in undeveloped areas from the Moraga Substation west to Manzanita Drive/Skyline Boulevard.

Populations of known special-status plants (pallid manzanita, Jepson's button thistle, and Oakland star-tulip) occur adjacent to the work area. Where a rare plant was found in a work area during Project development, the work area was revised to avoid the rare plants. Other special-status plant species have a moderate or higher potential to occur in the Project area. Damage, destruction, or exposure to fugitive dust, and loss or degradation of habitat could significantly affect special-status species on Project site or vicinity.

Implementation of measures from the BAHCP, ITP, and ITP FEIR would avoid and minimize impacts to special-status plant species (see EIR Chapter 7 and Appendix F for full text). These include:

- BAHCP FP-01 through FP-04, FP-07, FP-10 through FP-12, FP-~~17~~14
- AMM Plant-01 through Plant-08
- O&M ITP-5.3, -5.4, -5.5, -5.7, -5.9 through -5.15,- 6.4, -6.8, and -7.6
- ITP FEIR APM BIO-1, BIO-3, BIO-3a, BIO-4, and BIO-5
- MOX APM BIO-1

These APMs require worker training and monitoring, including the biologist authority to stop work; designate access routes, staging areas, and vehicle speeds; minimize ground disturbance to the minimum amount necessary; delineation of avoidance features; minimize erosion, fugitive dust, and soil compac-

tion; implement invasive species control; ensure no herbicides are used for vegetation management within 100 feet of an MBZ for pallid manzanita; stockpile topsoil for restoration activities; staging in areas that are not infested with invasive weeds or pathogens; revegetation with a commercial weed-free seed mix; hygiene protocols and procedures to avoid the likelihood of spreading *Phytophthora*; submittal of covered species observations to CNDDB; procedure for accidental spills of hazardous materials; and reduce the potential for damage or destruction on known populations of special-status plant species.

However, even with application of the APMs, potential Project impacts to as-yet unknown future populations of special-status plant species would be significant. Plant populations are known to migrate or have persistent seed banks that germinate during specific environmental conditions. Additional populations of known special-status plants may establish prior to or during construction. With the implementation of Mitigation Measure (**MM) BIO-1a, Special-Status Plants Avoidance and Impact Minimization** (full text is presented in Section 3.4.5), impacts to special-status plant species would be less than significant. This mitigation measure would require plant surveys by a qualified botanist, conducted during appropriate blooming periods, prior to vegetation removal or ground disturbing activities. If special-status plant species are found, the Project would be required to implement measures from the BAHCP, ITP, and ITP FEIR to avoid and minimize impacts to those species. **MM BIO-1a** would also protect special-status plant species that were determined to have a low potential to occur because of marginal habitat.

WILDLIFE

The Project provides suitable habitat for special-status wildlife species. Database searches identified special-status wildlife species that are known to occur or with a moderate or higher potential to occur in the Project area. These include invertebrates (Crotch's bumble bee, monarch butterfly), amphibians (foothill yellow-legged frog, California red-legged frog), reptiles (northwestern pond turtle, Alameda whipsnake), birds (grasshopper sparrow, golden eagle, long-eared owl, northern harrier, white-tailed kite, bald eagle, yellow-warbler), and mammals (pallid bat, Northern California ringtail, Townsend's big-eared bat, Western red bat, San Francisco dusky-footed woodrat). In addition, native birds that are designed "watch list" or "special animals" or are protected by the California Fish and Game Code and the federal Migratory Bird Treaty Act, have the potential to nest in the Project area. These include, but are not limited to: Cooper's hawk, sharp-shinned hawk, merlin, American peregrine falcon, osprey.

Impact significance and mitigation requirements are presented for each species in the following discussions.

Invertebrates

The Project area provides potential habitat for Crotch's bumblebee and Monarch butterfly, and these species have the potential to occur in the Project region.

Crotch's Bumble Bee

LESS THAN SIGNIFICANT WITH MITIGATION. Crotch's bumble bee is a state candidate for listing as endangered under CESA. The Project area is within the current range of this species and floral resources were document during the biological surveys. There is one CNDDB record within 5 miles of the Project footprint that includes an individual photographed in Berkeley in 2015 (Occurrence #308). There are no current occurrence records within the BSA in the Xerces Bumble Bee Watch (Hatfield et al, 2020).

Suitable foraging habitat within the Project area includes grassland, shrub, woodland, and forest habitat with native floral resources. Nesting habitat could occur in areas within or adjacent to floral resources that contain mammal burrows. Overwintering habitat could occur in woodlands and forests with sufficient leaf litter. Open space areas in the eastern portion of the Project have the greater potential to provide habitat for Crotch's bumble bee.

Direct impacts to Crotch's bumble bee, if present, would include the loss or modification of foraging and nesting habitat, disturbance or destruction of occupied nesting sites, and exposure of individuals and/or

nesting sites to human disturbance, fugitive dust, and other hazardous materials. Ground disturbing activities and vegetation removal have the greatest potential to impact Crotch's bumble bee. Indirect impacts include habitat fragmentation and alternation of the habitat structure and microclimate of the surrounding environment, and loss or degradation of habitat from invasive weeds. Changes in habitat structure (vertical and horizontal distribution of plant life) and microclimate (such as solar radiation, temperature, relative humidity, and soil moisture) could negatively affect the behavior of Crotch's bumble bee in unforeseen ways. Proliferation of invasive species could reduce floral species available for foraging. No herbicides or pesticides are expected to be used during construction.

Impacts to Crotch's bumble bee from activities covered by the BAHCP are addressed in the ITP FEIR. That analysis concluded that, with incorporation of FPs from the BAHCP, and because issuance of the ITP is not expected to result in substantially increased impacts from ongoing O&M and minor new construction, potential impacts on special-status bumble bees would be less than significant and no mitigation is required.

Implementation of measures from the BAHCP, ITP, and ITP FEIR described for plants would also protect floral resources and bumble bee habitat. These include:

- BAHCP FP-01 through FP-04, FP-07, FP-10 through FP-12, FP-17
- AMM Plant-01 through Plant-08
- O&M ITP-5.3, -5.4, -5.5, -5.7, -5.9 through -5.15, -6.4, -6.8, and -7.6
- ITP FEIR APM BIO-1, BIO-3, BIO-3a, BIO-4, and BIO-5
- MOX APM BIO-1

These APMs require worker training and monitoring, including the biologist authority to stop work; designate access routes, staging areas, and vehicle speeds; minimize ground disturbance to the minimum amount necessary; delineation of avoidance features; minimize erosion, fugitive dust, and soil compaction; implement invasive species control; ensure no herbicides are used for vegetation management within 100 feet of an MBZ for pallid manzanita; stockpile topsoil for restoration activities; submittal of covered species observations to CNDDB; procedure for accidental spills of hazardous materials; and reduce the potential for damage or destruction on known populations of special-status plant species.

Implementation of additional measures to protect wildlife from the BAHCP, ITP, and ITP FEIR would avoid and minimize impacts to Crotch's bumble bee. These include:

- BAHCP FP-05
- O&M ITP-5.17, -6.1, and -6.10
- ITP FEIR APM BIO-2
- MOX APM BIO-2

These wildlife APMS require notification of take or injury of covered species and protection of special-status wildlife encountered. Given that habitat potential is greater in open space areas and protected lands in the eastern portion of the Project, these APMs would require notification of conservation to landowners and CDFW prior to work and allow CDFW access to work areas. MOX APM BIO-2 requires the implementation of HCP and ITP measures to extend to Crotch's bumble bee.

However, even with the application of APMs, potential Project impacts on Crotch's bumble bee, if present, would be significant. The APMs do not define ~~suitable habitat for~~survey requirements to determine if Crotch's bumble bee habitat is present, and they do not define the steps to be taken to avoid or mitigate impacts if an active nest is found. With the implementation of **MM BIO-1b, Crotch's Bumble Bee Avoidance and Minimization,** impacts to Crotch's bumble bee would be less than significant. This mitigation measure would require a qualified biologist to conduct a habitat assessment evaluating the likelihood of bumble bees occurring within or adjacent to the Project area. ~~survey for bumble bees individuals and potential nest sites within the limits of disturbance. If bumble bee species are found, the Project would be required to implement measures from the BAHCP, ITP, and ITP FEIR to avoid sensitive areas and exclude~~

~~construction activities. The measure does not allow destruction or "take" of a Crotch's bumble bee nest.~~ For areas identified as potential Crotch's bumble bee habitat, PG&E will develop a Crotch's Bumble Bee Survey, Impact Avoidance, and Mitigation Plan and submit the plan to CPUC and CDFW. If take is unavoidable, a 2081(a) MOU/ITP will be developed and appropriate mitigation, as approved by CDFW, will be implemented.

Monarch Butterfly

LESS THAN SIGNIFICANT WITH MITIGATION. Monarch butterfly is a candidate for federal listing as endangered under FESA. Monarchs rely on milkweed for larval development, adults use nectar from a variety of floral resources, and overwintering sites are used for protection from wind and freezing temperatures. Overwintering sites are located along the California coast, typically in wind-protected blue gum eucalyptus groves, but are also found on pine, fir, cypress, and oak trees. There are extant CNDDB occurrence of Monarch approximately 5 miles from the BSA, and 11 known overwintering sites in Alameda and Contra Costa County, none of which are in the BSA. No milkweed plants were observed during the botanical surveys, but the Project area provides floral resources that could be used by migrating adults.

Individuals could migrate through the BSA during the migration and breeding season (February through fall) and utilize floral resources present in the grassland and shrub habitat of the Project area; or utilize or establish an unknown overwintering site during the winter in the woodland or forest habitat. Though no milkweed plants were observed during the botanical surveys, there is grassland habitat that could support milkweed and floral foraging, and grassland habitat near the Moraga Substation could support native narrow leaf milkweed based on Calflora habitat prediction models for the species. Eucalyptus trees were observed near the Shepherd Canyon LZ/SA and there is a grove near EBRPD McCosker staging area.

Direct impact to monarchs would include loss of modification of foraging habitat, exposure to human disturbance, fugitive dust, and other hazardous materials. Ground disturbing activities and vegetation removal have the greatest potential to impact Monarch butterfly. Removal of grassland and shrub communities could remove floral resources, remove milkweed plants that support larval development, if present, or remove potential or unknown overwintering trees. Indirect impacts include habitat fragmentation, and loss or degradation of habitat from invasive weeds.

Implementation of plant and wildlife measures form the BAHCP, ITP, and ITP FEIR described for Crotch's bumble bee would also protect monarch. These include:

- BAHCP FP-01 through FP-05, FP-07, FP-10 through FP-12, FP-17
- AMM Plant-01 through Plant-08
- O&M ITP-5.3, -5.4, -5.5, -5.7, -5.9 through -5.15, -5.17, -6.1, -6.4, -6.8, -6.10, and -7.6
- ITP FEIR APM BIO-1, BIO-2, BIO-3, BIO-3a, BIO-4, and BIO-5
- MOX APM BIO-1 and BIO-2

These APMs require worker training and monitoring, including the biologist authority to stop work; require notification of take or injury of covered species and protection of special-status wildlife encountered; designate access routes, staging areas, and vehicle speeds; minimize ground disturbance to the minimum amount necessary; delineation of avoidance features; minimize erosion, fugitive dust, and soil compaction; implement invasive species control; ensure no herbicides are used for vegetation management within 100 feet of an MBZ for pallid manzanita; stockpile topsoil for restoration activities; submittal of covered species observations to CNDDB; procedure for accidental spills of hazardous materials; and reduce the potential for damage or destruction on known populations of special-status plant species; and notification of land conservation landowners and CDFW prior to work. MOX APM BIO-2 requires the implementation of HCP and ITP measures to extend to monarch butterflies.

However, even with the application of APMs, potential Project impacts on monarchs would be significant if milkweed or wintering sites are found during surveys in affected areas. The APMs do not discuss

protection of milkweed plants, if found, and they do not define the steps to be taken if larva or an unknown wintering site is found. With the implementation of **MM BIO-1c, Monarch Avoidance,** impacts to monarchs would be less than significant. This mitigation measure would require a survey for milkweed species and monarch overwintering sites prior to vegetation removal or ground-disturbing activities. If milkweed species are found, they would be flagged for avoidance. If overwintering sites are found, the Project would be required to implement measures from the BAHCP, ITP, and ITP FEIR to avoid sensitive areas and ensure species protection.

Amphibians

The Project area provides potential habitat for foothill yellow-legged frog and California red-legged frog, and these species have the potential to occur in the Project region.

Foothill Yellow-legged Frog

LESS THAN SIGNIFICANT. Foothill yellow-legged frog is federally listed as threatened in the Central Coast DPS that overlays the Project area; and is state listed as endangered in the West/Central Coast clade that overlaps the Project area. This species occurs in shallow, cobble or rocky streams and adjacent upland habitat. Egg masses are deposited on cobbles and boulders in slow-flowing water. Most of the CNDDB records in the area are considered extirpated, and the species has not been observed in the region in recent decades. The only CNDDB record in the region that is not considered extirpated (i.e., presumed extant) is from 1997. EBRPD biologists believe this record is a misidentification. Visual and dipnet surveys were conducted by EBRPD along Alder Creek and Leatherwood Creek in 2018 and no life stages of foothill yellow-legged frogs were observed (EBRPD, 2018).

Suitable habitat for foothill yellow-legged frog, if present, occurs in Moraga Creek and unnamed tributaries near Moraga Substation within the upper portions of the San Leandro Creek Watershed, which occur in the vicinity of the work areas near Moraga Substation and the Wilder LZ/SA. The one extant CNDDB record in the area, believed to be a misidentification by EBRPD biologists, overlaps an access road that travels between Moraga Substation and the Wilder LZ/SA. In this area (PEA Attachment B of the Wildlife Assessment Report [Appendix B3]), PG&E modeled suitable breeding habitat for California red-legged frog is assumed to also provide potentially suitable breeding habitat for FYLF.

Project structures, both temporary and permanent, would be located outside the bed, bank, and channel of aquatic resources, and no in-water work is anticipated. Direct impacts to aquatic habitat for foothill yellow-legged frog would include degradation of riparian habitat and water quality, exposure to night lighting, exposure to fugitive dust and hazardous materials, and introduction and spread of chytrid fungus. Impacts to dispersing individuals, such as crushing or trampling, could occur during Project activities in terrestrial habitat adjacent to streams, most likely during late winter through early spring, and late summer through early winter, when frogs are dispersing to and from creek breeding habitat. Movement of vehicles, removal of vegetation, and grading of roads could crush or bury metamorphs,[31] juveniles, and adults in upland areas as well as individuals using adjacent aquatic areas for dispersal, basking, foraging, or sheltering. Indirect impacts include habitat fragmentation, and loss or degradation of habitat from invasive weeds.

There is potential for both temporary and permanent impacts to riparian habitats (primarily along access roads and near Moraga Substation) and other sensitive communities from work activities being conducted in and near these habitats. Though little riparian habitat exists in the Project study area, minor trimming of riparian habitat would be necessary to provide construction equipment access, and these activities could result in increases in turbidity and sedimentation to adjacent aquatic habitats. However, any increases would be temporary and localized and would not be expected to result in considerable degradation of

[31] A "metamorph" refers to an animal that has undergone metamorphosis, a biological process where an organism transforms from a larval form to an adult form.

habitat or water quality if foothill yellow-legged frog adults or tadpoles are present in waterbodies adjacent to work areas or result in fragmentation of suitable habitat.

Although Project construction is expected to occur mostly during daylight hours, nighttime work may be necessary that would require limited temporary lighting at some work areas. In addition, for the duration of construction, staging yards are expected to use nighttime security lighting. Given the limited amount of night light sources in portions of the Project area, construction lighting used along the Project alignment may create a new source of substantial temporary light, particularly in areas east of the Oakland Hills summit. Night lighting could expose frogs to predation, disturb breeding calls and other breeding activities, or disrupt foraging activities.

Increased suspended sediments, such as fugitive dust, or accidental release of hazardous materials into aquatic resources, could result in mortality of eggs and tadpoles, impair aquatic productivity, and reduce available food resources. The introduction of invasive species can have detrimental effects on aquatic and riparian habitats by altering water availability, outcompeting native species, and suppressing native recruitment.

Impacts to foothill yellow-legged frog from activities covered by the BAHCP are addressed in the ITP FEIR. That analysis concluded that, with the incorporation of APMs from the BAHCP, potential impacts on foothill yellow-legged frog would be less than significant and no mitigation is required.

Implementation of measures from the BAHCP, ITP, and ITP FEIR would minimize potential impacts to foothill yellow-legged frog. These include:

- BAHCP FP-01 through FP-04, FP-05, FP-07, FP-10, FP-11, FP-12, and FP-14 through FP-17
- AMM Wetland-2; AMM Plant 01 through Plant-08
- O&M ITP-5.3, -5.4, -5.5, -5.7, -5.9, -5.10, -5.11, -5.12, -5.13, -5.14, -5.15, -5.17, -6.1, -6.4, -6.8, -6.10, -7.1, -7.2, -7.3, -7.6
- ITP FEIR APM BIO-1, BIO-2, BIO-3, BIO-3a, BIO-4
- MOX APM BIO-1, BIO-3

BAHCP FP-01 through FP-04, FP-07, and FP-10 require worker training, using existing roads or other disturbed areas for vehicle use, limiting vehicle speeds, and minimizing the activity footprint. FP-11 and FP-12 minimize erosion and stockpile topsoil for restoration activities. FP-14 would implement invasive species control and FP-17 would require felling of trees away from exclusion zones. O&M ITP-7.2 and 7.3 would limit night lighting, minimize light scatter offsite and daytime glare, and limit construction activities between sunrise and sunset. Measures incorporated for the protection of aquatic habitat (discussed under Impact BIO-3) would also protect foothill yellow-legged frogs and their habitat, including BAHCP FP-15 and FP-16; AMM Wetland-2; and O&M ITP 7.1. These measures prohibit refueling within the vicinity of aquatic resources and maintaining buffers around aquatic habitat and riparian features. Any special-status wildlife encountered in the work area would not be disturbed and these encounters would be reported to PG&E and reported annually to CDFW in accordance with ITP FEIR APM BIO-2. The Project would implement MOX APM BIO-3, specific to foothill yellow-legged frog, requiring the implementation of specific BAHCP, AMM, and ITP FEIR measures. Given that habitat potential is greater in open space areas and protected lands in the eastern portion of the Project, PG&E would implement BAHCP FP-05; and O&M ITP-5.17, and 6.1 to notify conservation landowners and CDFW prior to work, and allow CDFW access to work areas.

In addition to the APMs described above, APMs described for plants would be implemented. AMM Plant-01 through AMM Plant-08; O&M ITP-5.13, -5.14; and ITP FEIR APM BIO-3 and BIO-4, would further limit vehicle and human disturbance, designate access routes, avoid sensitive areas, and require revegetation for disturbance. O&M ITP-5.3, -5.4, -5.5, 6.4, and MOX APM BIO-1 would collectively give biological monitor authority, and require an education program, clearance and preconstruction surveys if sensitive

resources are present, biological monitoring, monitoring documentation, and submittal of covered species observations. O&M ITP-5.7 would require dust control, O&M ITP-5.9 and 5.10 would provide erosion control to limit sediment from entering the stream; O&M ITP-5.12 would require delineation and avoidance of sensitive habitat features; and O&M ITP 7.6 would ensure stockpiles are not placed near sensitive habitat features. O&M ITP-5.15 outlines the process for accidental release of hazardous waste. O&M ITP-5.11 and ITP FEIR APM BIO-1 and BIO-3a would require clean vehicles and minimize or prevent the spread of invasive weeds and pathogens. If a foothill yellow-legged frog is encountered within the work area, the Project would implement O&M ITP-6.4, -6.8, and -6.10, which requires daily compliance monitoring when covered species are encountered, submittal of observations to CNDDB, and notification to CDFW in the event of take or injury. Measures that protect amphibians and their habitat would also protect native aquatic fish and wildlife that reside in aquatic habitats.

Further, as explained below, mitigation for impacts to California red-legged frog modeled breeding habitat is covered under the BAHCP. PG&E modeled suitable breeding habitat for California red-legged frog is assumed to also provide potentially suitable breeding habitat for foothill yellow-legged frog. As such, mitigation requirements under the BAHCP for impacts to California red-legged frog modeled suitable breeding habitat would also mitigate for losses to potential foothill yellow-legged frog breeding habitat. With the application of these APMs and mitigation required under the BAHCP, impacts to foothill yellow-legged frog would be less than significant.

California Red-legged Frog

LESS THAN SIGNIFICANT. California red-legged frogs are listed as federally threatened and are a CDFW species of special concern. This species breeds in wetlands, lakes, ponds, and other still or slow-moving sources. During the summer, adults disperse in upland habitat, including rodent burrows and soil crevices. California red-legged frogs can disperse over two miles from breeding ponds (thought one mile is more common), primarily at night during wet weather, but can move through upland areas at any time of year.

The Project footprint intersects multiple drainages that are modeled as suitable breeding habitat by the BAHCP (PEA Attachment B of the Wildlife Assessment Report [Appendix B3], PG&E 2017). Modeled suitable breeding habitat is characterized as the riparian area and the actual wetted areas of the stream, creek, or drainage. PG&E used a conservative estimate of 300 feet on each side of the stream to delineate suitable breeding habitat in the BAHCP.

Both direct and indirect impacts to the species may occur during work activities if individuals are present within work areas where PG&E modeled suitable breeding habitat exists (refer to Figure 3.4-8, California Red-Legged Frog HCP Modeled Habitat and Impacts, in Appendix A and Table 3.4-2). Frogs are most likely to be impacted during the breeding season, especially at night or during rain events when they are most active. Suitable upland habitat is present at all work and staging areas within 200 feet from the community of Wilder to Skyline Boulevard (PEA Attachment B of the Wildlife Assessment Report [Appendix B3]). However, the species could potentially be found anywhere within the Project footprint south/east of Park Boulevard within 200 feet of streams. While impacts could potentially occur within BAHCP modeled suitable breeding habitat, no direct impacts to known breeding habitat would occur.

BAHCP measures and ITP FEIR APMs are designed to avoid and minimize impacts to this BAHCP covered species. Impacts to California red-legged frog are addressed in the ITP FEIR, which concluded that, with implementation of the BAHCP and ITP measures, these impacts are less than significant.

Direct and indirect impacts to California red-legged frog would be similar to impacts to foothill yellow-legged frog. As such, the APMs previously mentioned for foothill yellow-legged frog would also avoid and minimize impacts to California red-legged frog. These include:

- BAHCP FP-01 through FP-04, FP-05, FP-07, FP-10, FP-11, FP-12, and FP-14 through FP-17
- AMM Wetland-2; AMM Plant-01 through AMM Plant-08

- O&M ITP -5.3, -5.4, -5.5, -5.7, -5.9, -5.10, -5.11, -5.12, -5.13, -5.14, -5.15, -5.17, -6.1, -6.4, -6.8, -6.10, -7.1, -7.2, -7.3, -7.6
- ITP FEIR APM BIO-1, BIO-2, BIO-3, BIO-3a, BIO-4
- MOX APM BIO-1

BAHCP FP-01 through FP-04, FP-07, and FP-10 require worker training, using existing roads or other disturbed areas for vehicle use, limiting vehicle speeds, and minimizing the activity footprint. FP-11 and FP-12 minimize erosion and stockpile topsoil for restoration activities. FP-14 would implement invasive species control and FP-17 would require felling of trees away from exclusion zones. O&M ITP-7.2 and 7.3 would limit night lighting, minimize light scatter offsite and daytime glare, and limit construction activities between sunrise and sunset. Measures incorporated for the protection of aquatic habitat (discussed under Impact BIO-3) would also protect California red-legged frogs and their habitat, including BAHCP FP-15 and FP-16; AMM Wetland-2; and O&M ITP 7.1. These measures prohibit refueling within the vicinity of aquatic resources and maintaining buffers around aquatic habitat and riparian features. Any special-status wildlife encountered in the work area would not be disturbed and these encounters would be reported to PG&E and reported annually to CDFW in accordance with ITP FEIR APM BIO-2. Given that habitat potential is greater in open space areas and protected lands in the eastern portion of the Project, PG&E would implement BAHCP FP-05; and O&M ITP-5.17, and -6.1 to notify conservation landowners and CDFW prior to work, and allow CDFW access to work areas.

In addition to the APMs described above, APMs described for plants would be implemented. AMM Plant-01 through AMM Plant-08; O&M ITP-5.13, -5.14; and ITP FEIR APM BIO-3 and BIO-4, would further limit vehicle and human disturbance, designate access routes, avoid sensitive areas, and require revegetation for disturbance. O&M ITP-5.3. -5.4, -5.5, -6.4, and MOX APM BIO-1 would collectively give biological monitor authority, and require an education program, clearance and preconstruction surveys if sensitive resources are present, biological monitoring, monitoring documentation, and submittal of covered species observations. O&M ITP-5.7 would require dust control, O&M ITP-5.9 and 5.10 would provide erosion control to limit sediment from entering the stream; O&M ITP-5.12 would require delineation and avoidance of sensitive habitat features; and O&M ITP-7.6 would ensure stockpiles are not placed near sensitive habitat features. O&M ITP-5.15 outlines the process for accidental release of hazardous waste. O&M ITP-5.11 and ITP FEIR APM BIO-1 and BIO-3a would require clean vehicles and minimize or prevent the spread of invasive weeds and pathogens. If a California red-legged frog is encountered within the work area, the Project would implement O&M ITP-6.4, -6.8, and -6.10, which requires daily compliance monitoring when covered species are encountered, submittal of observations to CNDDB, and notification to CDFW in the event of take or injury. Measures that protect amphibians and their habitat would also protect native aquatic fish and wildlife that reside in aquatic habitats.

BAHCP modeled suitable breeding habitat for California red-legged frog is characterized as the riparian area and the actual wetted areas of the stream, creek, or drainage. PG&E used an estimate of 300 feet on each side of the stream to delineate suitable breeding habitat in the BAHCP. The Project has been designed to avoid impacts on all aquatic resources except ephemeral drainage Feature R-11, which is not considered suitable breeding habitat for California red-legged frog. The Project would result in permanent impacts to 0.006 acre and temporary impacts to 4.525 acres of modeled breeding habitat as identified in the BAHCP (Figure 3.4-8, California Red-Legged Frog HCP Modeled Habitat and Impacts, in Appendix A and Table 3.4-2). Mitigation for habitat disturbance is overseen by PG&E's BAHCP team, who provide the Annual Report. By June 1 of each year, PG&E would submit an annual report to CDFW summarizing the mitigation ratios and credits that were debited from its mitigation credit portfolio for covered activities during the previous calendar year. In addition, the report would include survey and monitoring results of ITP-covered species in work areas, as required by ITP FEIR APM BIO-2. BAHCP mitigation is provided at the following ratios for impacts to California red-legged frog modeled habitat:

- 3:1 ratio for permanent impacts on modeled breeding habitat (3 acres mitigated for every 1 acre permanently affected).
- 1:1 ratio for temporary impacts on modeled breeding habitat (0.5 acre mitigated for every 1 acre temporarily affected) when mitigation is provided according to jump start and stay ahead provisions. For the first 5 years, mitigation that is not in place prior to any impact would be at a 1:1 ratio.

Table 3.4-2. Anticipated Impacts to BAHCP Modeled Habitat for California red-legged frog

BAHCP Modeled Habitat Type	Temporary Impacts (acres)	Mitigation Ratio	Permanent Impacts (acres)	Mitigation Ratio	Mitigation Anticipated (acres)
Breeding Habitat	4.525	1:1	0.006	3:1	4.543

Mitigation for impacts to California red-legged frog modeled breeding habitat is covered under the BAHCP, and as shown in Table 3.4-2, would equal approximately 4.543 acres, with actual impact area verified at the end of construction and reported as part of HCP management. Habitat mitigation would be provided for covered species based on acreages of estimated and actual habitat losses consistent with "jump start and stay ahead" mitigation approaches, where "jump start" means land acquisition, preservation, and/or habitat enhancement efforts that are made in advance of permit issuance, and "stay ahead" means PG&E would stay ahead of its mitigation obligations by calibrating the mitigation credits that may be necessary for future years based on information from the Annual Report for the prior year.

With the application of these APMs and mitigation for suitable frog habitat already required by the BAHCP, impacts to California red-legged frog would be less than significant.

Reptiles

Northwestern Pond Turtle

LESS THAN SIGNIFICANT. Northwestern pond turtle is a candidate for listing under the FESA and is a CDFW species of special concern. Northwestern pond turtles are aquatic species, preferring ponds, reservoirs, and slow-moving streams, in a wide range of permanent and intermittent environments. Eggs are laid in upland terrestrial habitat, and juveniles and adults can use both terrestrial and aquatic habitats. Terrestrial movements are typically used for nesting, overwintering and aestivation, basking, and movement/dispersal. Northwestern pond turtles can move up to 1,300 feet or more to upland areas adjacent to watercourses to deposit eggs and overwinter.

The potential for northwestern pond turtle to occur in the Project area west of Manzanita Drive/Skyline Boulevard is considered moderate. The Project area is adjacent to suitable aquatic habitat, breeding upland habitat, and winter refugia present in urban creeks between Shepherd Canyon Road and Park Boulevard (Attachment B of the Wildlife Assessment Report [Appendix B3; PG&E, 2024]). Although most of the Project's work areas are on ridgelines, access roads and the access to staging areas at Wilder and McCosker are within dispersal distance of suitable ponds.

The potential for northwestern pond turtle to occur in Project area east of Manzanita Drive/Skyline Boulevard is considered low. Pools in tributary streams may provide suitable habitat if the pools could support foraging and basking; however, there are no CNDDB records within this portion of the Project area or from these streams. Work areas near the Moraga Substation and the larger McCosker sub-area of EBRPD Sibley Volcanic Regional Preserve are within the dispersal distance of creeks. The access road from Wilder LZ/SA to Moraga Substation is adjacent to a creek. There are two human-made aquatic resources nearby that could provide suitable habitat that turtles could occupy. One is the stormwater basin that is approximately 0.64 mile to the northwest of the Wilder LZ/SA with riparian connectivity to the Project area. The second is a pond on private property that is approximately 0.4 mile southeast of the Fiddleneck LZ/SA. If turtles are occupying these resources, they could disperse into the Project area.

Project structures, both temporary and permanent, would be located outside the bed, bank, and channel of aquatic resources, and no in-water work is anticipated. Direct and indirect impacts to Northwestern pond turtles could occur if these species are present in the upland habitat that surrounds the creeks or ponds, or within the dispersal distance of these features. Direct impacts could include the loss of nesting or overwintering habitat; mortality or injury from crushing, trampling, or entrapment of individuals or nest sites; degradation of riparian habitat and water quality; exposure to night lighting; and exposure to fugitive dust and hazard materials. Indirect impacts include habitat fragmentation, and loss or degradation of habitat from invasive weeds.

The greatest potential risk to northwestern pond turtles is damage or destruction of inconspicuous nesting sites. Though there are no known nesting sites within the Project area, nests are notoriously difficult to find. Damage or destruction of nests could result in injury or mortality to incubating eggs or hatchling turtles. Destruction of nesting areas could disrupt egg-laying activities of adult females. Juvenile movement from nesting sites to aquatic habitat, when they are small and inconspicuous, could result in injury or death of trampled by personnel or equipment. Adult turtles could also be injured or killed during terrestrial movement or overwintering. Increased human presence could disrupt normal foraging or basking behavior that results in a reduced local population size and lower reproductive success.

There is potential for both permanent and temporary impacts to riparian habitats and other sensitive communities from work activities being conducted in and near these habitats. Though little riparian habitat exists in the Project study area, minor trimming of riparian habitat would be necessary to provide construction equipment access, and these activities could result in increases in turbidity and sedimentation to adjacent aquatic habitats or reduce or remove basking sites. However, any increases would be temporary and localized and would not be expected to result in considerable degradation of habitat or water quality if northwestern pond turtles are present in waterbodies or riparian habitat adjacent to work areas, or result in fragmentation of suitable habitat.

Night lighting could expose turtles to predation, disrupt nesting behavior, disorientate hatchlings emerging at night, or disrupt foraging activities. Increased suspended sediments, such as fugitive dust, or accidental release of hazardous materials into aquatic resources, could result in mortality of individuals, alter water chemistry, or reduce the prey base for adults and juveniles. The introduction of invasive species can have detrimental effects on aquatic and riparian habitats by altering water availability, outcompeting native species, and suppressing native recruitment.

Impacts to northwestern pond turtle from activities covered by the BAHCP are addressed in the BAHCP, ITP, and ITP EIR. That analysis concluded that, with incorporation of APMs in BAHCP and ITP EIR, impacts on northwestern pond turtle are considered less than significant and no mitigation is required.

Implementation of measures from the BAHCP, ITP, and ITP FEIR would minimize potential impacts to northwestern pond turtle. These include:

- BAHCP FP-01 through FP-04, FP-05, FP-07, FP-10, FP-11, FP-12, and FP-14 through FP-17
- AMM Wetland-2; AMM Plant 01 through Plant-08
- O&M ITP-5.3, -5.4, -5.5, -5.7, -5.9, -5.10, -5.11, -5.12, -5.13, -5.14, -5.15, -5.17, -6.1, -6.4, -6.8, -6.10, -7.1, -7.2, -7.3, -7.5, -7.6, -7.7
- ITP FEIR APM BIO-1, BIO-2, BIO-3, BIO-3a, BIO-4
- MOX APM BIO-1

BAHCP FP-01 through FP-04, FP-07, and FP-10 require worker training, using existing roads or other disturbed areas for vehicle use, limiting vehicle speeds, and minimizing the activity footprint. FP-11 and FP-12 minimize erosion and stockpile topsoil for restoration activities. FP-14 would implement invasive species control and FP-17 would require felling of trees away from exclusion zones. O&M ITP-7.2 and -7.3 would limit night lighting, minimize light scatter offsite and daytime glare, and limit construction activities

between sunrise and sunset. Measures incorporated for the protection of aquatic habitat (discussed under Impact BIO-3) would also protect northwestern pond turtle and their habitat, including BAHCP FP-15 and FP-16; AMM Wetland-2; and O&M ITP-7.1. These measures prohibit refueling within the vicinity of aquatic resources and maintaining buffers around aquatic habitat and riparian features. Any special-status wildlife encountered in the work area would not be disturbed and these encounters would be reported to PG&E and reported annually to CDFW in accordance with ITP FEIR APM BIO-2. Given that habitat potential is greater in open space areas and protected lands in the eastern portion of the Project, PG&E would implement BAHCP FP-05; and O&M ITP-5.17, and -6.1 to notify conservation landowners and CDFW prior to work, and allow CDFW access to work areas.

In addition to the APMs described above, APMs described for plants would be implemented. AMM Plant-01 through AMM Plant-08; O&M ITP-5.13, -5.14; and ITP FEIR APM BIO-3 and BIO-4, would further limit vehicle and human disturbance, designate access routes, avoid sensitive areas, and require revegetation for disturbance. O&M ITP-5.3, -5.4, -5.5, -6.4 and MOX APM BIO-1 would collectively give biological monitor authority, and require an education program, clearance and preconstruction surveys if sensitive resources are present, biological monitoring, monitoring documentation, and submittal of covered species observations. O&M ITP-5.7 would require dust control, O&M ITP-5.9 and -5.10 would provide erosion control to limit sediment from entering the stream; O&M ITP-5.12 would require delineation and avoidance of sensitive habitat features; and O&M ITP 7.6 would ensure stockpiles are not placed near sensitive habitat features. O&M ITP-5.15 outlines the process for accidental release of hazardous waste. O&M ITP-5.11 and ITP FEIR APM BIO-1 and BIO-3a would require clean vehicles and minimize or prevent the spread of invasive weeds and pathogens. If a northwestern pond turtle is encountered within the work area, the Project would implement O&M ITP-6.4, -6.8, and -6.10, which requires daily compliance monitoring when covered species are encountered, submittal of observations to CNDDB, and notification to CDFW in the event of take or injury.

Additionally, general ITP measures **ITP-5.12, -7.5, and -7.7,** which, collectively, limit vehicle speed and remove entrapment hazards (cover open excavations and pipes), would also protect northwestern pond turtle.

However, even with the application of these APMs, impacts to northwestern pond turtle would ~~still~~ be significant if turtles are present. The APMs only require a 100-foot setback to streams and therefore do not reduce the risk of damage to inconspicuous nesting sites if northern pond turtles are found. With the implementation of **MM BIO-1d, Northwestern Pond Turtle Avoidance**, impacts to northwestern pond turtle will be less than significant. This mitigation measure would require a survey for northwestern pond turtle prior to any ground-disturbing or vegetation removal within 400 feet of any perennial waterbody, to the extent the CPUC-approved PG&E biologist identifies potential nesting habitat within the 400 feet area. If pond turtles are found, construction monitoring would be required, including monitoring turtles for nesting behavior, and establishment of buffers if nesting behavior is suspected. ~~Activities within potential nesting habitat would only be confined to periods outside of the nesting, development, and hatching for northwestern pond turtle.~~

Alameda Whipsnake

LESS THAN SIGNIFICANT. Alameda whipsnake is listed as threatened under FESA and CESA. This species uses a wide variety of habitats that occur in the Project area, including grassland, oak savannah, woodlands, and especially chaparral and scrub habitats. Habitat features include rock outcrops, fallen logs, or trees structurally similar to brush habitat. Small rodent burrows and rock crevices are commonly used by whipsnakes as retreat sites, as well as soil crevices and debris piles.

Much of the Project is mapped as movement habitat for Alameda whipsnake. Movement habitat is defined as grassland, oak savanna, and occasionally oak-bay woodland habitats greater than 500 feet from

scrub. Scrub habitat is considered core habitat for Alameda whipsnake and all natural land cover types from 0 to 500 feet from scrub is perimeter core habitat.

The Project crosses directly through USFWS-designated Critical Habitat Unit 6 for the species (Section 3.4.1.7 and Figure 3.4-6, BAHCP Modeled Habitats and USFWS Critical Habitat in the Wildlife Assessment Field Survey Area, in Appendix A) and suitable habitat, including core and perimeter habitat, and the HCP movement habitat, is found within and adjacent to the Project footprint east of Manzanita Drive/Skyline Boulevard (PEA Attachment B of the Wildlife Assessment Report [Appendix B3]). Potentially suitable habitat to the west becomes highly fragmented and is only found in small patches around homes; individuals could move into the area through Shepherd Canyon where BAHCP-mapped movement habitat and both core and perimeter core habitat is present. There are no known occurrences along the alignment west of SR-13.

Alameda whipsnake is likely to occur within the Project footprint, primarily east of Manzanita Drive/Skyline Boulevard (PEA Attachment B of the Wildlife Assessment Report [Appendix B3]). Any Project activity in this portion of the Project footprint has the potential to result in both direct and indirect impacts to Alameda whipsnake if they are present within work areas. Direct impacts to Alameda whipsnake, if present, include mortality or injury from crushing, trampling, or entrapment of individuals; destruction of nesting or retreat sites; destruction of movement, perimeter, or core habitat through loss of vegetation; exposure to night lighting; and exposure to fugitive dust and hazardous materials. The potential to affect Alameda whipsnake is greatest in these core and perimeter core habitats. Movement of vehicles, removal of vegetation, and grading of roads in movement habitats could result in take of individuals or unknown nest sites. Indirect impacts include habitat fragmentation, and loss or degradation of habitat from invasive weeds.

The BAHCP, ITP, and ITP FEIR measures are designed to avoid and minimize impacts to Alameda whipsnake and their habitat. These APMs, previously reviewed and approved by USFWS and CDFW, would be implemented for the Project. APMs previously mentioned for plants and animals would also minimize impacts to Alameda whipsnake. These include:

- BAHCP FP-01 through FP-04, FP-05, FP-06, FP-07, FP-08, FP-10, FP-11, FP-12, FP-13, FP-14, and FP-17
- AMM Plant-01 through Plant-04 and Plant-08
- O&M ITP-5.3, -5.4, -5.5, -5.6, -5.7, -5.9, -5.10, -5.11, -5.12, -5.13, -5.14, -5.15. -5.17, -6.1, -6.4, -6.8, -6.10, -7.2, -7.3, -7.4, -7.5, -7.6, -7.7, -7.8, -7.9, and -7.17 through -7.24
- ITP FEIR APM BIO-1, BIO-2, BIO-3, BIO-3a, BIO-4 and BIO-5
- MOX APM BIO-1

BAHCP FP-01 through FP-04, FP-07, and FP-10 require worker training, using existing roads or other disturbed areas for vehicle use, limiting vehicle speeds, and minimizing the activity footprint. FP-11 and FP-12 minimize erosion and stockpile topsoil for restoration activities. FP-14 would implement invasive species control and FP-17 would require felling of trees away from exclusion zones. O&M ITP-7.2 and 7.3 would limit night lighting, minimize light scatter offsite and daytime glare, and limit construction activities between sunrise and sunset. Any special-status wildlife encountered in the work area would not be disturbed and these encounters would be reported to PG&E and reported annually to CDFW in accordance with ITP FEIR APM BIO-2. Given that habitat potential is greater in open space areas and protected lands in the eastern portion of the Project, PG&E would implement BAHCP FP-05; and O&M ITP-5.17, and 6.1 to notify conservation landowners and CDFW prior to work, and allow CDFW access to work areas.

AMM Plant-01 through Plant-04 and Plant-08; O&M ITP-5.13, -5.14; and ITP FEIR APM BIO-3 and BIO-4, would further limit vehicle and human disturbance, designate access routes, avoid sensitive areas, and require revegetation for disturbance. O&M ITP-5.3, -5.4, -5.5, -6.4, and MOX APM BIO-1 would collectively give biological monitor authority, and require an education program, clearance and preconstruction surveys if sensitive resources are present, biological monitoring, monitoring documentation, and submittal

of covered species observations. O&M ITP-5.7 would require dust control, O&M ITP-5.9 and 5.10 would provide erosion control to limit sediment from entering the stream; O&M ITP-5.12 would require delineation and avoidance of sensitive habitat features; and O&M ITP 7.6 would ensure stockpiles are not placed near sensitive habitat features. O&M ITP-5.15 outlines the process for accidental release of hazardous waste. O&M ITP-5.11 and ITP FEIR APM BIO-1 and BIO-3a would require clean vehicles and minimize or prevent the spread of invasive weeds and pathogens. If an Alameda whipsnake is encountered within the work area, the Project would implement O&M ITP-6.4, -6.8, and -6.10, which requires daily compliance monitoring when covered species are encountered, submittal of observations to CNDDB, and notification to CDFW in the event of take or injury.

Additionally, **O&M ITP-5.6** would require trash abatement to avoid attracting predators and **BAHCP FP-08** would prohibit dumping, firearms, open fires, hunting, and pets; **O&M ITP-7.4** would require inspections of stored materials; **BAHCP FP-13** and **O&M ITP-7.5** would require open excavation coverings to be equipped with an escape ramp; **BAHCP FP-06** and **O&M ITP-7.7** would require screening or capping pipes or posts; **O&M ITP-7.8** would require equipment inspections before use; and **O&M ITP-7.9** would ensure there are no barriers to covered species movement. **ITP FEIR APM BIO-5** would require exclusion fencing to avoid covered species. Alameda Whipsnake Specific Conditions **O&M ITP-7.17 through -7.24** require preconstruction surveys for Alameda whipsnake, exclusionary barriers, refugia coverboards, clearance surveys, worker trainings, procedures if Alameda whipsnake are found, seasonal restrictions in modeled habitat, and procedures for injury or mortality to Alameda whipsnake, including notification of CDFW.

The Project would result in permanent impacts to 0.041 acre and temporary impacts to 14.683 acres of movement habitat as identified in the BAHCP (Figure 3.4-7, Alameda Whipsnake HCP Modeled Habitat and Impacts, in Appendix A). Mitigation for impacts to Alameda whipsnake is covered under the BAHCP, anticipated at 7.463 acres (Table 3.4-3), and is also addressed in the **ITP FEIR MM BIO-3**, which requires that PG&E acquire, preserve, and/or enhance suitable habitat for mitigation. PG&E would acquire, preserve, and/or enhance potential habitat, or purchase bank credits for Alameda whipsnake, to fully mitigate for the potential take of this species. Mitigation for habitat disturbance is overseen by PG&E's HCP team, who provide the Annual Report. By June 1 of each year, PG&E is required to submit an annual report to CDFW summarizing the mitigation ratios and credits that were debited from its mitigation credit portfolio for covered activities during the previous calendar year. Mitigation is provided at the following ratios for Alameda whipsnake:

- 3:1 ratio for permanent impacts on modeled habitat for Alameda whipsnake (3 acres mitigated for every 1 acre permanently affected).
- 0.5:1 ratio for temporary impacts on non-core (movement) habitat for Alameda whipsnake (0.5 acre mitigated for every 1 acre temporarily affected) when mitigation is provided according to jump start and stay ahead provisions. For the first 5 years, mitigation that is not in place prior to any impact would be at a 1:1 ratio.

Table 3.4-3. Anticipated Impacts to BAHCP Modeled Habitat for Alameda whipsnake

BAHCP Modeled Habitat Type	Temporary Impacts (acres)	Mitigation Ratio	Permanent Impacts (acres)	Mitigation Ratio	Mitigation Anticipated (acres)
Movement Habitat (non-core)	14.683	0.5:1	0.041	3:1	7.463
Core Habitat	None	1:1	None	3:1	None
Perimeter Core Habitat	None	1:	None	3:1	None
Total					**7.463**

With the application of these APMs and species coverage under the BAHCP, and mitigation for impacts to BAHCP Alameda whipsnake modeled habitat, impacts to Alameda whipsnake would be less than significant. No mitigation is required.

Birds

Bald and Golden Eagles

LESS THAN SIGNIFICANT. Bald and golden eagles are CDFW fully protected species and protected under the federal Bald and Golden Eagle Protection Act (BGEPA). Under the BGEPA, nest abandonment or decreased eagle reproductive success caused by substantial interference with normal breeding, feeding, or sheltering behavior would constitute "take" and are prohibited by federal law without prior authorizations or permits from USFWS. As a State fully protected species under Fish and Game Code Sections 3511, take of bald and golden eagles is prohibited in California. Golden eagles nest on cliffs, and both species nest in large trees and electrical towers. Golden eagles use open areas are used for foraging. Bald eagles typically nest adjacent to lakes, rivers, streams, and other large bodies of water.

Alameda County supports a high density of nesting golden eagles. A known nest location occurs in Sibley Preserve. Grassland areas east of Manzanita Drive/Skyline Boulevard provide suitable foraging habitat, and woodlands with large trees and PG&E structures provide nesting and perching habitat. Though bald eagles are less likely to occur, creeks and large trees provide suitable nesting and foraging habitat. EBMUD requested PG&E checks within them prior to construction so they can provide known nest locations for eagles and other raptors.

Direct impacts to eagles could include the loss of suitable foraging habitat, disturbance of breeding behavior, destruction of active nests or eggs, and exposure to hazardous materials. Direct impacts could also include increased potential for electrocution and powerline collision (discussed further under Impact BIO-7). Vegetation or structure removal could result in the destruction or abandonment of chicks and eggs. Construction-related noise from heavy equipment, helicopter, drones, etc., and exposure to night lighting may also result in nest abandonment or premature fledging. The Project may result in temporary and permanent impacts on nesting and foraging habitats such as annual grasslands, trees, shrubs, wetland vegetation, and other substrates. Indirect impacts include long-term habitat type conversion and the colonization of invasive or noxious weeds.

The BAHCP, ITP, and ITP FEIR measures are designed to avoid and minimize impacts to this BAHCP covered species. APMs implemented for other species would also minimize impacts to eagles. These measures include:

- BAHCP FP-01 through FP-04, FP-05, FP-06, FP-07, FP-08, FP-10, FP-11, FP-12, FP-13, FP-14, FP-17, FP-18
- AMM Plant-01 through Plant-04 and Plant 08
- O&M ITP-5.3, -5.4, -5.5, -5.6, -5.7, -5.9, -5.10, -5.11, -5.12, -5.13, -5.14, -5.15, -5.17, -6.1, -6.4, -6.8, -6.10, -7.2, -7.3, -7.4, -7.5, -7.6, -7.7, -7.8, and -7.9
- ITP FEIR APM BIO-1, BIO-2, BIO-3, BIO-3a, BIO-5, BIO-6
- MOX APM BIO-1, BIO-5

BAHCP FP-01 through FP-04, FP-07, and FP-10 require worker training, using existing roads or other disturbed areas for vehicle use, limiting vehicle speeds, and minimizing the activity footprint. FP-11 and FP-12 minimize erosion and stockpile topsoil for restoration activities. FP-14 would implement invasive species control and FP-17 would require felling of trees away from exclusion zones. O&M ITP-7.2 and 7.3 would limit night lighting, minimize light scatter offsite and daytime glare, and limit construction activities between sunrise and sunset. Any special-status wildlife encountered in the work area would not be disturbed and these encounters would be reported to PG&E and reported annually to CDFW in accordance with ITP FEIR APM BIO-2. Given that habitat potential is greater in open space areas and protected lands in the eastern portion of the Project, PG&E would implement BAHCP FP-05; and O&M ITP-5.17, and 6.1

to notify conservation landowners and CDFW prior to work, and allow CDFW access to work areas, which would allow EBMUD and others to discuss known nesting locations prior to work.

AMM Plant-01 through Plant-04 and Plant-08; O&M ITP-5.13, -5.14; and ITP FEIR APM BIO-3 and BIO-4, would further limit vehicle and human disturbance, designate access routes, avoid sensitive areas, and require revegetation for disturbance. O&M ITP-5.3. -5.4, -5.5, -6.4, and MOX APM BIO-1 would collectively give biological monitor authority, and require an education program, clearance and preconstruction surveys if sensitive resources are present, biological monitoring, monitoring documentation, and submittal of covered species observations. O&M ITP-5.7 would require dust control, O&M ITP-5.9 and 5.10 would provide erosion control to limit sediment from entering the stream; O&M ITP-5.12 would require delineation and avoidance of sensitive habitat features; and O&M ITP-7.6 would ensure stockpiles are not placed near sensitive habitat features. O&M ITP-5.15 outlines the process for accidental release of hazardous waste. O&M ITP-5.11 and ITP FEIR APM BIO-1 and BIO-3a would require clean vehicles and minimize or prevent the spread of invasive weeds and pathogens. If eagles are encountered within the work area, the Project would implement O&M ITP-6.4, -6.8, and -6.10, which requires daily compliance monitoring when covered species are encountered, submittal of observations to CNDDB, and notification to CDFW in the event of take or injury.

O&M ITP-5.6 would require trash abatement to avoid attracting predators and BAHCP FP-08 would prohibit dumping, firearms, open fires, hunting, and pets. O&M ITP-7.4 would require inspections of stored materials; BAHCP FP-13 and O&M ITP-7.5 would require open excavation coverings to be equipped with an escape ramp; BAHCP FP-06 and O&M ITP-7.7 would require screening or capping pipes or posts; O&M ITP-7.8 would require equipment inspections before use; and O&M ITP-7.9 would ensure there are no barriers to covered species movement. ITP FEIR APM BIO-5 would require exclusion fencing to avoid covered species.

Additionally, the Project would implement **BAHCP FP-18**, **ITP FEIR APM BIO-6,** and **MOX APM BIO-5** to avoid or minimize impacts to nesting birds and implement Species Specific Buffers for PG&E Activities (PG&E's Nesting Bird Management Plan, PEA Appendix B6), including vertical buffers (i.e., buffers above nests) to minimize impacts from helicopter and drone noise during the nesting bird season. These measures also require avoidance of nests with eggs or chicks, conducting preconstruction surveys for nesting birds, establishing buffers, and monitoring if nests are found. In accordance with ITP FEIR APM BIO-6, PG&E's Nesting Bird Management Plan (PEA Appendix B6) requires a 2,640 feet (or one-half mile) buffer for nesting bald and golden eagle. With the implementation of the APMs, impacts to bald and golden eagles would be less than significant. No mitigation is required.

~~However, even with the application of APMs, impacts to eagles would be significant. Given the sensitivity of the species, specific-specific surveys are required to identify locations of eagle nests and implement a half-mile no disturbance buffer. Surveys limited to the work area would be insufficient to cover nesting eagles that may be disturbed by Project activities.~~

~~**MM BIO-1e, Eagle Avoidance** (see full text in Section 3.4.5) is required in order to ensure that impacts to golden eagle would be less than significant. This measure requires protocol-level surveys for bald and golden eagles during the breeding season, identification of nest locations, and routine inspections. If active eagle nests are identified within one-half mile of Project activities, avoidance buffers will be implemented and inspections will be conducted to verify no Project-related disturbances are occurring.~~

Protected Bird Species

LESS THAN SIGNIFICANT. Suitable nesting and foraging habitat for special-status bird species, "watch list" or "special animals" bird species, and birds protected under the Migratory Bird Treaty Act (MBTA) or California Fish and Game Code (CFGC) Section 3503, is present in all work areas. All habitat types, including grasslands, shrubs, trees, riparian areas, wetland vegetation, and other substrates, including PG&E struc-

tures, throughout the Project footprint and larger BSA provide potential habitat for nesting and foraging birds. This includes Cooper's hawk, sharp-shinned hawk, grasshopper sparrow, long-eared owl, northern harrier, white-tailed kite, merlin, American peregrine falcon, osprey, yellow warbler, and other protected common bird species.

Impacts to protected bird species are similar to those described for golden eagle. Direct impacts to bird species could include the loss of suitable foraging habitat, disturbance of breeding behavior, destruction of active nests or eggs, and exposure to hazardous materials. Direct impacts could also include increased potential for electrocution and powerline collision (discussed further under Impact BIO-7). Vegetation or structure removal could result in the destruction or abandonment of chicks and eggs. Construction-related noise from heavy equipment, helicopters, drones, etc., and exposure to night lighting, may also result in nest abandonment or premature fledging. The Project may result in temporary and permanent impacts on nesting and foraging habitats such as annual grasslands, trees, shrubs, wetland vegetation, and other substrates. Indirect impacts include long-term habitat type conversion and the colonization of invasive or noxious weeds.

Nesting birds may be adversely affected if construction activities occur near active nests during the breeding season. If ground-nesting birds have active nests or have active burrows in and adjacent to the construction work areas, grading and excavation activities could result in removal of an occupied breeding or wintering breeding site, destruction of a ground nest, and loss of adults, young, or eggs, resulting in direct impacts. Direct impacts could also include nest removal or destruction or abandonment of chicks and eggs during vegetation removal or trimming activities to provide construction equipment access for work areas. Construction-related noise from heavy equipment, helicopters, drones, etc. may also result in nest abandonment or premature fledging. The Project may result in temporary and permanent impacts on nesting and foraging habitats such as annual grasslands, trees, shrubs, wetland vegetation, and other substrates. Removal of existing structures and vegetation removal could result in direct impacts on nesting special-status raptors and non-special-status migratory birds. Construction activities and use of a helicopter or drone could result in indirect loss of individual nesting birds or disruption to normal breeding activity.

Implementation of measures from the BAHCP, ITP, and ITP FEIR would avoid and minimize impacts to special-status and common protected birds and their foraging and nesting habitats. These measures include:

- BAHCP FP-01 through FP-04, FP-05, FP-06, FP-07, FP-08, FP-10, FP-11, FP-12, FP-13, FP-14, FP-17, FP-18
- AMM Plant-01 through Plant-04 and Plant-08
- O&M ITP-5.3, -5.4, -5.5, -5.6, -5.7, -5.9, -5.10, -5.11, -5.12, -5.13, -5.14, -5.15, -5.17, -6.1, -6.4, -6.8, -6.10, -7.2, -7.3, -7.4, -7.5, -7.6, -7.7, -7.8, and -7.9
- ITP FEIR APM BIO-1, BIO-2, BIO-3, BIO-3a, BIO-5, BIO-6
- MOX APM BIO-1, BIO-5

BAHCP FP-01 through FP-04, FP-07, and FP-10 require worker training, using existing roads or other disturbed areas for vehicle use, limiting vehicle speeds, and minimizing the activity footprint. FP-11 and FP-12 minimize erosion and stockpile topsoil for restoration activities. FP-14 would implement invasive species control and FP-17 would require felling of trees away from exclusion zones. O&M ITP-7.2 and 7.3 would limit night lighting, minimize light scatter offsite and daytime glare, and limit construction activities between sunrise and sunset. Any special-status wildlife encountered in the work area would not be disturbed and these encounters would be reported to PG&E and reported annually to CDFW in accordance with ITP FEIR APM BIO-2. Given that habitat potential is greater in open space areas and protected lands in the eastern portion of the Project, PG&E would implement BAHCP FP-05; and O&M ITP-5.17, and 6.1 to notify conservation landowners and CDFW prior to work, and allow CDFW access to work areas, which would allow EBMUD and others to discuss known nesting locations prior to work.

AMM Plant-01 through Plant-04 and Plant-08; O&M ITP-5.13, -5.14; and ITP FEIR APM BIO-3 and BIO-4, would further limit vehicle and human disturbance, designate access routes, avoid sensitive areas, and require revegetation for disturbance. O&M ITP-5.3. -5.4, -5.5, -6.4, and MOX APM BIO-1 would collectively give biological monitor authority, and require an education program, clearance and preconstruction surveys if sensitive resources are present, biological monitoring, monitoring documentation, and submittal of covered species observations. O&M ITP-5.7 would require dust control, O&M ITP-5.9 and -5.10 would provide erosion control to limit sediment from entering the stream; O&M ITP-5.12 would require delineation and avoidance of sensitive habitat features; and O&M ITP 7.6 would ensure stockpiles are not placed near sensitive habitat features. O&M ITP-5.15 outlines the process for accidental release of hazardous waste. O&M ITP-5.11 and ITP FEIR APM BIO-1 and BIO-3a would require clean vehicles and minimize or prevent the spread of invasive weeds and pathogens. If eagles are encountered within the work area, the Project would implement O&M ITP-6.4, -6.8, and -6.10, which requires daily compliance monitoring when covered species are encountered, submittal of observations to CNDDB, and notification to CDFW in the event of take or injury.

O&M ITP-5.6 would require trash abatement to avoid attracting predators and BAHCP FP-08 would prohibit dumping, firearms, open fires, hunting, and pets. O&M ITP-7.4 would require inspections of stored materials; BAHCP FP-13 and O&M ITP-7.5 would require open excavation coverings to be equipped with an escape ramp; BAHCP FP-06 and O&M ITP-7.7 would require screening or capping pipes or posts; O&M ITP-7.8 would require equipment inspections before use; and O&M ITP-7.9 would ensure there are no barriers to covered species movement. ITP FEIR APM BIO-5 would require exclusion fencing to avoid covered species.

Additionally, the Project would implement **BAHCP FP-18**, **ITP FEIR APM BIO-6,** and **MOX APM BIO-5** to avoid or minimize impacts to nesting birds and implement Species Specific Buffers for PG&E Activities (PEA Appendix B6), including vertical buffers (i.e., buffers above nests) to minimize impacts from helicopter and drone noise during the nesting bird season. These measures also require avoidance of nests with eggs or chicks, conducting preconstruction surveys for nesting birds, establishing buffers, and monitoring if nests are found.

Given the limited size of the work areas relative to the surrounding expanse of adjacent suitable nesting habitat areas, and that work would be conducted along the same alignment as existing infrastructure for the overhead portion, the temporary loss of nesting habitat is not expected to adversely affect bird species. With the implementation of the APMs, impacts to protected bird species would be less than significant. No mitigation is required.

Mammals

Special-Status Bat Species

LESS THAN SIGNIFICANT. Pallid bat, Townsend's big-eared bat, and Western red bat are CDFW species of special concern and are ranked as "high priority" by the Western Bat Working Group (WBWG). All three species have a moderate potential to occur within the Project footprint given the presence of foraging habitat, maternity roost habitat, and day- and night-roosting habitat. Pallid and Townsend's big-eared bat have a higher potential to occur along creeks in Sausal Creek and San Leandro Creek watersheds; and CDFW considers the entire Project footprint as potential habitat for western red bat.

Direct impacts to special-status bat species, if present, could include loss of habitat; disturbance to roosting, maternity, or hibernacula sites; mortality or injury; exposure to hazardous materials; exposure to night lighting; and the introduction or spread of white-nose syndrome. Impacts from noise and vibration of helicopters drones could disturb roosting bats and maternity sites. Indirect impacts could include habitat type conversion and increased potential for powerline collisions (discussed further under Impact BIO-7).

Trees in and adjacent to the Project footprint provide suitable roosting habitat within cracks and crevices of the tree and exfoliating bark or within the foliage. Tree removal or pruning and noise associated with Project activities could result in the injury, mortality, or disturbance of roosting bats, if present. Construction disturbance adjacent to rocky outcrops other natural features, or adjacent to bridges or other human-made structures, located in or near the Project footprint could disturb bats that may roost on these structures. While the Project footprint contains riparian trees that provide suitable roosting habitat, the Project has been designed to limit trimming or removal of riparian trees.

The decline of bat populations is often due to roost site disturbance or loss. Due to their sensitivity to noise, human presence, and other disturbance factors, roost protection is vitally important. During the breeding season, bats generally roost during the day, either alone or in communal roost sites, depending on the species. Given the wide variety of structures that bats utilize for roosting, there is a potential that implementation of the Project activities would result in the direct removal or disruption of some of these sites.

Although Project construction is expected to occur mostly during daylight hours, nighttime work may be necessary that would require limited temporary lighting at some work areas. In addition, for the duration of construction, staging yards are expected to use nighttime security lighting. Given the limited amount of night light sources in portions of the Project area, construction lighting used along the Project alignment may create a new source of substantial temporary light, particularly in areas east of the Oakland Hills summit. Night lighting could alter foraging activities, expose bats to predation, or disturb maternity roosts or night roosts. Individuals foraging in or near the Project area could use open pipes or other equipment for roosting. While it is unlikely that bats would be directly exposed to hazardous materials, secondary effects could occur as a result of consumption of contaminated food or water resources. If ingested, hazardous materials can cause death or reduce reproductive ability.

According to the White-Nose Syndrome Response Team (WNSRT) (2021), white-nose syndrome is a disease that affects hibernating bats and is caused by the fungus *Pseudogymnoascus destructans* (or Pd). Pd grows in cold, dark places and attacks the bare skin of hibernating bats. As it grows, Pd causes changes in bats that make them become active more than usual resulting in burning fat reserves needed to survive in the winter. Bats with the syndrome may exhibit unusual behavior such as flying outside during cold winter days. Pd spores can last a long time on surfaces including clothes, shoes, and outdoor gear. So, even though humans do not get white-nose syndrome, they can unknowingly transfer the fungus from one place to another. The most effective defense against the risk of spreading white-nose syndrome is avoiding dank areas where Pd may occur. To date in California, white-nose syndrome has not been detected in the Bay Area. The closest positive detections of Pd are in Amador, Placer, and Sutter Counties, all of which were detected between 2023 and 2024 (WNSRT, 2021). Given that these detections are over 80 miles away, it is unlikely that Project activities would result in the introduction or spread of white-nose syndrome.

Implementation of measures from the BAHCP, ITP, and ITP FEIR would avoid and minimize impacts to special-status bat species. APMs implemented for nesting birds and species that utilize aquatic and riparian habitat would also protect roosting bats. These measures include

- BAHCP FP-01 through FP-04, FP-05, FP-06, FP-07, FP-08, FP-10, FP-11, FP-12, FP-13, FP-14, FP-15, FP-16, and FP-17
- AMM Wetland-2, Plant-04 and Plant-08
- O&M ITP-5.3, -5.4, -5.5, -5.6, -5.7, -5.8, -5.9, -5.10, -5.11, -5.12, -5.13, -5.14, -5.15, -5.17, -6.1, -6.4, -6.8, -6.10, -7.1, -7.2, -7.3, -7.4, -7.5, -7.6, -7.7, -7.8, and -7.9
- ITP FEIR APM BIO-1, BIO-2, BIO-3, BIO-3a, BIO-4, BIO-5, BIO-7
- MOX APM BIO-1

BAHCP FP-01 through FP-04, FP-07, and FP-10 require worker training, using existing roads or other disturbed areas for vehicle use, limiting vehicle speeds, and minimizing the activity footprint. FP-11 and FP-12 minimize erosion and stockpile topsoil for restoration activities. FP-14 would implement invasive

species control and FP-17 would require felling of trees away from exclusion zones. O&M ITP-7.2 and 7.3 would limit night lighting, minimize light scatter offsite and daytime glare, and limit construction activities between sunrise and sunset. Any special-status wildlife encountered in the work area would not be disturbed and these encounters would be reported to PG&E and reported annually to CDFW in accordance with ITP FEIR APM BIO-2. Given that habitat potential is greater in open space areas and protected lands in the eastern portion of the Project, PG&E would implement BAHCP FP-05; and O&M ITP-5.17, and 6.1 to notify conservation landowners and CDFW prior to work, and allow CDFW access to work areas.

AMM Plant-01 through Plant-04 and Plant-08; O&M ITP-5.13, -5.14; and ITP FEIR APM BIO-3 and BIO-4, would further limit vehicle and human disturbance, designate access routes, avoid sensitive areas, and require revegetation for disturbance. O&M ITP-5.3, -5.4, -5.5, -6.4, and MOX APM BIO-1 would collectively give biological monitor authority, and require an education program, clearance and preconstruction surveys if sensitive resources are present, biological monitoring, monitoring documentation, and submittal of covered species observations. O&M ITP-5.7 would require dust control; O&M ITP-5.9 and 5.10 would provide erosion control to limit sediment from entering the stream; O&M ITP-5.12 would require delineation and avoidance of sensitive habitat features; and O&M ITP 7.6 would ensure stockpiles are not placed near sensitive habitat features. O&M ITP-5.15 outlines the process for accidental release of hazardous waste. O&M ITP-5.11 and ITP FEIR APM BIO-1 and BIO-3a would require clean vehicles and minimize or prevent the spread of invasive weeds and pathogens. If bats are encountered within the work area, the Project would implement O&M ITP-6.4, -6.8, and -6.10, which requires daily compliance monitoring when covered species are encountered, submittal of observations to CNDDB, and notification to CDFW in the event of take or injury.

Measures incorporated for the protection of aquatic habitat (discussed under Impact BIO-3) would also protect bats and their habitat, including BAHCP FP-15 and FP-16; AMM Wetland-2; and O&M ITP-7.1. These measures prohibit refueling within the vicinity of aquatic resources and maintaining buffers around aquatic habitat and riparian features. O&M ITP-5.6 would require trash abatement to avoid attracting predators and BAHCP FP-08 would prohibit dumping, firearms, open fires, hunting, and pets. O&M ITP-7.4 would require inspections of stored materials; BAHCP FP-13 and O&M ITP-7.5 would require open excavation coverings to be equipped with an escape ramp; BAHCP FP-06 and O&M ITP-7.7 would require screening or capping pipes or posts; O&M ITP-7.8 would require equipment inspections before use; and O&M ITP-7.9 would ensure there are no barriers to covered species movement. ITP FEIR APM BIO-5 would require exclusion fencing to avoid covered species.

Additionally, PG&E would implement **ITP FEIR APM BIO-7** to avoid or minimize impacts to special-status bat species. Activities directly affecting bat roosting habitat would be conducted outside of the bat breeding/pupping season to the extent feasible. If work must be done in the bat breeding/pupping season, a qualified biologist would evaluate known breeding/roosting sites or conduct surveys for bat roosts in suitable breeding/roosting sites. If evidence of a bat maternity roost is found or maternity roosts are detected, impacts would be avoided via establishment of buffers, biological monitoring, or other means presented in the APMs.

With the implementation of these APMs, impacts on special-status bat species would be less than significant. No mitigation is required.

Northern California Ringtail

LESS THAN SIGNIFICANT. Northern California ringtail, a mammal of the racoon family, is a CDFW FP species that has potential to occur in chapparal and woodlands habitats, particularly in associated riparian habitats in proximity to permanent water sources. Habitat along or near creeks in in the Sausal Creek, San Leandro Creek, and San Pablo Creek watersheds provide suitable habitat within and adjacent to the Project footprint. Ringtails are cryptic species that can be difficult to detect. Much of their time is spent foraging at night and occasionally dusk. CWHR Predicted Habitat is primarily considered “low” with

patches of “medium” and “high” scattered along the Project area; while Ringtail Connectivity Modeling for the California Bay Area Linkage Network shows core habitat patches for breeding outside but just southeast of the alignment, from Eastport southeast through conservation lands (CDFW, 2025).

Direct impacts to ringtail could include injury or mortality of individuals; disturbance or destruction of natal dens; destruction of habitat through loss of vegetation; exposure to night lighting, and exposure to fugitive dust and hazardous materials. Indirect impacts include habitat fragmentation, and loss or degradation of habitat from invasive weeds. Injury or mortality, or destruction of natal dens or habitat, could occur during ground disturbance and temporary loss of vegetation associated with the Project. Night lighting could alter foraging activities, especially since these species primarily forage at night, expose ringtails to predation, or disturb maternity dens. Though injury and mortality of the species from Project vehicle strikes and construction activities could occur, it is likely that any individuals present near work areas would quickly disperse into adjacent habitats. However, individuals could get trapped in open trenches or holes, use pipes or other equipment for shelter, or be attracted to the area to forage for food. While it is unlikely that ringtails would be directly exposed to hazardous materials, secondary effects could occur as a result of consumption of contaminated food or water resources. If ingested, hazardous materials can cause death or reduce reproductive ability.

Though the BAHCP, ITP, and ITP FEIR do not specifically address ringtail, APMs implemented for other animals and species that utilize riparian habitat would also avoid and minimize impacts to ringtail. These measures include:

- BAHCP FP-01 through FP-04, FP-05, FP-06, FP-07, FP-08, FP-10, FP-11, FP-12, FP-13, FP-14, FP-15, FP-16, and FP-17
- AMM Wetland-2, Plant-04 and Plant-08
- O&M ITP-5.3, -5.4, -5.5, -5.6, -5.7, -5.8, -5.9, -5.10, -5.11, -5.12, -5.13, -5.14, -5.15, -5.17, -6.1, -6.4, -6.8, -6.10, -7.1, -7.2, -7.3, -7.4, -7.5, -7.6, -7.7, -7.8, and -7.9
- ITP FEIR APM BIO-1, BIO-2, BIO-3, BIO-3a, BIO-4, and BIO-5
- MOX APM BIO-1

BAHCP FP-01 through FP-04, FP-07, and FP-10 require worker training, using existing roads or other disturbed areas for vehicle use, limiting vehicle speeds, and minimizing the activity footprint. FP-11 and FP-12 minimize erosion and stockpile topsoil for restoration activities. FP-14 would implement invasive species control and FP-17 would require felling of trees away from exclusion zones. O&M ITP-7.2 and -7.3 would limit night lighting, minimize light scatter offsite and daytime glare, and limit construction activities between sunrise and sunset. Any special-status wildlife encountered in the work area would not be disturbed and these encounters would be reported to PG&E and reported annually to CDFW in accordance with ITP FEIR APM BIO-2. Given that habitat potential is greater in open space areas and protected lands in the eastern portion of the Project, PG&E would implement BAHCP FP-05; and O&M ITP-5.17, and -6.1 to notify conservation landowners and CDFW prior to work, and allow CDFW access to work areas.

AMM Plant-01 through Plant-04 and Plant-08; O&M ITP-5.13, -5.14; and ITP FEIR APM BIO-3 and BIO-4, would further limit vehicle and human disturbance, designate access routes, avoid sensitive areas, and require revegetation for disturbance. O&M ITP-5.3, -5.4, -5.5, -6.4, and MOX APM BIO-1 would collectively give biological monitor authority, and require an education program, clearance and preconstruction surveys if sensitive resources are present, biological monitoring, monitoring documentation, and submittal of covered species observations. O&M ITP-5.7 would require dust control; O&M ITP-5.9 and 5.10 would provide erosion control to limit sediment from entering the stream; O&M ITP-5.12 would require delineation and avoidance of sensitive habitat features; and O&M ITP-7.6 would ensure stockpiles are not placed near sensitive habitat features. O&M ITP-5.15 outlines the process for accidental release of hazardous waste. O&M ITP-5.11 and ITP FEIR APM BIO-1 and BIO-3a would require clean vehicles and minimize or prevent the spread of invasive weeds and pathogens. If ringtails are encountered within the

work area, the Project would implement O&M ITP-6.4, -6.8, and -6.10, which requires daily compliance monitoring when covered species are encountered, submittal of observations to CNDDB, and notification to CDFW in the event of take or injury.

Measures incorporated for the protection of aquatic habitat (discussed under Impact BIO-3) would also protect ringtails and their habitat, including BAHCP FP-15 and FP-16; AMM Wetland-2; and O&M ITP 7.1. These measures prohibit refueling within the vicinity of aquatic resources and maintaining buffers around aquatic habitat and riparian features. O&M ITP-5.6 would require trash abatement to avoid attracting predators and BAHCP FP-08 would prohibit dumping, firearms, open fires, hunting, and pets. O&M ITP-7.4 would require inspections of stored materials; BAHCP FP-13 and O&M ITP-7.5 would require open excavation coverings to be equipped with an escape ramp; BAHCP FP-06 and O&M ITP-7.7 would require screening or capping pipes or posts; O&M ITP-7.8 would require equipment inspections before use; and O&M ITP-7.9 would ensure there are no barriers to covered species movement. ITP FEIR APM BIO-5 would require exclusion fencing to avoid covered species.

With the implementation of these APMs, impacts on ringtails would be less than significant. No mitigation is required.

San Francisco Dusky-footed Woodrat

LESS THAN SIGNIFICANT. San Francisco dusky-footed woodrat is present in the vicinity of the Project footprint, as documented during the wildlife assessment, the November 2023, and the December 2024 site visit. Suitable habitat is present throughout much of the Project footprint in woodland habitat and it is likely other nests would be discovered near other work areas.

Direct impacts to San Francisco dusky-footed woodrat include mortality or injury from crushing, trampling or entrapment of individuals; destruction of nests (middens); destruction of habitat through loss of vegetation; exposure to night lighting; and exposure to fugitive dust and hazardous materials. Indirect impacts include habitat fragmentation, and loss or degradation of habitat from invasive weeds.

Injury or mortality, or destruction of middens or habitat, could occur during ground disturbance and temporary loss of vegetation associated with the Project. Direct impacts also may include injury and mortality of the species from Project vehicle strikes and construction activities. Individuals could get trapped in open trenches or holes, use pipes or other equipment for shelter, or be attracted to the area to forage for food. Night lighting could alter foraging activities, expose woodrats to predation, or disturb maternity middens with juveniles. If woodrat nests are discovered and cannot be avoided by Project activities, there is the potential for direct impacts associated with nest dismantling and relocation. While it is unlikely that woodrats would be directly exposed to hazardous materials, secondary effects could occur as a result of consumption of contaminated food or water resources. If ingested, hazardous materials can cause death or reduce reproductive ability.

Implementation of measures from the BAHCP, ITP, and ITP FEIR would avoid and minimize impacts to San Francisco dusky-footed woodrat. These measures include

- BAHCP FP-01 through FP-04, FP-05, FP-06, FP-07, FP-08, FP-10, FP-11, FP-12, FP-13, FP-14, and FP-17
- Plant-04 and Plant-08
- O&M ITP-5.3, -5.4, -5.5, -5.6, -5.7, -5.8, -5.9, -5.10, -5.11, -5.12, -5.13, -5.14, -5.15, -5.16, -5.17, -6.1, -6.4, -6.8, -6.10, -7.2, -7.3, -7.4, -7.5, -7.6, -7.7, -7.8, and -7.9
- ITP FEIR APM BIO-1, BIO-2, BIO-3, BIO-3a, BIO-4, BIO-5, BIO-6
- MOX APM BIO-1

BAHCP FP-01 through FP-04, FP-07, and FP-10 require worker training, using existing roads or other disturbed areas for vehicle use, limiting vehicle speeds, and minimizing the activity footprint. FP-11 and FP-12 minimize erosion and stockpile topsoil for restoration activities. FP-14 would implement invasive

species control and FP-17 would require felling of trees away from exclusion zones. O&M ITP-7.2 and -7.3 would limit night lighting, minimize light scatter offsite and daytime glare, and limit construction activities between sunrise and sunset. Any special-status wildlife encountered in the work area would not be disturbed and these encounters would be reported to PG&E and reported annually to CDFW in accordance with ITP FEIR APM BIO-2. Given that habitat potential is greater in open space areas and protected lands in the eastern portion of the Project, PG&E would implement BAHCP FP-05; and O&M ITP-5.17, and 6.1 to notify conservation landowners and CDFW prior to work, and allow CDFW access to work areas.

AMM Plant-01 through Plant-04 and Plant-08; O&M ITP-5.13, -5.14; and ITP FEIR APM BIO-3 and BIO-4, would further limit vehicle and human disturbance, designate access routes, avoid sensitive areas, and require revegetation for disturbance. O&M ITP-5.3, -5.4, -5.5, -6.4, and MOX APM BIO-1 would collectively give biological monitor authority, and require an education program, clearance and preconstruction surveys if sensitive resources are present, biological monitoring, monitoring documentation, and submittal of covered species observations. O&M ITP-5.7 would require dust control; O&M ITP-5.9 and 5.10 would provide erosion control to limit sediment from entering the stream; O&M ITP-5.12 would require delineation and avoidance of sensitive habitat features; and O&M ITP-7.6 would ensure stockpiles are not placed near sensitive habitat features. O&M ITP-5.15 outlines the process for accidental release of hazardous waste. O&M ITP-5.11 and ITP FEIR APM BIO-1 and BIO-3a would require clean vehicles and minimize or prevent the spread of invasive weeds and pathogens. If woodrats are encountered within the work area, the Project would implement O&M ITP-6.4, -6.8, and -6.10, which requires daily compliance monitoring when covered species are encountered, submittal of observations to CNDDB, and notification to CDFW in the event of take or injury.

O&M ITP-5.6 would require trash abatement to avoid attracting predators and BAHCP FP-08 would prohibit dumping, firearms, open fires, hunting, and pets. O&M ITP-7.4 would require inspections of stored materials; BAHCP FP-13 and O&M ITP-7.5 would require open excavation coverings to be equipped with an escape ramp; BAHCP FP-06 and O&M ITP-7.7 would require screening or capping pipes or posts; O&M ITP-7.8 would require equipment inspections before use; and O&M ITP-7.9 would ensure there are no barriers to covered species movement. ITP FEIR APM BIO-5 would require exclusion fencing to avoid covered species.

Additionally, the Project would also implement **O&M ITP-5.16** which prohibits the use of broadcast baiting of rodenticides within the Project area, and limits pesticide use to the requirements of applicable laws and label requirements. **MOX APM BIO-6** would require reporting if woodrats are found, allow the animal to leave the work area, and implementation of East Bay Regional Park District's *San Francisco Dusky-Footed Woodrat Relocation Plan* (PEA Attachment D of Appendix B3) if dismantling/relocation of middens is needed. This plan is an existing woodrat relocation plan agreement between PG&E and EBRPD.

With the implementation of these APMs, impacts to San Francisco dusky-footed woodrat would be less than significant. No mitigation is required.

Overhead Power Line Removal

LESS THAN SIGNIFICANT WITH MITIGATION. Impacts to special-status plant and wildlife species from removal of overhead power lines are expected to be similar as impacts from overhead power lines rebuild. As with the rebuild aspect of the Project, direct impacts on special-status species include crushing, trampling, or direct removal or mortality. Species may also be subject to exposure to fugitive dust, night lighting, and hazardous materials. Indirect impacts could include loss or degradation of habitat from soil compaction, erosion, or the spread of invasive weeds.

Implementation of the same APMs provided for the Overhead Power Line Rebuild component would avoid and minimize impacts to special-status species. These include:

- BAHCP FP 01 through 08, FP-09 through FP-18
- AMM Wetland-2, and AMM Plant-01 through 08
- O&M ITP-5.3 through -5.18, -6.1, -6.4, -6.8, -6.10, -7.1 through -7.9, and -7.17 through -7.24
- ITP FEIR APM BIO-1, BIO-2, BIO-3, BIO-3a, BIO-4, BIO-5, BIO-6, and BIO-7
- MOX APM BIO-1 through BIO-6

These measures require implementation of APMs to protect plants, animals, species habitat, vegetation communities, and aquatic resources during construction activities. Removal of unneeded existing structures would result in bare ground that is devoid of vegetation. Though bare soil would not result in direct impacts to special-status plant species, it could result in indirect impacts from erosion or the spread of invasive weeds. Implementation of **BAHCP FP-14** and **AMM Plant -04** requires revegetation of disturbed areas of 0.1 acres or more. **ITP FEIR APM BIO-3** requires areas where ground disturbance has resulted in exposed soil to be seeded with compatible California annual species and revegetated prior to the onset of winter rains.

Upon completion of construction activities, construction materials, spoils piles, and dismantled structures would be removed. No existing structures are expected to be abandoned in place. As work is completed at each work site, the surplus materials, equipment, and construction debris located at the site would be collected and removed. The Project would implement **O&M ITP 5.18**, which requires removal and proper disposal of all temporary fill and construction refuge.

With the implementation of APMs and BAHCP habitat mitigation requirements, ~~the~~ potential Project impacts to special-status species from overhead power line removal remains significant because the Project could impact unknown future populations of special-status ~~plant~~ species, including special-status plants, Crotch's bumble bee, monarch, and northwestern pond turtle, if present.~~the APMs do not define suitable habitat for Crotch's bumble bee or step to be taken if an active nest is found, there is no protection of milkweed plants or steps taken if monarch larva or an unknown monarch wintering site is found, the stream setback does not reduce damage to inconspicuous nesting sites of northwestern pond turtle, and surveys limited to the work are would be insufficient to cover nesting eagles that may be disturbed by project activities~~. Implementation of **MMs BIO-1a, BIO-1b, BIO-1c, and BIO-1d~~, and BIO-1e~~** would reduce impacts to special-status species to a less than significant level. MM BIO-1a would require plant surveys by a qualified botanist, conducted during the appropriate blooming period, prior to vegetation removal; and require implementation of APMs from the BAHCP, ITP, and ITP FEIR to avoid and minimize impacts to those species. MM BIO-1b would require a qualified biologist to conduct a survey for Crotch's bumble bees and potential nest sites, and if nests are found, avoid sensitive areas and exclude construction activities. MM BIO-1c would require a survey for milkweed species and monarch overwintering sites prior to vegetation removal or ground disturbing activities; and avoid areas where milkweed or overwintering sites are found. MM BIO-1d would require a survey for northwestern pond turtle prior to any ground-disturbing activities or vegetation removal within 400 feet of perennial streams, monitoring for nesting behavior if turtles are found, and establishing buffers around potential nesting habitat. ~~Finally, MM BIO-1e would require protocol-level surveys for eagles and avoidance buffers if nesting eagles are found within one-half mile of Project activities.~~

Underground Power Line

LESS THAN SIGNIFICANT. The majority of the underground portion of the Project occurs in urban habitat. Approximately 71 trees are expected to be removed from Park Boulevard's central median and along Park Boulevard Way where the underground portion is in adjacent lanes. Landscape plants could provide foraging habitat for Crotch's bumble bee. There are no aquatic resource features or creeks that could provide habitat for special status aquatic species. The urban area does not provide habitat for special-

status plants, Alameda whipsnake, nesting habitat for eagles, or habitat for ringtail or San Francisco dusky-footed woodrat. Migratory birds and other protected bird and bat species may move through the Project area during work activities and may nest or roost in the vicinity. Trees could provide nest sites for urban bird species, and if removed during the nesting bird season, could directly injure or kill nesting bird species.

Implementation of the same APMs provided for the Overhead Power Line Rebuild and Removal components would avoid and minimize impacts to special-status species, including potential impacts to nesting birds and roosting bats. These include

- BAHCP FP 01 through 08, FP-09 through FP-18
- AMM Wetland-2, and AMM Plant-01 through 08
- O&M ITP-5.3 through -5.18, -6.1, -6.4, -6.8, -6.10, -7.1 through -7.9, and -7.17 through 7.24
- ITP FEIR APM BIO-1, BIO-2, BIO-3, BIO-3a, BIO-4, BIO-5, BIO-6, and BIO-7
- MOX APM BIO-1 through BIO-6

These measures require implementation of APMs to protect plants, animals, species habitat, vegetation communities, and aquatic resources during construction activities. Implementation of **BAHCP FP-14** and **AMM Plant -04** requires revegetation of disturbed areas of 0.1 acres or more. **ITP FEIR APM BIO-3** requires areas where ground disturbance has resulted in exposed soil to be seeded with compatible California annual species and revegetated prior to the onset of winter rains. **BAHCP FP-18**, **ITP FEIR APM BIO-6,** and **MOX APM BIO-5** would require avoidance of nests with eggs or chicks, conducting preconstruction surveys for nesting birds, implement Species Specific Buffers for PG&E Activities (PEA Appendix B6), establishing horizontal and vertical buffers (i.e., buffers above nests) to minimize impacts from helicopter and drone noise, and monitoring if active nests are found. **ITP FEIR APM BIO-7** would require activities directly affecting bat roosting habitat would be conducted outside of the bat breeding/pupping season to the extent feasible. If work must be done in the bat breeding/pupping season, a qualified biologist would evaluate known breeding/roosting sites or conduct surveys for bat roosts in suitable breeding/roosting sites. If evidence of a bat maternity roost is found or maternity roosts are detected, impacts would be avoided via establishment of buffers, biological monitoring, or other means presented in the APMs.

Though construction for the underground segment may remove trees and other vegetation with potential nesting and roosting habitat within the Project area, the area is already very urbanized, and suitable or better habitat can be found in adjacent parkland and residential yards surrounding the underground construction zone. Trees within Park Boulevard's central median do not provide quality habitat for birds and bats given there are roads and vehicle traffic on either side. Urban areas can provide habitat for urban birds protected under the MBTA, and more common bat species, it's unlikely they provide habitat for sensitive bird or bat species. As such, the underground portion is not expected to result in a population decline for special-status bird or bat species. The underground portion of the Project does not provide habitat for special-status plant species, Crotch's bumble bee, monarchs, or eagle nesting. With implementation of APMs, impacts to special-status species would be less than significant. No mitigation is required.

Operations and Maintenance

LESS THAN SIGNIFICANT ~~WITH MITIGATION~~. PG&E inspects all trees and shrubs near power lines and substations annually to ensure those that pose a safety concern are addressed. Routine vegetation management includes clearing around structures to allow for the inspections of the structure bases and footings. Patrols and inspections look for vegetation around structures. If woody vegetation is in contact with the structure or significantly interferes with the inspection of the structure base or footings, then appropriate vegetation work is scheduled. Vegetation management includes pruning trees or removing trees, cutting down dead or dying trees, and performing additional safety work in high fire-threat areas.

Current ongoing vegetation management programs are sufficient for the powerlines, substations, and access roads, and no additional activities would be required under the proposed Project. Clearing of vege-

tation would be conducted in accordance with PG&E's BAHCP for Operations & Maintenance (PG&E, 2017), and associated ITP and ITP FEIR, as well as GO 95, to ensure utility lines are safe, maintain required vegetation clearance, and to minimize impacts to biological resources. Vegetation management would not be required to continue where the overhead lines are removed after being rebuilt in an underground configuration. Vegetation management would not be required for the underground portion proposed to be in city streets.

Implementation of the same APMs provided for the Overhead Power Line Rebuild/Removal and Underground components would avoid and minimize impacts to special-status species. These include:

- BAHCP FP-01 through 08, FP-09 through FP-18
- AMM Wetland-2, and AMMs Plant-01 through Plant-08
- O&M ITP-5.3 through -5.18, -6.1, -6.4, -6.8, -6.10, -7.1 through -7.9, and -7.17 through -7.24
- ITP FEIR APM BIO-1, BIO-2, BIO-3, BIO-3a, BIO-4, BIO-5, BIO-6, and BIO-7
- MOX APMs BIO-1 through BIO-6

These measures require implementation of APMs to protect plants, animals, species habitat, vegetation communities, and aquatic resources during construction activities. These include preconstruction surveys, biological monitoring, worker training, buffers around sensitive habitat features, and species-specific measures in covered species habitat. Implementation of **BAHCP FP-14** and **AMM Plant-04** requires revegetation of disturbed areas of 0.1 acres or more. **ITP FEIR APM BIO-3** requires areas where ground disturbance has resulted in exposed soil to be seeded with compatible California annual species and revegetated prior to the onset of winter rains.

O&M activities would be conducted under the existing APMs outlined BAHCP, ITP, and ITP FEIR along existing facilities using existing access routes. Though vegetation removal may be needed, no additional ground disturbance activities are needed. Areas permanently disturbed during construction activities are not anticipated to provide habitat for special-status plant species, Crotch's bumble bee, monarchs, northwestern pond turtle, or eagle nesting. However, temporarily impacted areas could provide habitat for special-status species in the future. Similarly, vegetation removal activities may provide habitat for special-status species.

Section 6.6.2.1. of the Bay Area HCP provides the process for PG&E to undertake if a non-covered species becomes listed. As required by the HCP, PG&E will evaluate potential impacts to the newly listed species, including an assessment of the presence of suitable habitat, and will develop measures to avoid take of newly listed species until the HCP is amended to cover the species or PG&E complies with the endangered species act via other means. As such, the Bay Area HCP provides the process if northwestern pond turtle becomes a federally listed species.

~~With the implementation of APMs and BAHCP habitat mitigation requirements, the impact to special-status species from O&M activities remains significant because the Project could impact unknown future populations of special-status plant species, the APMs do not define suitable habitat for Crotch's bumble bee or step to be taken if an active nest is found, there is no protection of milkweed plants or steps taken if monarch larva or an unknown monarch wintering site is found, the stream setback does not reduce damage to inconspicuous nesting sites of northwestern pond turtle, and surveys limited to the work are would be insufficient to cover nesting eagles that may be disturbed by Project activities. Implementation of **MMs BIO-1a, BIO-1b, BIO-1c, BIO-1d, and BIO-1e** would reduce impacts to special-status species to a less than significant level. MM BIO-1a would require plant surveys by a qualified botanist, conducted during the appropriate blooming period, prior to vegetation removal; and require implementation of APMs from the BAHCP, ITP, and ITP FEIR to avoid and minimize impacts to those species. MM BIO-1b would require a qualified biologist to conduct a survey for Crotch's bumble bees and potential nest sites, and if nests are found, avoid sensitive areas and exclude construction activities. MM BIO-1c would require a survey for milkweed species and monarch overwintering sites prior to vegetation removal or ground~~

~~disturbing activities; and avoid areas where milkweed or overwintering sites are found. MM BIO-1d would require a survey for northwestern pond turtle prior to any ground-disturbing activities or vegetation removal within 400 feet of perennial streams, monitoring for nesting behavior if turtles are found, and establishing buffers around potential nesting habitat. Finally, MM BIO-1e would require protocol-level surveys for eagles and avoidance buffers if nesting eagles are found within one-half mile of Project activities.~~

Given that O&M activities such as inspections and maintenance programs are essentially unchanged from the current existing measures, these activities are part of the existing baseline conditions and there is no Project change to existing practices or impact due to changed O&M activities. Maintenance activities on the newly constructed Project will be reduced in the first 5 years than existing conditions, resulting in a reduction of any O&M impacts. Current ongoing vegetation management programs are sufficient for powerlines, substations, and access roads, and no additional activities would be required under the proposed Project. Implementation of the HCP, ITP, and ITP FEIR measures have been deemed appropriate avoidance and mitigation by resource agencies for the existing current activities and for future covered PG&E activities such as the activities on the rebuilt lines. With the implementation of these APMs, impacts would be less than significant.

Mitigation Measures for Impact BIO-1

MM BIO-1a **Special-Status Plants Avoidance.** See full text in Section 3.4.5 (Mitigation Measures).

MM BIO-1b **Crotch's Bumble Bee Avoidance.** See full text in Section 3.4.5 (Mitigation Measures).

MM BIO-1c **Monarch Avoidance.** See full text in Section 3.4.5 (Mitigation Measures).

MM BIO-1d **Northwestern Pond Turtle Avoidance.** See full text in Section 3.4.5 (Mitigation Measures.)

~~**MM BIO-1e** **Eagle Avoidance.** See full text in Section 3.4.5 (Mitigation Measures).~~

With implementation of mitigation measures, potential special-status plant and wildlife impacts related to Impact BIO-1 would be less than significant.

Impact BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

Construction

Overhead Power Line Rebuild / Overhead Power Line Removal

LESS THAN SIGNIFICANT. The Project area overlaps USFWS Designated Critical Habitat for Alameda whipsnake, Biological Resource Management Areas, and sensitive natural communities.

USFWS Designated Critical Habitat

The Project area overlaps USFWS-designated critical habitat and BAHCP Alameda whipsnake modeled habitat (see Figure 3.4, Appendix A). Impact BIO-1 discusses mitigation requirements for impacts to BAHCP Alameda whipsnake modeled habitat, but did not address impacts to USFWS-designated critical habitat. Per the BAHCP, temporary impacts within all critical habitat units for all covered species (including Alameda whipsnake) will be mitigated at a 1:1 ratio. Mitigation for permanent impacts on modeled habitat for covered species is at a 3:1 ratio. Permanent impacts specific to critical habitat are not specified in the BAHCP.

Permanent Impacts: As discussed in Impact BIO-1 for Alameda whipsnake, anticipated permanent impacts to Alameda whipsnake modeled habitat are mitigated at a 3:1 ratio. Of the approximately 0.041 acre of

permanent impact to BAHCP modeled habitat for Alameda whipsnake, approximately 0.03 acre are also within USFWS-designated critical habitat. The entire 0.041 acres of permanent impacts are being mitigated at a 3:1 ratio (for a total of 7.463 acres). The BAHCP does not require additional mitigation for permanent impacts to USFWS-designated critical habitat. As such, no additional mitigation is needed for permanent impacts to USFWS-designated critical habitat for Alameda whipsnake.

Temporary Impacts: As discussed in Impact BIO-1 for Alameda whipsnake, anticipated temporary impacts to Alameda whipsnake modeled habitat are mitigated at a 0:5:1 ratio. Per the BAHCP, temporary impacts to USFWS-designated critical habitat are mitigated at a 1:1 ratio. Of the approximately 14.683 acres of temporary impact to BAHCP modeled habitat for Alameda whipsnake, approximately 5.0 acres are also within USFWS-designated critical habitat. As such, an additional 2.5 acres of mitigation is required for temporary impacts to Alameda whipsnake designated critical habitat (Table 3.4-4).

Table 3.4-4. Anticipated Impacts to USFWS Designated Critical Habitat for Alameda whipsnake

USFWS-Designated Critical Habitat Type	Temporary Impacts (acres)	Mitigation Ratio	Mitigation Total (acres)	Acres Already Mitigated under Impact BIO-1	Additional Mitigation Required (acres)
Alameda whipsnake	5.0	1:1	5.0	2.25	2.25
Total					**2.25**

With the implementation of additional mitigation for temporary impacts to USFWS Designated Critical Habitat for Alameda whipsnake, as required by the BAHCP, impacts are considered less than significant.

Biological Resource Management Areas

Other resource management areas in the BSA are EBRPD's Sibley Volcanic Regional Preserve and the Huckleberry Botanical Regional Preserve. The Project's two isolated staging areas are located within the Sibley Preserve. Work areas in the central portion of the Project area along Manzanita Drive overlap the boundary of the Huckleberry Botanical Regional Preserve. The Project alignment overlaps the Moraga Creek Open Space Area and Indian Valley Preserve Area Conservation Easement near Moraga Substation (Figure 5.11-2 in the PEA, PEA graphics are available on the CPUC MOX Project website). PG&E has three easements, allowing for access and maintenance of the alignment within this conservation easement. EBRPD also holds two small conservation easements, located along the western edge of the Project area, bordering the residential neighborhood of Sibley Volcanic and Huckleberry Regional Preserves. A Project staging area on Manzanita Drive is directly adjacent to the Huckleberry Regional Preserve Conservation Easement.

Estimated impact acreages to other conservation areas are less than approximately 0.01 acre of permanent impact and approximately 0.6 acre of temporary impact within these conservation easements. Given the small amount of permanent disturbance, permanent impacts are less than significant. Implementation of **APMs BAHCP FP-14, AMM Plant-04, O&M ITP-7.20,** and **ITP FEIR APM BIO-3** would, collectively, require revegetation for temporary impacts greater than 0.1 acres. In accordance with APM **BAHCP FP-05**, PG&E would conduct Project communication with the conservation landowners and provide notice as stipulated in the BAHCP prior to conducting covered activities. With the implementation of these APMs, impacts would be less than significant.

Sensitive Natural Communities

Trees, ornamental landscaping, shrubs, brush, and grasses or other organic matter may be trimmed or removed to allow construction equipment or vehicles to operate safely within a work area, for clearance requirements for access needs or in compliance with CPUC regulations and standards. Where it is feasible for construction equipment to travel overland, or where trees have not grown within the footprint of the

Project, trees and shrubs would be trimmed without the need to remove roots and stumps. Removal of the trees would be required if a tree or portions of it interfere with the safe passage of construction equipment or if the tree has grown within the Project footprint. Adjacent trees may be trimmed to avoid damage from construction vehicles and maintain safe lines of sight. Vegetation trimming and removal would be kept to the minimum necessary for structure placement or removal, underground portion installation, power line operation, and access (PG&E, 2024).

As discussed in Section 3.4.1.3, Vegetation Communities, Land Cover, and Wildlife Habitats, vegetation mapping is based on Conservation Lands Network (CLN) Vegetation (BAOSC, 2019) mapping for the entire BSA and refined to the List of California Vegetation Alliances (Holland, 1986) and classifications presented in the *Manual of California Vegetation* (MCV, Sawyer et al., 2009) within the botanical survey area (see PG&E's PEA Appendix B1 and Tables F-1, F-2, and F-3 in EIR Appendix F). Vegetation communities in the botanical study and survey area include grassland, shrub, woodland and forest, wetlands, and other (urban, park) cover types. Natural communities with ranks of S1, S2, and S3 are considered sensitive natural communities. There are several communities in the Biological Study Area (see Figure 3.4-3, Vegetation Communities, in Appendix A) that are designated as sensitive natural communities by CDFW: three types of native grassland communities (Blue Wildrye Prairie, Needle Grassland, Creeping Ryegrass Turfs); two types of scrub (Arroyo Willow Thickets, Brittle Leaf Manzanita Chaparral); two types of woodland/ forests (California Bay Forest, Redwood Forest); and two types of wetlands (Dense Sedge Marshes, Common Monkey Flower Seep).

Estimated disturbances to Holland and MCV mapped vegetation communities are summarized in Table 3.4-5 and Table 3.4-6. Riparian habitat and other sensitive communities are present in and near the Project footprint (Figures 3.4-2, Project Components and Biological Study/Survey Areas, 3.4-3, Vegetation Communities, and 3.4-6, BAHCP Modeled Habitats and USFWS Critical Habitat in the Wildlife Assessment Field Survey Area). Riparian habitat within the Project study area includes Central Coast riparian scrub. The Project has been designed to limit trimming or removal of riparian trees. Minor trimming (<0.01 acres) of riparian habitat would be necessary to provide construction equipment access. Given the limited amount of vegetation removal in riparian areas, direct impacts to riparian areas are considered less than significant. As design progresses, precise potential impacts due to riparian tree removal if any, would be evaluated and if unavoidable, a 1600 Streambed Alteration Agreement may be required. Permitting requirements is discussed further in Impact BIO-3.

Direct impacts to sensitive communities include removal or trimming of vegetation before construction or along access roads, and by staging Project vehicles and equipment in construction work areas. Equipment or vehicle overland travel on dry vegetation may ignite vegetation resulting in vegetation fires and wildfire risk (wildfire is discussed further in Section 3.18). Revegetation activities may inadvertently introduce the root fungus *Phytophthora* species, which could kill sensitive native species. Indirect impacts to both riparian habitats and other sensitive communities include loss or degradation of habitat from soil compaction, erosion, or spread of invasive weeds from Project vehicle and equipment travel and staging. No herbicides or pesticides are expected to be used during construction. Specific tree removal information is provided in the PEA in Table 3.5-5 (PG&E, 2024) and discussed further under Impact BIO-5.

Table 3.4-5. Impacts by Holland Vegetation Types[1, 2]

Holland Classification (*MCV alliance*)	Temporary Impacts (acres)	Permanent Impacts (acres)
Coast Live Oak Woodland	2.311	0.006
Construction Site	0.738	0
Non-Native Grassland	7.208	0.027
Northern Coyote Brush Scrub	0.789	0.01

Holland Classification (*MCV alliance*)	Temporary Impacts (acres)	Permanent Impacts (acres)
Northern Maritime Chaparral (Rubus alliance)	0.142	0.001
Park	2.045	0
Restoration Site	0.171	0.002
Upland Redwood Forest (Sequoia sempervirens Forest Alliance)	0.059	0
Urban	15.676	0.008
Urban Mix	0.814	0.001
Valley Needlegrass Grassland (Stipa spp. Herbaceous Alliance)	0.584	0.002
Total	**30.537**	**0.057**

[1] CDFW S1, S2, and S3 Sensitive Natural Communities are italicized.
[2] Acres exclude substations and existing access roads.

Table 3.4-6. Impacts to Sensitive Natural Communities[1]

Holland Classification	MCV Sensitive Natural Community	Acres within Botanical Survey Area	Temporary Impact (acres)	Permanent Impact (acres)	Comments
Upland Herbaceous					
Native Grassland	*Elymus glaucus* Herbaceous Alliance (Blue Wildrye Prairie) (41.131.000) S3	0.3	0	0	One patch near the staging area near Wilder and on east facing slopes of Gudde Ridge; avoided.
Valley Needlegrass Grassland	*Stipa* spp. Herbaceous Alliance S3	1.9	0.584	0.002	Patchy distribution throughout the non-native grassland; small area of impacts will occur.
Valley Wildrye Grassland	*Elymus triticoides* Herbaceous Alliance S3	0.1	0	0	One occurrence just west of Moraga Substation. This area has been avoided.
Scrub and Chaparral					
Northern Maritime Chapparal	*Arctostaphylos crustacea* Shrubland Alliance S3	0.4	0	0	Occurs east of Manzanita Drive as islands within coast live oak community; supports the pallid manzanitas. Avoided.
Central Coast Riparian Scrub	*Salix lasiolepis* Shrubland Association S3	0.3	<0.01	0	One depression in Shepherd Canyon and one access road crossing where impacts are avoided but minor trimming may occur.
Forest and Woodland					
California Bay Forest	*Umbellularia californica* Forest Alliance S3	3.2	0	0	Occurs along access roads leading to Wilder, in San Leandro Creek bottom and banks, and Sausal Creek bottom. No impacts to these areas.
Upland Redwood Forest	*Sequoia sempervirens* Forest Alliance S3.2	1.1	0.059	0	Found in Dimond and Shepherd Canyons, small impact area.

Holland Classification	MCV Sensitive Natural Community	Acres within Botanical Survey Area	Temporary Impact (acres)	Permanent Impact (acres)	Comments
Wetland					
Freshwater Seep	*Carex densa* Provisional Herbaceous Alliance S2?	<0.1	0	0	A total of four small alliance seeps were found in the eastern portion of the Project as small islands in the non-native grassland. Avoided.
Freshwater Seep	*Erythranthe guttata* Herbaceous Alliance S3	0.1	0	0	

Implementation of measures from the BAHCP, ITP, and ITP FEIR would reduce both direct and indirect impacts to vegetation and land cover types and sensitive natural communities. These measures include:

- BAHCP FP-01 through FP-04, FP-07, FP-09, FP-10 through FP-12, and FP-14 through FP-17
- AMM Wetland-2, AMMs Plant-01 through Plant-08
- O&M ITP-5.3, -5.4, -5.5, -5.7, -5.9, -5.10, -5.11, -5.12, -5.13, -5.14, -5.15, -5.18, -6.4, -7.1, -7.6
- ITP FEIR APM BIO-1, BIO-3, BIO-3a, and BIO-4
- MOX APM BIO-1

These APMs would require worker training and monitoring, including the biologist authority to stop work; designate access routes, staging areas, and vehicle speeds; prohibition of refueling near aquatic resources and require buffers during construction; minimize ground disturbance to the minimum amount necessary; delineation and avoidance of sensitive habitat; minimize erosion, fugitive dust, and soil compaction; implement invasive species control; ensure no herbicides are used for vegetation management within 100 feet of an MBZ for pallid manzanita; stockpile topsoil for restoration activities; revegetation with a commercial weed-free seed mix; hygiene protocols and procedures to avoid the likelihood of spreading *Phytophthora*; procedure for accidental spills of hazardous materials; and reduce the potential for damage or destruction on known populations of special-status plant species. Specifically, FP-14 and AMM Plant 04 will require revegetation for disturbances greater than 0.1 acres, and ITP FEIR APM BIO-3 will require implementation of appropriate protective measures to protect natural communities, determination if additional permitting is required and obtaining the required permits (e.g., LSAA), and new or adjacent plantings for temporary disturbances.

Additionally, the Project would implement **APM FP-09** to minimize wildfire risk by installing spark arrestors on vehicles and equipment and carrying fire equipment; and **O&M ITP-5.18** which would require removal and disposal of construction materials.

Given the minimal number of permanent impacts to sensitive natural communities (0.002 acres), APMs designed to protect and minimize vegetation disturbance, the requirement to obtain an LSAA if vegetation removal impacts riparian habitat, and the implementation of revegetation APMs for temporary impacts, impacts are less than significant. No mitigation is required.

Underground Power Line

NO IMPACT. There are no sensitive natural communities in the underground portion of the rebuild Project (See Figure 3.4-3, Vegetation Communities). Underground installation would occur in urban/developed areas along existing roads. Underground power lines would have no impact on sensitive natural communities.

Operations and Maintenance

LESS THAN SIGNIFICANT. PG&E would inspect all trees and shrubs near power lines and substation annually to ensure those that pose a safety concern are addressed. Routine vegetation management includes clearing around structures to allow for the inspections of the structure bases and footings. Patrols and inspections look for vegetation around structures. If woody vegetation is in contact with the structure or significantly interferes with the inspection of the structure base or footings, then appropriate vegetation work is scheduled. Vegetation management includes pruning trees or removing trees, cutting down dead or dying trees, and performing additional safety work in high fire-threat areas.

Current /vegetation management programs for the existing power lines would continue; no additional activities would be required under the proposed Project. Clearing of vegetation would be completed according to PG&E's vegetation management practices to ensure access is safe and to minimize impacts to biological resources. Vegetation management would not be required to continue where the overhead lines are removed after being rebuilt in an underground configuration. Vegetation management would not be required for the underground portion proposed to be in city streets.

Implementation of measures from the BAHCP, ITP, and ITP FEIR described under the overhead component would avoid and minimize impacts to vegetation and land cover types and sensitive natural communities during maintenance activities. These measures include:

- BAHCP FP-01 through FP-04, FP-07, FP-09, FP-10 through FP-12, and FP-14 through FP-17
- AMM Wetland-2, AMMs Plant-01 through Plant-08
- O&M ITP-5.3, -5.4, -5.5, -5.7, -5.9, -5.10, -5.11, -5.12, -5.13, -5.14, -5.15, -6.4, -7.1, -7.6
- ITP FEIR APMs BIO-1, BIO-3, BIO-3a, and BIO-4
- MOX APM BIO-1

These APMs would require worker training and monitoring, including the biologist authority to stop work; designate access routes, staging areas, and vehicle speeds; prohibition of refueling near aquatic resources and require buffers during construction; minimize ground disturbance to the minimum amount necessary; delineation and avoidance of sensitive habitat; minimize erosion, fugitive dust, and soil compaction; implement invasive species control; ensure no herbicides are used for vegetation management within 100 feet of an MBZ for pallid manzanita; stockpile topsoil for restoration activities; procedure for accidental spills of hazardous materials; and reduce the potential for damage or destruction on known populations of special-status plant species. Specifically, FP-14 and AMM Plant 04 will require revegetation for disturbances greater than 0.1 acres, and ITP FEIR APM BIO-3 will require implementation of appropriate protective measures to protect natural communities, determination if additional permitting is required and obtaining the required permits (e.g., LSAA), and new or adjacent plantings for temporary disturbances. Additionally, the Project would implement APMs FP-09 to minimize wildfire risk by installing spark arrestors on vehicles and equipment and carrying fire equipment.

With implementation of Project APMs and measures from the BAHCP and ITP EIR, impacts to sensitive natural communities from operations and maintenance would be less than significant. No mitigation is required.

Impact BIO-3: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

Construction

Aquatic resources include both wetlands (marsh, vernal pools, swales, and other wetlands) and waters (drainages, creeks, streams, lakes, etc.). The Project is required to comply with state and federal law

regarding impacts to aquatic resources (Clean Water Act Section, National Pollutant Discharge Elimination System (NPDES), State Porter-Cologne Water Quality Control Act, Fish and Game Code 1602), including obtaining necessary permits (USACE Section 404 Nationwide, Regional, or Individual Permit, Construction General Permit (CGP) and Stormwater Pollution Prevention Plan (SWPPP), RWQCB Section 401 Water Quality Certification or Waste Discharge Requirement, CDFW Lake or Streambed Alteration Agreement). Activities that involve modification of the bed or bank of a federal and/or State jurisdictional waterway would be regulated by the CDFW, RWQCB, and/or USACE. Activities that temporary impact wetlands would be regulated by the RWQCB, and possibly by the USACE. Construction activities subject to clearing, grading, or ground disturbances are required to obtain coverage under the SWRCB CGP and SWPPP. The Project is required to obtain all required aquatic resource permits, as applicable. All permit conditions would be implemented.

Direct impacts to aquatic resources include the removal of native vegetation, degradation of water quality from increased erosion and sedimentation, and exposure to hazardous materials (such as oils and fuels), which not only could degrade water quality but impact native aquatic species that reside in creeks. Vehicle and equipment access through wetlands can also cause impacts. Indirect impacts include loss or degradation of habitat from soil compaction, erosion, or spread of invasive species from Project vehicle and equipment travel and staging.

Overhead Power Line Rebuild / Overhead Power Line Removal

LESS THAN SIGNIFICANT WITH MITIGATION. Aquatic resources were observed through the Project area, most commonly along the access routes but also within proposed work areas as described in Section 3.4.1.4. No roadway improvements are necessary, and no impacts are anticipated to the potentially jurisdictional features along access roads. The aquatic resource delineation identified the following wetlands, intermittent drainages, ephemeral drainages, and culverted waters in the aquatic study area and survey area:

- Five wetlands were identified comprising approximately 0.133 acre. All delineated wetlands appeared to be isolated wetlands without direct surface connection to any waters of the United States (U.S.). Therefore, these wetlands are unlikely to be considered water of the U.S. However, these wetlands are potentially waters of the State.
- 10 intermittent drainages were identified comprising approximately 0.357 acre and approximately 1,750 linear feet. All delineated intermittent features are both waters of the U.S. and waters of the State.
- Five ephemeral drainages were identified comprising approximately 0.029 acre and approximately 465 linear feet. All delineated ephemeral features are unlikely to be waters of the U.S. based on the updated definition of tributaries defined as relatively permanent, standing, or continuously flowing bodies of water. All ephemeral drainages are potentially waters of the State.
- 10 culverted waters were identified comprising approximately 1,514 linear feet. These features convey flow between upstream and downstream segments of potentially jurisdictional features. Most culverted waters are considered waters of the U.S. with the exception of CW-6, which conveys flow for an ephemeral drainage, and therefore is unlikely to be considered waters of the U.S. All culverted waters are potential waters of the State.

The Project was designed to avoid impacts on all wetlands and all drainages where feasible; one ephemeral drainage could not be avoided (Feature R-11). Feature R-11 is a shallow ephemeral drainage that may be temporarily affected by equipment movement in a work area. Feature R-11 was classified as ephemeral flow regime and did not have a continuous surface connection to downstream traditional navigable waters and does not meet the current definition of Waters of the U.S. but is potentially a waters of the State. The drainage is subject to disturbance during construction along 78 feet of its length, because it is located in a work area between two structures. This ephemeral drainage is approximately two feet

wide, for a total potential impact of 156 square feet or 0.003 acre (refer to Figure 3.4-4, Aquatic Resources Delineation Map, in Appendix A).

No other direct impacts to aquatic resources are expected to occur; therefore, the Project is not expected to require permits under Sections 401 and 404 of the CWA. The Project may require a Waste Discharge Requirement from the Regional Water Quality Control Board for impacts to Waters of the State. Additionally, a Lake or Streambed Alternation Agreement may be required from CDFW.

PG&E's rebuilt power lines would span five creeks: San Leandro Creek, Shepherd Creek, Cobbledick Creek, Palo Seco Creek, and Sausal Creek. Rebuilt powerline structures are proposed within approximately 40 to 400 feet of the five creeks as listed in Table 3.4-7.

Table 3.4-7. Structure Work Area Approximate Distance from Creeks

Creek	Approximate Distance (feet) from Structure Work Area	Rebuild Structure Number
San Leandro Creek	400	RN9, RS9
Shepard Creek	205	RN20, RS20
Cobbledick Creek	40	RN21, RS21
Palo Seco Creek	275	RN22, RS22
Sausal Creek	115	RN26, RS26

A paved access road is adjacent to daylighted lengths of Palo Seco Creek. Shepherd Creek, Sausal Creek, and Palo Seco Creek are culverted underground in the areas where they intersect with Project staging areas. No ground disturbance (grading or excavation) is anticipated at staging areas, and as such, there is no anticipated impact to these waterways. No herbicides or pesticides are expected to be used during construction.

Implementation of measures from the BAHCP, ITP, and ITP EIR described previously would avoid or minimize many impacts to aquatic resources. These measures include:

- BAHCP FP-01 through FP-04, FP-07, FP-10 through FP-12, and FP-14 through FP-17
- AMM Wetland-2, AMM Plant-01 through Plant-04
- O&M ITP-5.3, -5.4, -5.5, -5.7, -5.9, -5.10, -5.11, -5.12, -5.13, -5.14, -5.15, -6.4, -7.1, -7.6
- ITP FEIR APMs BIO-1, BIO-3, and BIO-3a
- MOX APM BIO-1

FP-11 requires the use of erosion and sediment control BMPs. APMs FP-15, FP-16, AMM Wetland-2, and O&M ITP-7.1 prohibit refueling near aquatic resources and require buffers during construction. AMM Plant-01 limits herbicide use. O&M ITP-5.12 and ITP FEIR BIO-2 require delineation and avoidance of sensitive habitat features. FP-12 and O&M ITP-7.6 ensure that soil stockpiles do not pass into aquatic resources. PG&E has stated R-11 and the surrounding area will be restored if damaged during construction. FP-14 and AMM Plant 04 will require revegetation for disturbances greater than 0.1 acres, and ITP FEIR APM BIO-3 will require implementation of appropriate protective measures to protect natural communities, determination if additional permitting is required and obtaining the required permits (e.g., LSAA), and new or adjacent plantings for temporary disturbances. However, although APMs are incorporated for revegetation efforts, restoration of aquatic resources are not incorporated into an APM. In addition, the APMs do not require work in this area during the dry season to avoid in-water work and water turbidity. Therefore, impacts would be significant absent mitigation.

MM BIO-3a, Ephemeral Channel Protection and Restoration (full text is presented in Section 3.4.5) would require work in the ephemeral channel be conducted during the dry season and the area restored after

completion of construction. With implementation of MM BIO-3a, impacts to aquatic resources (both wetlands and waters) would be less than significant.

Underground Power Line

NO IMPACT. There are no delineated aquatic resources in the underground portion of the rebuild Project (See Figure 3.4-4, Aquatic Resources Delineation Map, in Appendix A). Underground installation would occur in urban areas along existing roads. Underground power lines would have no impact on aquatic resources.

Operations and Maintenance

LESS THAN SIGNIFICANT. PG&E would inspect all trees and shrubs near power lines and substation annually to ensure those that pose a safety concern are addressed. Routine vegetation management includes clearing around structures to allow for the inspections of the structure bases and footings. Patrols and inspections look for vegetation around structures. If woody vegetation is in contact with the structure or significantly interferes with the inspection of the structure base or footings, then appropriate vegetation work is scheduled. Vegetation management includes pruning trees or removing trees, cutting down dead or dying trees, and performing additional safety work in high fire-threat areas.

Current vegetation management programs for the existing power lines would continue; no additional activities would be required under the proposed Project. Clearing of vegetation would be completed according to PG&E's vegetation management practices to ensure access is safe and to minimize impacts to biological resources. Vegetation management would not be required to continue where the overhead lines are removed after being rebuilt in an underground configuration. Vegetation management would not be required for the underground portion proposed to be in city streets.

Implementation of measures from the BAHCP, ITP, and ITP EIR described previously would avoid or minimize many impacts to aquatic resources. These measures include:

- BAHCP FP-01 through FP-04, FP-07, FP-10 through FP-12, and FP-14 through FP-17
- AMM Wetland-2, AMMs Plant-01 through Plant-04
- O&M ITP-5.3, -5.4, -5.5, -5.7, -5.9, -5.10, -5.11, -5.12, -5.13, -5.14, -5.15, -6.4, -7.1, and -7.6
- ITP FEIR APMs BIO-1, BIO-3, and BIO-3a
- MOX APM BIO-1

FP-11 requires the use of erosion and sediment control BMPs. APMs FP-15, FP-16, AMM Wetland-2, and O&M ITP-7.1 prohibit refueling near aquatic resources and require buffers during construction. AMM Plant-01 limits herbicide use. O&M ITP-5.12 and ITP FEIR BIO-2 require delineation and avoidance of sensitive habitat features. FP-12 and O&M ITP-7.6 ensure that soil stockpiles do not pass into aquatic resources. FP-14 and AMM Plant 04 will require revegetation for disturbances greater than 0.1 acres, and ITP FEIR APM BIO-3 will require implementation of appropriate protective measures to protect natural communities, determination if additional permitting is required and obtaining the required permits (e.g., LSAA), and new or adjacent plantings for temporary disturbances.

With implementation of Project APMs and measures from the BAHCP and ITP EIR, impacts to aquatic resources, including protected wetlands, from O&M operations would be less than significant. No mitigation is required.

Mitigation Measures for Impact BIO-3

MM BIO-3a **Ephemeral Channel Protection and Restoration.** See full text in Section 3.4.5 (Mitigation Measures).

With implementation of MM BIO-3a, impacts to aquatic resources (both wetlands and waters) from overhead power line construction would be less than significant.

Impact BIO-4: 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.

Construction

Direct impacts to wildlife corridors include habitat disturbance, vegetation clearing, and installation of exclusion fencing that could impede wildlife movement. These activities could disturb or degrade native wildlife nursery sites or breeding habitat, if present in the area. Wildlife may move through the Project area and could be injured or killed. Migratory birds may move through the Project area during work activities and may nest in the vicinity. Equipment or vehicle overland travel on dry vegetation may ignite vegetation resulting in vegetation fires and wildfire risk (wildfire is discussed further in Section 3.18). Indirect impacts could result in degradation of habitat through erosion or the spread of invasive weeds.

Overhead Power Line Rebuild / Overhead Power Line Removal

LESS THAN SIGNIFICANT WITH MITIGATION. As described in Section 3.4.1.4, aquatic habitats occur in the vicinity of the Project footprint. These habitats have the potential to be used as breeding or nursery areas by California red-legged frog, foothill yellow-legged frog, and Northwestern pond turtle; and adjacent upland habitats could provide refugia and dispersal habitat for these species. BAHCP modeled habitats for California red-legged frog have been mapped within and adjacent to the Project footprint.

Terrestrial migratory or mobile species include Crotch's bumble bee, monarchs, Alameda whipsnake, northern California ringtail, and San Francisco dusky-footed woodrat. Migratory birds and bats may move through the Project area during construction and may nest or roost in the vicinity. BAHCP modeled habitats for Alameda whipsnake have been mapped within and adjacent to the Project footprint.

There are no known spawning areas for native fish, fawning areas for deer, maternal roosts for bats, or known bird nesting rookeries within the Project area. The Project area could be used as a movement corridor for common wildlife species, especially the open space areas in the eastern portion of the Project, and unknown native wildlife nursery sites could exist in the area.

The eastern portion of the Project footprint has been recognized as an important open space area and essential corridor/linkage by CDFW, the California Essential Habitat Connectivity (CEHC), and the Critical Linkage Project (refer to Figure 3.4-10, CDFW Terrestrial Connectivity, in EIR Appendix A). The CDFW Conservation Analysis Unit develops and maintains spatial data and models of wildlife movement, corridors, and habitat connectivity across California. This data is intended to inform how best to conserve habitat connectivity, or the ability of species and ecological processes to move through the landscape.

CDFW has compiled available regional linkage models along with CEHC linkages developed at a statewide scale and other data sources (refer to Figure 3.4-10, CDFW Terrestrial Connectivity). The resulting Statewide Terrestrial Connectivity map, part of the CDFW Areas of Conservation Emphasis (ACE) project, presents a view of connectivity using the ACE hexagon grid, a statewide tessellation of 2.5 sq. mile hexagons. Each hexagon contains attributes identified across multiple studies and is then assigned to one of five ACE connectivity classes and accompanying ranks, indicating the relative importance of each area to providing opportunities for the movement and dispersal of organisms critical to maintaining healthy populations and species survival, with 5 being the most important and 1 the least. Most of the open space area between Manzanita Drive and the Moraga Substation is recognized as an important wildlife connectivity corridor.

Implementation of measures from the BAHCP, ITP, and ITP FEIR described previously would reduce avoid and minimize impacts to wildlife corridors, wildlife nursey sites, or breeding habitat. These measures include:

- BAHCP FP-01 through FP-18
- AMM Wetland-2, AMMs Plant-01 through Plant-08
- O&M ITP-5.3 through -5.18, -6.1, -6.4, -6.8, -6.10, -7.1 through -7.9, -7.17 through -7.25
- ITP FEIR APMs BIO-1, BIO-2, BIO-3, BIO-3a, BIO-4, BIO-5, BIO-6, and BIO-7
- MOX APM BIO-1 through BIO-6

These APMs would require worker training and monitoring, including the biologist authority to stop work; designate access routes, staging areas, and vehicle speeds; prohibition of refueling near aquatic resources and require buffers during construction; minimize ground disturbance to the minimum amount necessary; delineation and avoidance of sensitive habitat; minimize erosion, fugitive dust, and soil compaction; implement invasive species control; ensure no herbicides are used for vegetation management within 100 feet of an MBZ for pallid manzanita; stockpile topsoil for restoration activities; procedure for accidental spills of hazardous materials; and reduce the potential for damage or destruction on known populations of special-status plant species.

FP-14 and AMM Plant 04 will require revegetation for disturbances greater than 0.1 acres, and ITP FEIR APM BIO-3 will require implementation of appropriate protective measures to protect natural communities, determination if additional permitting is required and obtaining the required permits (e.g., LSAA), and new or adjacent plantings for temporary disturbances. The Project would implement APMs FP-09 to minimize wildfire risk by installing spark arrestors on vehicles and equipment and carrying fire equipment; and O&M ITP-5.18 which would require removal and disposal of construction materials.

Specifically, any special-status wildlife encountered in the work area would not be disturbed and these encounters would be reported to PG&E and reported annually to CDFW in accordance with ITP FEIR APM BIO-2. O&M ITP-5.6 would require trash abatement to avoid attracting predators and BAHCP FP-08 would prohibit dumping, firearms, open fires, hunting, and pets. O&M ITP-7.4 would require inspections of stored materials; BAHCP FP-13 and O&M ITP-7.5 would require open excavation coverings to be equipped with an escape ramp; BAHCP FP-06 and O&M ITP-7.7 would require screening or capping pipes or posts; O&M ITP-7.8 would require equipment inspections before use; and O&M ITP-7.9 would ensure there are no barriers to covered species movement.

PG&E would implement BAHCP FP-18, ITP FEIR APM BIO-6, and MOX APM BIO-5 to avoid or minimize impacts to nesting birds and implement Species Specific Buffers for PG&E Activities (PEA Appendix B6), including vertical buffers (i.e., buffers above nests) to minimize impacts from helicopter and drone noise during the nesting bird season; and ITP FEIR APM BIO-7 to avoid or minimize impacts to special-status bat species.

With the implementation of APMs and BAHCP habitat mitigation requirements, the impact to wildlife corridors and habitat connectivity would remain significant because the APMs do not define suitable habitat for Crotch's bumble bee, there is no protection of milkweed plants or steps taken if monarch larva or an unknown monarch wintering site is found, the stream setback does not reduce damage to inconspicuous nesting sites of northwestern pond turtle, and surveys limited to the work are would be insufficient to cover nesting eagles that may be disturbed by Project activities. Implementation of **MMs BIO-1b, BIO-1c, BIO-1d, and BIO-1e** (see full text in Section 3.4.5, below) would reduce impacts to special-status species to a less than significant level. These measures provide guidance for identifying habitat that may be used during species movement (foraging, reproduction, wintering, etc.) and steps to protect those species during movement activities. With implementation of these mitigation measures, impacts to wildlife corridors, wildlife nursey sites, and breeding habitat would be less than significant.

Underground Power Line

LESS THAN SIGNIFICANT. The underground portion of the Project occurs in urban habitat and would be entirely within paved roads. Therefore, it has limited habitat connectivity opportunities.

However, trees are expected to be removed from Park Boulevard's central median and along Park Boulevard Way where the underground portion is in adjacent lanes. Migratory birds may move through the Project area during work activities and may nest in the vicinity. Trees could provide nest sites for urban bird species, and if removed during the nesting bird season, could directly injure or kill nesting bird species.

Construction activities may remove potential nesting habitat within the Project area; however, any potential effect is expected to be minimal based on the large number of trees in adjacent parkland and residential neighborhoods, as well as the existing level of human disturbance. PG&E would implement BAHCP FP-18, ITP FEIR APM BIO-6, and MOX APM BIO-5 to avoid or minimize impacts to nesting birds and implement Species Specific Buffers for PG&E Activities (PEA Appendix B6). With implementation of these APMs, impacts to wildlife corridors, wildlife nursey sites, and breeding habitat for the underground power line portion of the Project would be less than significant. No mitigation is required.

Operations and Maintenance

LESS THAN SIGNIFICANT. As discussed under the Overhead Power Line Rebuild segment of the Project, aquatic and terrestrial habitats have the potential to be used as breeding, nursery sites, refugia, dispersal, and other important movement and migration corridors. BAHCP modeled habitats for California red-legged frog and Alameda whipsnake have been mapped within and adjacent to the Project footprint. The eastern portion of the Project footprint has been recognized as an important open space area and essential corridor/linkage by CDFW

Implementation of measures from the BAHCP, ITP, and ITP FEIR described previously would reduce avoid and minimize impacts to wildlife corridors, wildlife nursey sites, or breeding habitat. These measures include:

- BAHCP FP-01 through FP-18
- AMM Wetland-2, AMMs Plant-01 through Plant-08
- O&M ITP-5.3 through -5.18, -6.1, -6.4, -6.8, -6.10, -7.1 through -7.9, -7.17 through -7.25
- ITP FEIR APMs BIO-1, BIO-2, BIO-3, BIO-3a, BIO-4, BIO-5, BIO-6, and BIO-7
- MOX APM BIO-1 through BIO-6

These APMs would require worker training and monitoring, including the biologist authority to stop work; designation of access routes, staging areas, and vehicle speeds; prohibition of refueling near aquatic resources and require buffers during construction; minimize ground disturbance to the minimum amount necessary; delineation and avoidance of sensitive habitat; minimize erosion, fugitive dust, and soil compaction; implement invasive species control; ensure no herbicides are used for vegetation management within 100 feet of an MBZ for pallid manzanita; stockpile topsoil for restoration activities; procedure for accidental spills of hazardous materials; and reduce the potential for damage or destruction on known populations of special-status plant species.

FP-14 and AMM Plant 04 will require revegetation for disturbances greater than 0.1 acres, and ITP FEIR APM BIO-3 will require implementation of appropriate protective measures to protect natural communities, determination if additional permitting is required and obtaining the required permits (e.g., LSAA), and new or adjacent plantings for temporary disturbances. The Project would implement APMs FP-09 to minimize wildfire risk by installing spark arrestors on vehicles and equipment and carrying fire equipment; and O&M ITP-5.18 which would require removal and disposal of construction materials.

Specifically, any special-status wildlife encountered in the work area would not be disturbed and these encounters would be reported to PG&E and reported annually to CDFW in accordance with ITP FEIR APM

BIO-2. O&M ITP-5.6 would require trash abatement to avoid attracting predators and BAHCP FP-08 would prohibit dumping, firearms, open fires, hunting, and pets. O&M ITP-7.4 would require inspections of stored materials; BAHCP FP-13 and O&M ITP-7.5 would require open excavation coverings to be equipped with an escape ramp; BAHCP FP-06 and O&M ITP-7.7 would require screening or capping pipes or posts; O&M ITP-7.8 would require equipment inspections before use; and O&M ITP-7.9 would ensure there are no barriers to covered species movement.

PG&E would implement BAHCP FP-18, ITP FEIR APM BIO-6, and MOX APM BIO-5 to avoid or minimize impacts to nesting birds and implement Species Specific Buffers for PG&E Activities (PEA Appendix B6), including vertical buffers (i.e., buffers above nests) to minimize impacts from helicopter and drone noise during the nesting bird season; and ITP FEIR APM BIO-7 to avoid or minimize impacts to special-status bat species.

O&M activities would be conducted under the existing APMs outlined BAHCP, ITP, and ITP FEIR along existing facilities using existing access routes. Though vegetation removal may be needed, no additional ground disturbance activities are needed. Given the existing level of prior and existing disturbance while implementing the O&M portion of the Project, these activities would not result in additional disturbance or loss to wildlife corridors habitat for Crotch's bumble bee, monarchs, or eagle nesting. With implementation of existing APMs, impacts to wildlife movement or migratory wildlife corridors from O&M operations are less than significant. No mitigation is required.

Mitigation Measures for Impact BIO-4

MM BIO-1b **Crotch's Bumble Bee Avoidance.** See full text in Section 3.4.5 (Mitigation Measures).

MM BIO-1c **Monarch Avoidance.** See full text in Section 3.4.5 (Mitigation Measures).

MM BIO-1d **Northwestern Pond Turtle Avoidance**. See full text in Section 3.4.5 (Mitigation Measures).

~~**MM BIO-1e** **Eagle Avoidance.** See full text in Section 3.4.5 (Mitigation Measures).~~

With implementation of mitigation measures, impacts to wildlife movement from overhead power line construction would be less than significant.

Impact BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

CPUC General Order 131-D, Section XIV.B states that "local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the Commission's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." As a public utility project that is subject to the jurisdiction of the CPUC, the Proposed Project is exempt from local regulation and discretionary permits. As such, the regional and local regulatory analysis is provided in that context.

Construction

Overhead Power Line Rebuild / Overhead Power Line Removal

Natural Resources

LESS THAN SIGNIFICANT. Local municipalities include policies for conservation of natural resources, including trees, vegetation communities, species habitat, and species protection. Following is a summary of natural resource protection by jurisdiction.

- **City of Orinda.** The City of Orinda protects wildlife and wildlife habitat, creeks and drainages, and water quality.

- **City of Piedmont.** The City of Piedmont provides policies and actions on issues such as creek protection, hillside grading, air and water quality; and supports the protection, preservation, restoration, and enhancement of habitats of state or federally listed rare, threatened, endangered, and other sensitive and special-status species.
- **Contra Costa County**. The County protects ecological resources and wildlife habitat, including protection of watercourses, riparian corridors, wetlands areas and upland habitat.
- **City of Oakland.** The City of Oakland protects plant and animal resources, special-status species habitat, and hydrology and water quality.

Implementation of measures from the BAHCP, ITP, and ITP FEIR would protect natural resources consistent with local policies and ordinances. These measures include:

- BAHCP FP-01 through FP-18
- AMM Wetland-2, AMMs Plant-01 through Plant-08
- O&M ITP-5.3 through -5.18, -6.1, -6.4, -6.8, -6.10, -7.1 through -7.9, -7.17 through -7.25
- ITP FEIR APMs BIO-1, BIO-2, BIO-3, BIO-3a, BIO-4, BIO-5, BIO-6, and BIO-7
- MOX APM BIO-1 through BIO-6

These APMs would require worker training and monitoring, including the biologist authority to stop work; designate access routes, staging areas, and vehicle speeds; prohibition of refueling near aquatic resources and require buffers during construction; minimize ground disturbance to the minimum amount necessary; delineation and avoidance of sensitive habitat; minimize erosion, fugitive dust, and soil compaction; implement invasive species control; ensure no herbicides are used for vegetation management within 100 feet of an MBZ for pallid manzanita; stockpile topsoil for restoration activities; procedure for accidental spills of hazardous materials; and reduce the potential for damage or destruction on known populations of special-status plant species.

FP-14 and AMM Plant 04 will require revegetation for disturbances greater than 0.1 acres, and ITP FEIR APM BIO-3 will require implementation of appropriate protective measures to protect natural communities, determination if additional permitting is required and obtaining the required permits (e.g., LSAA), and new or adjacent plantings for temporary disturbances. The Project would implement APMs FP-09 to minimize wildfire risk by installing spark arrestors on vehicles and equipment and carrying fire equipment; and O&M ITP-5.18 which would require removal and disposal of construction materials.

Specifically, any special-status wildlife encountered in the work area would not be disturbed and these encounters would be reported to PG&E and reported annually to CDFW in accordance with ITP FEIR APM BIO-2. O&M ITP-5.6 would require trash abatement to avoid attracting predators and BAHCP FP-08 would prohibit dumping, firearms, open fires, hunting, and pets. O&M ITP-7.4 would require inspections of stored materials; BAHCP FP-13 and O&M ITP-7.5 would require open excavation coverings to be equipped with an escape ramp; BAHCP FP-06 and O&M ITP-7.7 would require screening or capping pipes or posts; O&M ITP-7.8 would require equipment inspections before use; and O&M ITP-7.9 would ensure there are no barriers to covered species movement.

PG&E would implement BAHCP FP-18, ITP FEIR APM BIO-6, and MOX APM BIO-5 to avoid or minimize impacts to nesting birds and implement Species Specific Buffers for PG&E Activities (PEA Appendix B6), including vertical buffers (i.e., buffers above nests) to minimize impacts from helicopter and drone noise during the nesting bird season; and ITP FEIR APM BIO-7 to avoid or minimize impacts to special-status bat species.

With the implementation of APMs and BAHCP habitat mitigation requirements, the impact would remain significant because additional populations of known special-status plants may establish prior to or during construction, the APMs do not define suitable habitat for Crotch's bumble bee, there is no protection of

milkweed plants or steps taken if monarch larva or an unknown monarch wintering site is found, the stream setback does not reduce damage to inconspicuous nesting sites of northwestern pond turtle, surveys limited to the work are would be insufficient to cover nesting eagles that may be disturbed by Project activities, and restoration for temporary impacts to aquatic resources. Implementation of **MMs BIO-1a, BIO-1b, BIO-1c, BIO-1d, BIO-1e, and BIO-3a** (full text is presented in Section 3.4.5) would reduce conflicts with local policies and ordinances to a less than significant level. These measures provide guidance for identifying habitat that could be used by special-status species, steps to protect those species, and restoration of aquatic habitat. With implementation of these mitigation measures, conflicts with local policies and ordinances would be less than significant.

Tree Trimming and Tree Removal

LESS THAN SIGNIFICANT WITH MITIGATION. Tree trimming and tree removal is discussed in EIR Section 2.3.4.2 (Vegetation Clearing) and Table 2.3-4. Table 2.3-4 (in Chapter 2) and Table 2.3-~~4~~ 5 (in Appendix B) lists the numbers, location, and species of trees and other vegetation types expected to be trimmed or removed as part of the Project.

Following is a summary of vegetation that would be removed by jurisdiction. Local agency protections are detailed in Section 3.4.2.3, Local Regulatory Setting.

- **City of Orinda.** The City of Orinda protects oak trees, native riparian trees, trees of a certain size, and heritage trees designated by the city council. Approximately 7 coast live oaks, 2 California bay laurel, and 1 apple tree would be removed; and 1 California bay laurel would be trimmed. Additional trees may be removed along the City of Orinda and Contra Costa County jurisdictional boundary. These trees are included under Contra Costa County's jurisdiction.
- **City of Piedmont.** The City of Piedmont maintains City trees on City property and protects heritage trees designated by the Park Commission. Approximately 7 coast live oaks, 6 California bay laurel, 1 sweetgum, and 1 eucalyptus would be removed. Additional trees may be removed along the jurisdictional boundary between the City of Piedmont and the City of Oakland. These trees are included under the City of Oakland's jurisdiction.
- **Contra Costa County**. The County protects heritage trees of a certain size or that are designated by the board of supervisors, and trees found in riparian, foothill woodland, or oak savannah. Within County jurisdiction, approximately 46 trees and 1 shrub listed as indigenous species are expected to be trimmed or remove and may be considered a protected tree. Also, the Project would require removal of the following additional trees that may meet the County's protection criteria: approximately 35 coast live oak, 10 California bay laurel, 1 willow species and 1 Toyon shrub.
- **City of Oakland.** The City of Oakland protects coast live oaks measuring 4 inches dbh or larger and large trees of any species except eucalyptus and Monterey pine. Approximately 80 coastal live oaks measuring 4 inches dbh or larger are expected to be removed; approximately 5 coastal live oaks with a 3-inch dbh measurement or larger are expected to be removed, and approximately 47 coastal live oaks are expected to be trimmed. Approximately 129 trees (other than coast live oak, eucalyptus, and Monterey pine) with a dbh of 9 inches or larger are expected to be removed and 2 trees with a dbh of 9 inches or larger are expected to be trimmed.

Local tree permits are required for the removal of protected tree species. However, the Proposed Project is exempt from local regulation and discretionary permits. As stated in Section 2.5.1, Demobilization and Site Restoration, vegetated areas disturbed by Project activities would be restored to conditions equal to or better than preconstruction conditions. These may include limited street or landscaped areas that would be replanted according to an agreement with the city or property owner. PG&E has committed to work with the city to replace landscape-affected properties with vegetation that is compatible with the rebuilt PG&E facilities (PG&E, 2024 and 2025b).

The minimum distance between conductors and vegetation to avoid vegetation coming in contact with the conductors is set by the CPUC GO 95. For 115 kV lines outside of an elevated fire threat district, the radial clearance is 10 feet between bare line conductors and tree branches or foliage. Within an elevated fire threat district, the radial clearance is 30 feet. PG&E implements vegetation management initiatives and programs to go beyond the minimum required distances, considering a wide variety of other factors (PG&E, 2025b).

Trees identified for removal are primarily for construction equipment or vehicles access or to provide sufficient space to operate safely within a work area. Trees identified specifically to be removed due to clearance are trees between proposed structures RS26 and RS27A & B on the City of Oakland property. Replacement of trees removed for construction safety will be considered for replacement with trees compatible with nearby PG&E facilities, subject to agreement with the city or property owner, as discussed above.

PG&E has stated that tree trimming or removal of protected or heritage trees may be necessary for construction access and would be conducted by a Project arborist in accordance with accepted arboricultural procedures to avoid impacting tree health or to make the decision to remove the tree if trimming is not feasible (PG&E, 2024). As stated above and in the Project Description (EIR Chapter 2), vegetated areas disturbed by project activities would be restored to pre-Project conditions. However, requirements of an International Society of Arboriculture (ISA) Certified Arborist are not specified or incorporated into an APM. ISA provides standards and BMPs for tree trimming and removal to promote professional practice, provide guidelines for tree care, and ensure the safety and well-being of both arborists and the public. Therefore, impacts as a result of conflicts with local tree trimming and removal polices and ordinances would be significant absent mitigation.

With implementation of **Mitigation Measure (MM) BIO-5a, Tree Trimming and Removal Requirements** (full text is presented in Section 3.4.5), potential conflicts with local policies and ordinances would be less than significant. **MM-BIO-5a** would require PG&E to follow International Society of Arboriculture standards and BMPs during tree removal and trimming activities.

Underground Power Line

LESS THAN SIGNIFICANT WITH MITIGATION. As discussed under the Overhead Power Line Rebuild/Overhead Power Line Removal section above, the project will require the removal of trees for construction equipment or vehicles access or to provide sufficient space to operate safely within a work area. Tree removal described above includes approximately 71 trees removed from Park Boulevard's central median and along Park Boulevard Way where the underground power line would be installed in adjacent traffic lanes. Though primarily in the City of Oakland, a section at the northern end of Park Boulevard's central median is within the City of Piedmont.

Tree species in the roadway median mainly consist of non-native horticulture trees (London plane tree, dwarf date palm) and one native Coast redwood. Conservatively, PG&E has stated that all trees in the central median could be removed. Adjacent trees may be trimmed to avoid damage from construction vehicles and maintain safe lines of sight. When tree roots are encountered during excavation, root removal is required to install underground components. Adjacent tree canopy trimming or tree removal may be necessary.

As stated above and in the Project Description (EIR Chapter 2), vegetated areas disturbed by project activities will be restored to pre-Project conditions. However, requirements of an ISA Certified Arborist are not specified or incorporated into an APM. ISA provides standards and BMPs for tree trimming and removal to promote professional practice, provide guidelines for tree care, and ensure the safety and well-being of both arborists and the public. Therefore, impacts as a result of conflicts with local tree trimming and removal polices and ordinances would be significant absent mitigation.

With implementation of **Mitigation Measure (MM) BIO-5a, Tree Trimming and Removal Requirements** (full text is presented in Section 3.4.5), conflicts with local policies and ordinances would be less than significant. **MM-BIO-5a** would require PG&E to follow International Society of Arboriculture standards and BMPs during tree removal and trimming activities.

Operations and Maintenance

LESS THAN SIGNIFICANT. No vegetation management is expected to be required along the underground portion of the Project or in the area where structures would be permanently removed. Along the overhead power line segment, PG&E would inspect all trees and shrubs near power lines and substation annually to ensure those that pose a safety concern are addressed through its vegetation management program. Vegetation management includes pruning or removing trees, cutting down dead or dying trees, and performing additional safety work in high fire-threat areas. During the O&M phase of the Project, vegetation management would continue as currently occurring for the existing lines.

PG&E anticipates that clearing of overgrowth would occasionally be required along access routes and around Project components, and PG&E would clear brush as necessary for safe operation. Clearing of vegetation would be completed according to PG&E's vegetation management practices to ensure access and line operation are safe in compliance with CPUC General Orders. Because O&M operations would be conducted around existing PG&E structures in accordance with state guidelines for vegetation management, potential conflicts with local policies and ordinances are considered less than significant.

Mitigation Measures for Impact BIO-5

MM BIO-5a **Tree Trimming and Removal Requirements.** See full text in Section 3.4.5 (Mitigation Measures).

With implementation of MM BIO-5a, potential biological resources impacts associated with tree trimming during Project construction would be less than significant.

Impact BIO-6: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Construction

Overhead Power Line Rebuild / Overhead Power Line Removal

NO IMPACT. The Project is located within the boundaries of the BAHCP and is a covered activity (E-9 Line Reconductoring) under the plan. The applicable BAHCP measures would be implemented during Project construction. Based on the Project design and PG&E's commitment to CDFW and the USFWS to implement BAHCP, ITP, and ITP FEIR measures, the Project would be consistent with and covered under the BAHCP. There would be no conflict with the provisions of this or any other adopted plan. No impact would occur.

Underground Power Line

NO IMPACT. The Project is located within the boundaries of the BAHCP and is a covered activity (E-9 Line Reconductoring), under the plan. Underground activities would be limited to the confines of existing roads and urban structures. The Project would not conflict with the BAHCP. No impact would occur.

Operations and Maintenance

NO IMPACT. O&M activities associated with the Project would be covered under the BAHCP, as would be the initial construction activities. Operations and maintenance activities would not conflict with the BAHCP and would be carried out according to Plan requirements. No impact would occur.

Impact BIO-7: Create a substantial collision or electrocution risk for birds or bats.

Collision occurs when birds or bats fly into overhead wires. Electrocution occurs when a bird simultaneously contacts two energized phase conductors or an energized conductor and grounded hardware. This happens most frequently when a large bird attempts to perch on a transmission structure with insufficient clearance between these elements.

According to the Avian Powerline Interaction Committee (APLIC), bird electrocutions and collisions on power lines result from three elements: avian biology, environment, and engineering (APLIC, 2006 and 2012). Body size is one of the most important characteristics that make certain species susceptible to electrocution. Outstretched wings that span the distance between energized and ground components make electrocution risks much greater for larger birds. Habitat is a key factor in avian use of poles, particularly in areas lacking natural perches. Other biological and environmental components that influence electrocution risk include body size, habitat, prey, behavior, age, season, and weather. Given the availability of perch sites in trees, forested habitats generally have fewer reported electrocutions than open habitats (APLIC, 2006).

Species of birds reported to be susceptible to collisions generally have a large body size, long wingspan, heavy body, or poor maneuverability, including some species of hawks and eagles. Exposure to collisions is large a function of behavior. Specific behaviors may distract birds from the presence of power lines, and exposure is increased for repeated flights between nesting, feeding, and roosting. Inclement weather and darkness may distract from the presence of power lines or obscure their visibility (APLIC, 2012).

Construction

Overhead Power Line Rebuild / Overhead Power Line Removal

NO IMPACT. Collision and electrocution impacts would primarily occur during operations and maintenance, after transmission lines and towers are installed and operational. Impacts to birds and bats due to construction and associated APMs and mitigation measures are described in Impact BIO-1.

Underground Power Line

NO IMPACT. The underground component of the rebuilt power lines would include installation of vaults, duct banks, and a cable system in city streets through open trench construction. There would be no avian impacts resulting from the underground power lines. Undergrounding overhead power lines and structures would remove electrocution and collision risk to avian species and therefore have no impact.

Operations and Maintenance

LESS THAN SIGNIFICANT ~~WITH MITIGATION~~. There is a potential for avian interactions with the proposed power lines and structures, including collisions and electrocutions. Though less research has been conducted on bats, bat mortality and injury can also occur from interactions resulting from electrocution and collision with power lines. In addition, night lighting could attract birds and bats to areas which could result in collisions on tall structures and power lines.

Proposed operations and maintenance activities would be similar to existing operations and maintenance. As with existing operations and maintenance, the Project related operations and maintenance activities would occur at established facility sites on a periodic basis. Collision and electrocution hazard conditions during operations and maintenance are expected to be similar to existing conditions. Because the overhead portion of the proposed Project is a rebuild of two existing double-circuit power lines, the CEQA baseline for impact assessment is the existing power lines. Circuits 1 and 2 were installed circa 1908 and Circuits 3 and 4 were installed circa 1931. When the overhead segment is rebuilt as proposed, it would be

constructed using design that reflects current regulatory requirements and industry standards for new structures.

PG&E stated in the PEA (PG&E, 2024) that they are committed to constructing the replacement structures and conductors in accordance with avian-safe construction standards and would implement the processes and procedures outlined in the PG&E Avian Protection Plan (APP). According to the Avian Power Line Interaction Committee (APLIC), an APP is a utility-specific program designed to reduce the operational and avian risks that result from avian interactions with electric utility facilities. Although each utility's APP may vary, the overall goal of any APP should be to reduce avian mortality. In 2005, APLIC and the U.S. Fish and Wildlife Service (USFWS) jointly released Avian Protection Plan Guidelines. The guidelines provide a framework along with principles and examples to aid utilities in APP development. Although not all APP elements may be included in every APP because of specific utility circumstances or geographical area, these guidelines represent an overview of elements that should be considered for inclusion in an APP. PG&E's APP follows these guidelines. An APP should be a "living document" that is evaluated and modified over time to improve its effectiveness (PG&E, 2018).

PG&E's APP provides background information, an overview of risk assessment approach, a summary of steps taken to prevent avian electrocutions and collisions, programs and partnerships to support habitat restoration and enhancement, as well as utility and engineering standards (PG&E, 2018). ~~However, t~~These ~~specifications are not incorporated into an APM~~design elements, following the intent of APLIC Guidelines (2006, 2012) are also described in Section 2.4.5.1. of the Project Description. ~~As such, there is no requirement for implementation of the APP for this Project. Without implementation of the APP or similar APLIC guidelines, avian-safe construction standards may not be incorporated, and collision and electrocution risk of avian species would be significant. Therefore, impacts as a result impacts to birds and bats from collision or electrocution would be significant absent mitigation.~~

With the implementation of these APMs, and incorporation of APLIC guidelines into design elements, ~~With implementation of **Mitigation Measure (MM) BIO-7a, Bird and Bat Collision Reduction** (full text is presented in Section 3.4.5),~~ risk collision and electrocution impacts would be less than significant. ~~MM BIO-7a would require utility structures to be designed in compliance with current APLIC standards and PG&E's current Avian Protection Plan.~~ No mitigation is required.

~~**Mitigation Measures for Impact BIO-7**~~

~~**MM BIO-7a Bird and Bat Collision Reduction.** See full text in Section 3.4.5 (Mitigation Measures).~~

~~With implementation of MM BIO-7a, potential impacts associated with bird and bat collisions would be less than significant.~~

3.4.5. Mitigation Measures

MM BIO-1a **Special-Status Plants Avoidance and Impact Minimization.** ~~Within two weeks p~~Prior to ~~any~~ vegetation removal or ground-disturbing activities ~~that will occur within the blooming period of special-status plant species with a moderate or higher potential to occur in the region~~, a qualified botanist(s) approved by CPUC that is knowledgeable of the plant species in the region shall conduct surveys for special-status plants within the limits of the disturbance area. The survey shall include a 250-foot-wide buffer unless otherwise prohibited due to legal access or safety concerns. Surveys may be adjusted to reflect proposed work schedules and locations and need not be performed all at one time. The surveys shall be conducted during the appropriate blooming period(s) according to protocols established by CDFW ~~and CNPS~~ (CDFW, 2018) and CNPS (CNPS, 2001) or more recent protocols, if available. All special-status plant species, including listed threatened or endangered, and those ranked CRPR 1A, 1B, 2, 3, and 4, that are located shall be documented during

surveys using a precision GPS unit. Results of surveys shall be valid for a period of three years if conducted during a period of average rainfall; however, the Project shall not be delayed during a drought year and would rely on baseline or previously collected data. If vegetation removal does not occur in a previously surveyed area within three years, the surveys shall be repeated provided there is adequate rainfall to support germination.

If special-status plant species are found, special-status plants shall be avoided where feasible in accordance with **ITP FEIR APM BIO-3, BIO-4**, and **BIO-5**. If vegetation removal or ground disturbing activities would have a direct impact on special-status plant species, PG&E shall implement **AMM Plant-04, -05, -06, -07, and -08,** as applicable. Observations will be submitted to CNDDB in accordance with **O&M ITP-6.8**.

MM BIO-1b **Crotch's Bumble Bee Avoidance and Minimization.** Within one year prior to any vegetation removal or ground-disturbing activities a qualified biologist(s) approved by CPUC that is knowledgeable of Crotch's bumble bee species identification and habitat shall conduct a habitat assessment evaluating the likelihood of bumble bees occurring within and adjacent to the clearance survey of area identified as potential foraging, nesting, and/or overwintering habitat within the limits of disturbance. The survey will also include a 100-foot-wide buffer unless otherwise prohibited due to legal access or safety concerns. Surveys may be adjusted to reflect proposed work schedules, activities, and locations and need not be performed all at one time. Bumble bee identification shall include visual identification and non-lethal photo vouchers, or other methods as outlines in ~~. Handling of bumble bees would require a~~ a 2081(a) Memorandum of Understanding with CDFW for bumble bee survey and handling. Nest sites can be determined through following bees from blooms to their nests and looking for concentrated bee activity in suitable nest habitat.

For areas where suitable Crotch's bumble bee habitat is identified, Crotch's bumble bee individuals are identified, or potential habitat exists as determined by CDFW, PG&E will develop a Crotch's Bumble Bee Survey, Impact Avoidance, and Mitigation Plan and submit the plan to CPUC and CDFW. Methodologies and results of the habitat assessment will be included in the plan. The plan will outline additional survey needs, such as overwintering or colony active period surveys, and any additional appropriate avoidance and minimization measures beyond those already accepted. If take is unavoidable, a 2081(a) MOU/ITP will be developed and appropriate mitigation, as approved by CDFW, will be implemented.

Ground disturbing activities that occur in suitable habitat during the colony active period of Crotch's bumble bee will include CDFW-approved methodology and avoidance measures, including but not limited to the following.

~~*Overwintering Season Surveys*: If ground disturbing or vegetation management activities in any given work area occurs during the overwintering season (November 1 through January 31), and the work area has been identified as potential foraging or overwintering habitat, the qualified biologist shall conduct overwintering season surveys within areas of suitable habitat (i.e., where vegetation and floral resources occur) in each area planned for Project activities within two weeks in advance of vegetation removal or ground disturbance in that area.~~

~~Overwintering season surveys shall look for potential Crotch's bumble bee overwintering queens and hibernacula such as leaf litter, logs, and rodent burrows. If overwintering queens or other Crotch's bumble bee are found utilizing hibernacula during surveys, all ground disturbing activities and vegetation removal shall stop within 50 feet of the queen and/or hibernaculum and all workers will be notified not to enter the environmentally sensitive area. The qualified biologist shall record the queen's location with a GPS~~

~~(including datum and horizontal accuracy in feet) and include photographs and a map of the queen's location.~~

Colony Active Period Season Surveys: If ground disturbing or vegetation management activities in any given work area occurs during the Colony Active Period (February 1 – September 30), and the work area has been identified as potential foraging or nesting habitat, the qualified biologist shall search for Crotch's bumble bee throughout the area planned for Project activities in advance of vegetation removal or ground disturbance in that area. Survey efforts for each area shall include ~~at least two~~ visual surveys consisting of meandering transects occurring no more than 10 days prior to the start of ground and vegetation disturbing activities in that area or as otherwise determined by CDFW in the 2081(a) ITP/MOU. ~~The qualified biologist shall conduct the surveys at least four days apart, with the second survey occurring within two days prior to starting ground and/or vegetation removal activities in that area.~~ The survey duration shall be appropriate to the size of the area covered in the ITP/MOU and would include on person-hours per 3 acres of suitable habitat for areas planned for Project activities plus a 100-foot-wide buffer (unless otherwise prohibited due to legal access or safety concerns) or as otherwise determined in the MOU~~based on the metric of a minimum of one person-hour of searching per three acres of suitable habitat~~. The qualified biologist shall conduct surveys between 7:00 AM and 6:00 PM (Pacific Time) on sunny days between 55-and 95-degrees Fahrenheit with sustained wind speeds measuring less than 10 miles per hour or as otherwise required in the ITP/MOU.

~~If ground disturbing activities are halted for longer than three days within a work area supporting suitable habitat during the Colony Active Period defined as the Queen Flight Season (February 1 through March 31), the qualified biologist shall perform a minimum of one additional survey in the work area in accordance with the prior to reinitiating Project activities in the work area.~~

If a Crotch's bumble bee nest is identified during ~~Colony Active Period Season focused~~ surveys or during ground disturbance of vegetation removal activities, PG&E shall establish a 50-foot no disturbance buffer around each nest or as otherwise determined based on the~~.~~ ITP/MOU. Buffers shall remain in place until the nest has senesced or project activities are complete. To determine if a nest has senesced, the qualified biologist shall monitor the nest for senescence in late summer and fall in accordance with methodology provided in the ITP/MOU. Nest senescence can typically be denoted after the presence of reproductives (gynes and males) are observed. ~~Nests shall be monitored for a minimum of one hour per day for three consecutive days during optimal weather conditions (i.e., from 7:00 AM -6:00 PM, low wind, and low cloud cover conditions, etc.).~~ If there has been no nest activity after the above conditions are met, the no disturbance buffer may be removed.

If Crotch's bumble bees, overwintering site, or nest sites are detected, **ITP FEIR APM BIO-2** shall be implemented, which requires protection of special status wildlife species encountered. Should an active nest or overwintering site be discovered, PG&E shall implement **ITP FEIR APM BIO-3** to avoid sensitive areas and **ITP FEIR APM BIO-5** to exclude construction activities to ensure species protection. The qualified biologist(s) will remain onsite throughout the duration of activities to ensure that impacts are avoided in accordance with **O&M ITP-6.4**. Documentation and reporting of Crotch's bumble bee habitat assessments, bee observations, overwintering sites, and/or nesting sites shall be conducted in accordance with **O&M ITP-6.8, -6.10,** and **ITP FEIR APM BIO-2**. Observations will be submitted to CNDDB in accordance with **O&M ITP-6.8**. Other avoidance or

mitigation measures as outlined in the MOU/ITP will be implemented as determined by CDFW in the MOU/ITP. ~~Destruction of a Crotch's bumble bee nest site is defined as "take" under CESA and is not authorized under this measure.~~

MM BIO-1c **Monarch Avoidance.** ~~Within two weeks prior to any vegetation removal or ground-disturbing activities, a~~ A qualified biologist approved by CPUC that is knowledgeable of milkweed species in the region and monarch overwintering sites shall conduct surveys for within the limits of the disturbance area. The survey shall include a 250-foot-wide buffer unless otherwise prohibited due to legal access or safety concerns. ~~Injury or mortality of monarch butterfly is not authorized under this measure.~~ Documentation and reporting of monarch overwintering sites and milkweed species shall be conducted in accordance with **O&M ITP-6.8, -6.10,** and **ITP FEIR APM BIO-2.** Monarch observations will be submitted to CNDDB in accordance with **O&M ITP-6.8**.

Overwintering sites: Surveys for overwintering sites will be conducted from October 1 through March 31 and will include wind-protected blue gum eucalyptus, pine, fir, cypress, and oak trees, particularly in canyons or drainages near water sources and southwest facing slopes. Overwintering sites will be determined by the presence of monarchs clustered together in large numbers. If monarch overwintering sites are observed or suspected, PG&E shall implement **ITP FEIR APM BIO-3** to avoid sensitive areas, and **ITP FEIR APM BIO-5** to exclude construction activities to ensure species protection.

Milkweed Plants: Surveys for milkweed plants will be conducted from March 31 through October 1 and will include any native milkweed species known from the region. Transects for milkweed species will be spaced 20 meters apart or less given the terrain and visual barriers. If milkweed species are observed, **AMM Plant-01**, which prohibits herbicide use, **AMM Plant-04**, which requires barriers to minimize disturbance, and **O&M ITP-5.12**, which requires delineation and avoidance of sensitive habitat features, will be implemented. If milkweed species cannot be avoided, the plants will be inspected for signs of eggs (undersides of leaves), larva, signs of herbivory, and presence of frass. If evidence of eggs, larva, or larval use is found, **ITP FEIR APM BIO-2** shall be implemented, which requires protection of special status wildlife species encountered, and the plant will be avoided until October 1. If no evidence of eggs, larva, or larval use is found, **AMM Plant-05, -06, and -07** will be implemented.

MM BIO-1d **Northwestern Pond Turtle Avoidance.** Prior to any ground-disturbing or mechanical vegetation removal activities within 400 feet of any perennial waterbody (e.g., lake, pond, river, stream, wet meadow, seep, spring) that has the potential to support northwestern pond turtle as determined by the qualified biologist, a qualified biologist(s) approved by CPUC will conduct a survey within the limits of disturbance no more than 24 hours prior to commencing activities to search for the presence of northwestern pond turtle individuals.

If adult or juvenile northwestern pond turtles are present, the qualified biologist(s) will remain onsite throughout the duration of activities to ensure that impacts are avoided in accordance with **O&M ITP-6.4**. Any northwestern pond turtle adults or juveniles that are present will be allowed to leave the area on their own volition. If it is not possible to allow the animal to leave the work area on its own, the qualified biologist(s) will relocate it to the nearest suitable habitat out of harm's way. If northwestern pond turtle is formally listed as federally threatened or endangered, any take or handling would only be authorized under the context of the appropriate permits from USFWS.

If northwestern pond turtle is present, and project activities are scheduled to occur April 1 through August 31 (when females are searching for suitable nest sites), the qualified

biologist will monitor turtle overland activities for nesting behavior and the presence of nesting sites. If nesting behavior is suspected, a buffer of 300 feet will be implemented around any overland activities conducted by the turtle(s). The buffer may be modified by the qualified biologist, if appropriate, due to factors such as fencing and intervening barriers. The biological monitor will have authority to stop work and implement appropriate buffers in accordance with **O&M ITP-5.3 and -5.12**. The qualified biologist will implement the buffer based on their observations, habitat presence, and known life history of the species, to protect nesting behavior and potential nesting sites. This buffer shall be maintained, and no work shall be allowed, from the onset of observed nesting behavior to spring of the following year, to allow eggs to develop and young to hatch. If some work is necessary within that appropriate buffer, the qualified biologist will determine whether the specific work activities can safely be conducted, and if so, will monitor the work. If the biologist determines, through surveys and monitoring, that the nest has hatched or has been predated, work may proceed in the area. If mechanized vegetation removal must be conducted in potential nesting site habitat during the nesting season, CDFW will be contacted for further guidance if the species has not been federally listed; and USFWS will be contacted for further guidance if the species has been federally listed.

Documentation, reporting, and submittal to CNDDB of northwestern pond turtle observations and potential nesting sites shall be conducted in accordance with **O&M ITP-6.8, -6.10,** and **ITP FEIR APM BIO-2**. Potential nesting habitat will be avoided during future activities in accordance with **ITP FEIR APM BIO-3**.

~~**MM BIO-1e Eagle Avoidance.** Within 30 days prior to any ground-disturbing or vegetation removal activities that would occur during the breeding season for eagles (January 15 through August 31), a qualified biologist(s) approved by CPUC shall conduct USFWS and/or CDFW protocol-level surveys for bald and golden eagles in suitable breeding habitat within the area of disturbance. The survey area will include a half-mile buffer, unless otherwise prohibited due to legal access or safety issues. Surveys shall follow the most recent USFWS and/or CDFW guidelines unless alternative methods are otherwise approved by the resource agencies. All eagle observations, including individual eagles, active nests or territories, and roosting sites shall be recorded using a precision GPS unit and included on Project maps.~~

~~If an active eagle nest is identified or is known to be active through coordination with USFWS, CDFW, or other conservation land managers, a one-half mile (2640-foot) avoidance buffer shall be established in accordance with the Species Specific Buffers for PG&E Activities (PEA Appendix B6). Helicopter and drone use shall be prohibited within the one-half mile avoidance buffer unless topographical conditions provide adequate visual and audible screening and the flight path within the avoidance buffer would not come in direct line-of-sight of the nest. The avoidance buffer may be adjusted based on topography, local site conditions, line-of-sight between the nest and work areas, status of the nest, tolerance of the birds to human disturbance, and proposed work activities. The buffer shall only be reduced through coordination with the USFWS, CDFW, and the applicable conservation land managers.~~

~~The qualified avian biologist(s) shall perform routine inspections of the nest to determine that status and ensure that the avoidance buffer is being properly implemented. The biologist shall have the authority to halt work if the birds are exhibiting increased levels of distress.~~

~~Any take of bald or golden eagle would be prohibited.~~

~~Documentation, reporting, and submittal to CNDDB eagle observations and survey results shall be conducted in accordance with **O&M ITP 6.8, 6.10,** and **ITP FEIR APM BIO-2**.~~

MM BIO-3a **Ephemeral Channel Protection and Restoration.** Construction activities that require temporary disturbances to ephemeral channels shall be conducted during the dry season when the bed and bank are dry, and no rain is anticipated until the channel has been fully restored. Restoration of ephemeral channels include restoration of bed and bank to as close to pre-Project conditions as feasible. Vegetation removed shall be restored in compliance with **BAHCP FP-14**, **AMM Plant-04**, and **ITP FEIR APM BIO-2**. Erosion control APMs **BAHCP FP-11, FP-12, O&M ITP-5.9, and -5.10** shall be implemented to stabilize the area until vegetation has been restored. Permanent impacts to aquatic resources are prohibited. PG&E shall obtain all required aquatic resource permits for ~~temporary~~ impacts, as applicable, prior to disturbance to ephemeral channels. All permit conditions shall be implemented.

MM BIO-5a **Tree Trimming and Removal Requirements.** Trimming and removal of trees shall be conducted in accordance with the International Society of Arboriculture (ISA) American National Standards Institute (ANSI) A300 Tree Care Standards and ISA's Pruning Best Management Practices and overseen by an ISA Certified Arborist. The ISA Certified Arborist will evaluate trees that may be impacted by the Project and determine which trees can be retained and which trees shall be removed. Trees would only be proposed for removal if they would interfere with construction work areas or access safety, utility structures, trimming of the tree branches or roots would be severe enough to impact tree health and result in tree decline, trees are considered a safety hazard to structures or personnel, or retention of the tree would not be in compliance with CPUC General Order 95 for vegetation clearance around powerlines.

~~**MM BIO-7a** **Bird and Bat Collision Reduction.** Power line support structures and other facility structures shall be designed in compliance with current standards and practices to discourage their use by raptors for perching or nesting (e.g., by use of anti-perching devices) (APLIC, 2006, 2012). This design also reduces the potential for increased predation of special-status species, such as the Alameda whipsnake. To the extent practicable, the use of guy wires shall be avoided because they pose a collision hazard for birds and bats. Necessary guy wires shall be clearly marked with bird flight diverters to reduce the probability of collision. Shield wires shall be marked with devices that have been scientifically tested and found to significantly reduce the potential for bird collisions. Power lines shall maintain sufficient distance between all conductors and grounded components to prevent potential for electrocution of the largest birds that may occur in the area (e.g., golden eagle and turkey vulture). The Project shall utilize non-specular conductors and non-reflective coatings on insulators.~~

3.4.6. References

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3.5. Cultural Resources

This section provides information on existing cultural resources in and surrounding the Project area and evaluates the proposed Project's potential impact on those resources. Tribal Cultural Resources are separately addressed in Section 3.16, *Tribal Cultural Resources* (TRCs). TCRs are a defined class of resources under state law, which include sites, features, places, cultural landscapes, and sacred places or objects that have cultural value or significance to a Tribe. (Public Resources Code § 21074).

Cultural resources reflect the history, diversity, and culture of the region, as well as the people who created them. Cultural resources can be natural or built, purposeful or accidental, physical or intangible. They encompass archaeological, traditional, and built environment resources, including but not necessarily limited to buildings, structures, objects, districts, and sites. Cultural resources include locations where important events occurred, traditional cultural places, sacred sites, and places associated with important people.

The following discussion is based on the PG&E's PEA (PG&E, 2024) and the cultural resources technical report prepared for PG&E, titled Cultural Resource Identification and Evaluation Report for the Moraga-Oakland X 115kV Rebuild Project (Jacobs, 2024).

The scoping effort conducted by CPUC from February 25 through March 27, 2025, resulted in several public comments and concerns relating to Cultural Resources. Concerns communicated in the scoping process that are related to cultural resources and were considered in the analysis below include:

- Recommend contacting the appropriate regional California Historical Research Information System Center for an archaeological records search.
- Recommend the preparation of a professional report detailing findings and recommendations of the research search and field survey if an archaeological inventory survey is required.

The CHRIS Center was contacted, and cultural and archaeological research and surveys conducted, and studies prepared by PG&E's consultant, Jacobs Engineering Group, Inc. The results of the archaeological background research and technical study are discussed below.

3.5.1. Environmental Setting

Definitions of Cultural Resources

A **cultural resource** is defined as any object or specific location of past human activity, occupation, or use, identifiable through historical documentation, inventory, or oral evidence. Cultural resources can be separated into three categories: archaeological, built environment, and tribal cultural resources.

Archaeological resources include both historic era and prehistoric remains of past human activity. Historic era resources can consist of structural remnants (e.g., cement foundations), historic era objects (e.g., bottles and cans), and sites (e.g., refuse deposits or scatters). Prehistoric resources can include lithic scatters, ceramic scatters, quarries, habitation sites, temporary camps/rock rings, ceremonial sites, and trails.

Built environment resources consist of standing historic era buildings and structures, the latter of which includes canals, roads, trails, bridges, ditches, and cemeteries.

Pursuant to State CEQA Guidelines Section 15064.5, **historical resource** is a term used to define a prehistoric or historic aged resource that is potentially eligible, determined eligible, or listed on the California Register of Historical Resources (CRHR). Any resource that is determined eligible or listed on the National Register of Historic Places (NRHP) is automatically eligible for listing in the CRHR and is considered a significant resource for the purpose of this analysis.

A **unique archaeological resource,** as defined by CEQA Section 21083.2 (g), is a resource that, besides merely adding to the current body of knowledge, meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Precontact Setting

The following is based on the PEA (PG&E, 2024) and the cultural resources technical study prepared by Jacobs Engineering (Jacobs, 2024) unless otherwise cited.

Early archaeological investigations in the Bay Area began in the early 20th century with Nels Nelson's work in 1907 and 1908, during which he identified over 400 sites, including shell heaps, earth mounds, and temporary camp locations. His research documented more than 100 shellmounds along the Alameda and Contra Costa County shorelines and mapped 18 sites in San Francisco County. Among the most significant sites for studying cultural change, the transformation over time in the material culture, behavior, social organization, or belief systems of a human group, as inferred from the archaeological record, were the Emeryville Shellmound in Alameda County and the Ellis Landing and Fernandez sites in Contra Costa County.

Around the same time, archaeologist Llewellyn L. Loud surveyed and mapped several mounds in the northern Santa Clara Valley. Many of these sites, located within Rancho Posolmi, had already been damaged or destroyed due to farming and construction. His excavation of the Castro Mound, also known as the Ponce site, was among the most extensive in the area, uncovering a large midden, two house floors, and 61 burials, many of which contained mortuary offerings. His findings also revealed differences in the types and quantities of shellfish remains compared to other Bay Area mounds.

These early studies along the northern, eastern, and southern shores of the Bay Area laid the foundation for understanding cultural change in the region, including the Sacramento–San Joaquin Delta. They contributed to the development of the Central California Taxonomic System (CCTS), which classifies cultural history into three broad periods—Early, Middle, and Late—based on distinct artifact types, subsistence strategies, and settlement patterns. Over time, this classification system has been refined to reflect regional cultural traditions more accurately.

Early Period (11,000-5,500 years Before Present)

Archaeological evidence of human occupation in the Bay Area prior to 6,000 years ago is limited, as sea levels during the Early Holocene were significantly lower than they are today. Many prehistoric sites may have been buried beneath rising sea levels and thick Holocene alluvial deposits, which in some areas reach depths of up to 33 feet (10 meters). One of the oldest known cultural deposits in the region was discovered in the Coyote Narrows, near the Metcalf Road and U.S. Highway 101 overcrossing at Tulare Hill in Santa Clara County. The Metcalf site, found more than 10 feet below the surface at the mouth of Metcalf Creek, contains an occupation layer dating back more than 11,000 years.

Another significant early site, known as CA-SCL-65, contained two flexed burials beneath cairns of millingstones, dating back approximately 7,500 to 7,000 years ago. Along the coast of Santa Cruz County, the Sand Hill Bluff Shellmound and other sites associated with the Millingstone Pattern are characterized by large quantities of handstones, milling slabs, and flake tools, suggesting a subsistence strategy focused on plant processing.

In contrast, sites associated with the Windmiller Pattern, commonly found in the Sacramento Valley and Sacramento–San Joaquin Delta, contain a variety of distinctive artifacts, including grinding stones, mortars,

large obsidian projectile points, rectangular shell beads, charmstones, and burials with a characteristic westerly orientation. Artifacts from sites in the South Bay peninsula, such as projectile points and shell beads from a site in the Los Altos foothills, suggest that elements of the Windmiller Pattern were also present in the region. Some researchers propose that around 4,500 years ago, migrations into the Bay-Delta region may have introduced the Windmiller cultural tradition, potentially displacing earlier inhabitants.

Middle Period (5,500 – 1,000 years BP)

The Berkeley Pattern was widespread across the Bay Area during the Late Holocene. Some of the earliest sites associated with this cultural pattern, the recurring, identifiable set of material traits, behaviors, technologies, and practices shared by a human group across time and space, date to the same period as the Windmiller Pattern, including the lower levels of the West Berkeley site in Alameda County and the University Village site in San Mateo County. Artifacts characteristic of the Berkeley Pattern include spire-lopped Olivella shell beads, bone tubes and beads, bird-bone whistles, quartz crystals, serrated mammal scapulas, and ground bone awls. Projectile points are commonly contracting stemmed and lanceolate in shape, with some crafted from obsidian. Burial practices varied, with flexed and semi-flexed interments lacking a consistent orientation. Compared to earlier periods, there was an increase in mortuary offerings, particularly during the late Middle Period.

Milling tools from this period include large and small boulder or cobble mortars and various types of pestles, suggesting that acorns and small seeds were dietary staples. In the South Bay, the processing of hard seeds remained an essential practice, as evidenced by the abundance of milling slabs and handstones recovered from archaeological sites. Other important plant resources included hazelnuts, cattail seeds, grasses, and soaproot bulbs, which were often roasted in earth ovens. Faunal remains indicate a diverse diet, consisting of small and large mammals, fish, birds, and shellfish such as mussels, oysters, and clams. The types of shellfish utilized varied by location, with bay mussels, oysters, and clams more common along the West and East Bay shorelines, while horn snails, oysters, and bay mussels were predominant in the South Bay.

Over centuries, the accumulation of shellfish remains led to the formation of large shellmounds at village sites along the Bay. These mounds, built up over hundreds or even thousands of years, served as seasonal or permanent habitation sites and were often used for burials and ceremonies. Many contain numerous burials, ceremonial artifacts, house floors, hearths, and storage pits, indicating their significance in both daily life and ritual practices.

Later Period (1,000 years BP – Historic Contact)

The Augustine Pattern follows the peak of the Berkeley Pattern, often referred to as the "golden age of shell mound communities." This period is marked by significant changes in subsistence strategies, foraging practices, and land use, beginning to resemble those of Native American groups documented in the Historic Period. Key technological advancements include the introduction of the bow and arrow, the use of harpoons, and the appearance of tubular tobacco pipes. As populations grew, subsistence practices became more intensive, with an increased emphasis on the collection and processing of plant foods, particularly acorns. This shift is reflected in the widespread use of milling tools, especially mortars and pestles. Both coiled and twined basketry were common, serving both practical and ceremonial purposes.

During this time, population levels and the number of settlements increased, but the large shellmound villages characteristic of the Berkeley Pattern were largely abandoned as primary residential sites. This transition may be linked to the Medieval Climatic Anomaly, a period of prolonged droughts between approximately A.D. 650–850 and A.D. 1150–1250, which likely influenced settlement patterns. In response, habitation strategies shifted to a more dispersed model, with communities occupying both coastal and inland sites to take advantage of seasonally available resources.

Trade goods such as magnesite, steatite, Olivella shell beads, and obsidian circulated more widely. Compared to earlier periods, the presence of shell beads in burial contexts increased significantly, suggesting their growing importance in social and economic systems. The high concentration of non-dietary Olivella shells in coastal sites, along with their increased presence in burial sites across Central California, reflects the development of extensive trade networks, with coastal groups supplying these valuable materials to interior communities.

Ethnographic Setting

The following is based on the PEA (PG&E, 2024) and the technical study prepared by Jacobs Engineering (Jacobs, 2024) unless otherwise cited. The Project site lies at the boundary between the ethnographic territories of the Ohlone- (also known as Costanoan) and the Bay Miwok-speaking tribal groups, with the Ohlone inhabiting the western portion of the Bay area and the Bay Miwok residing in the eastern portion of the bay area, including the project area. The following subsections provide ethnographic backgrounds for both groups.

Ohlone (Costanoan)

The western section of the Project area falls within the traditional territory of the Ohlone, also known as Costanoan people. More specifically, this land was historically occupied by the Huchiun subgroup of the Costanoans, who resided in the Huchiun-Southern tribal region. At the time of initial European contact, the Huchiun-Southern tribal region is estimated to have supported a population of approximately 360 individuals. Despite the profound disruptions caused by introduced diseases and the Spanish mission system, followed by displacement due to non-native settlers, the Ohlone people persist in their traditional lands within Contra Costa and Alameda counties. Many continue to practice their cultural traditions and play active roles in local planning and development projects, serving as consultants and construction monitors to safeguard their cultural heritage and sacred resources.

Knowledge of traditional Ohlone life has been preserved through early European accounts, Spanish mission records, linguistic studies, and archaeological research. Historical sources suggest that the Ohlone traditionally lived in approximately 40 independent tribelets, each consisting of multiple villages. These tribelets were led by a chief and a council of elders, with villages composed of extended family households averaging around 15 people. Social organization was primarily patrilineal, and interactions between tribelets were complex.

Ohlone religious beliefs center on ceremonial offerings and shamanic practices, with supernatural mediation conducted by tribal spiritual leaders. Their mythology, which parallels that of neighboring Coast Miwok, Pomo, Wappo, and Patwin peoples, positions Coyote as a central figure responsible for the creation of the world and the guidance of tribal members in the afterlife. The landscape itself is imbued with spiritual significance, reinforcing local sovereignty through myth and ritual.

The Ohlone traditionally constructed thatched, domed shelters using laurel branches, tule, grass, willow boughs, and ferns. They also built sweathouses dug into creek banks and circular dance floors for ceremonial activities. Basketry, both coiled and twined, played an essential role in daily life, serving as storage containers, cooking tools, and fish traps, often adorned with feathers, shell beads, mica, and ocher. Stones were used to line fire pits and craft tools such as pestles and scrapers. Chert was a common material for sharp-edged tools, supplemented by obsidian obtained through trade.

Distinct technological differences existed between the Ohlone groups in the San Francisco Bay Area and those in the Monterey region, with variations in lithic tool types being particularly notable. Feathered ceremonial items, including robes, staffs, and weaponry, were crafted for both spiritual and secular uses. Tule canoes (balsas) enabled navigation through marshland channels, facilitating trade and resource gathering. Gender roles shaped daily tasks: women were primarily responsible for harvesting plant resources and weaving baskets, while men focused on hunting, fishing, and constructing animal traps.

The Ohlone first encountered Spanish explorers in 1602 when Sebastián Vizcaíno landed in Monterey. More sustained contact with the San Francisco Bay Ohlone began with the Portolá Expedition of 1769, followed by expeditions led by Fages, Anza, Rivera, and Moraga. Although these early interactions were likely brief, they soon became permanent and deeply impactful with the establishment of the California mission system. Between 1769 and 1797, seven Catholic missions were founded in Ohlone territory, including those in San Francisco, San Jose, and Santa Clara. By 1810, most indigenous people in the Bay Area had been forcibly integrated into the missions, resulting in the widespread abandonment of traditional lifestyles.

The mission system severely impacted the Ohlone population, leading to an 80% decline from an estimated 10,000 individuals in 1770 to just 2,000 by 1832. This decline was driven by factors including decreased birth rates and exposure to foreign diseases against which indigenous Californians had little immunity. The California missions forcibly assimilated indigenous northern Californian peoples from different linguistic and cultural backgrounds, fracturing tribal identities and traditions and disrupting the preservation of distinct cultural practices. By the time the mission system was dismantled in 1834, only 37 of the 190 Native Americans registered at Mission Dolores were identified as descendants of the original Ohlone inhabitants of the San Francisco Peninsula.

Despite these hardships, thousands of indigenous people today trace their ancestry to the Ohlone and other San Francisco Bay Costanoan-speaking groups. The resilience of the Ohlone people is reflected in their continued cultural presence and participation in efforts to preserve and honor their heritage.

Bay Miwok

The eastern side of the project area is in the ethnographic territory of the Bay Miwok (also spelled Miwuk) who historically occupied the eastern portion of Contra Costa County near Mount Diablo, from Walnut Creek in the west, to the Sacramento–San Joaquin Delta in the east. They are one of five Eastern Miwok tribes (Bay, Plains, Northern Sierra, Central Sierra, and Southern Sierra) whose Eastern Miwok language derives from the Miwokan branch of the Utian language family, a subgroup of Penutian linguistic group. Specifically, the eastern portion of the project was occupied by the Saclan subgroup, constituted of roughly 250 individuals at the time of European contact.

The Eastern Miwok social structure was organized around language and ethnicity, with villages divided into “tribelets.” These tribelets controlled specific territories and their natural resources. The total Bay Miwok population at the time of contact is estimated to have been around 1,700. Each tribelet was an independent political unit with a defined territory, where they set up seasonal camps for hunting and gathering activities. Villages typically consisted of thatched structures with conical frames, along with acorn granaries, winter grinding houses, and sweathouses.

The Eastern Miwok primarily relied on gathering wild foods and hunting mammals for sustenance. They practiced controlled burning to ensure sufficient forage for species like mule deer, tule elk, and antelope. Plant foods, particularly acorns, were crucial to their diet, with several varieties of acorns being used. Other collected nuts included buckeye, laurel, hazelnut, digger pine, and sugar pine. Oak trees, from which acorns were gathered, were carefully preserved by the Eastern Miwok. In addition to acorns, they hunted rabbits, fished for salmon, and gathered other resources such as valley quail and live oak acorns. Shellfish like California mussel, Olympia oyster, and bent-nose clam were gathered from the Bay estuary.

The Eastern Miwok traditionally used a variety of tools and implements for hunting, fishing, and gathering. They employed bows and arrows, snares, traps, and nets for hunting land mammals and birds. For fishing, they crafted canoes from tule, balsa, or logs, and used harpoons, hooks, nets, and basketry traps. For gathering plants, they used sharpened digging sticks, long poles for dislodging acorns and pinecones, and woven tools such as seed beaters and carrying nets.

Foods were traditionally processed using tools like bedrock mortars, cobblestone pestles, anvils, and portable stone or wooden mortars to grind acorns and seeds. Additional tools included knives, leaching baskets, woven parching trays, strainers, and winnowers. Acorns were stored in village granaries before processing, and earth ovens were used to bake acorn bread. The Eastern Miwok also traditionally participated in a vast trade network between the coast and the Great Basin, exchanging marine shells like Olivella and abalone.

The Bay Miwok was the earliest of the Eastern Miwok groups to be missionized, arriving at Mission San Francisco beginning in 1794. Many Bay and Plains Miwok tribelets died or relocated as a result of encroachment, conversion, and epidemic disease. Population decline and disruption of cultural practices were exacerbated by the 1848 discovery of gold in the western Sierra Nevada foothills and the ensuing Gold Rush, which led to a flood of non-indigenous peoples into Miwok territory. During the first half of the 1900s, the federal government established reservations, or rancherias, which Eastern Miwok were relocated to.

Despite these hardships, many indigenous people today trace their ancestry to the Bay Miwok and other Eastern Miwok tribes. The resilience of the Bay Miwok people is reflected in their continued cultural presence and participation in efforts to preserve and honor their heritage.

Historic Setting

This historic setting focuses on the built environment within the Project area and surrounding environment, with particular attention to development linked to the identified historic resource types that were surveyed and evaluated for this project. It begins with the early development of Oakland, including its power infrastructure and residential expansion, particularly in areas like Oakland Hills and Moraga. The following is based on the PEA (PG&E, 2024) and the technical study prepared by Jacobs Engineering (Jacobs, 2024) unless otherwise cited.

Oaklands Early Residential and Industrial Growth

In 1770, Spanish explorer Pedro Fages became the first European to contact the East Bay area of northern California after forging an overland route from Monterey. He returned via the naval entrance of the San Francisco Bay in 1772. Fages' explorations played a key role in informing Juan Bautista de Anza's 1776 expedition to establish a northern mission and Presidio. Shortly after, party member Gabriel Peralta returned to the region with his family and set up a cattle operation at the 44,800-acre Rancho San Antonio. In 1848, James W. Marshall discovered gold in the American River near Coloma, California, sparking a rush of thousands of gold seekers into California through the San Francisco Bay and across the Oakland area on their way to the Sierra Nevada gold fields. Along the way, travelers squatted on rancho properties, including Rancho San Antonio, stealing food, cattle, and supplies from landowners.

In 1852, Peralta reluctantly reached a land-sharing agreement with three squatters who had claimed land on his property. The squatters—Horace Carpentier, Edson Adams, and Andrew Moon—soon broke the agreement and hired Julius Kellersberger to lay out a town on the east bank of the San Francisco Bay. On May 4, 1852, Carpentier submitted Kellersberger's city plan, naming it the "City of Oakland." As the California State Legislature debated Oakland's future over the next two years, Carpentier made financial deals to acquire the entire Oakland waterfront. With a monopoly on the waterfront, he established the only private ferry system for passengers and freight between Oakland and San Francisco. However, the loss of valuable industrial and commercial space hindered the city's growth in its early decades.

By the late 1860s, Oakland's population had surpassed 10,000, with 16 businesses, including sawmills, tanneries, slaughterhouses, dairies, a jute paper mill, a flour mill, drydocks, a brewery, and a cobbler's shop. The City of Oakland filed a claim to reclaim the waterfront in 1868, but before litigation occurred, Carpentier sold the land to the Central Pacific Railroad. This marked a turning point for the city when the Central Pacific Railroad developed the area as the western terminus of the Transcontinental Railroad,

completed in 1869. This development triggered the first significant population and industrial boom in Oakland and its neighboring East Bay communities. By 1875, the population grew to 15,000, and several small utility companies began offering electric and water services. Over the next 15 years, the population surged by an additional 42,000 residents, contributing to the region's rapid urbanization.

Power Infrastructure

By the end of the nineteenth century, East Bay utility companies had developed a complex network of power and water infrastructure. These companies relied on a mix of basic hydroelectric systems and transmission lines to provide reliable service to the area's 47,000 residents. As California's population continued to grow into the early twentieth century, two major companies emerged as leaders in infrastructure development. In 1905, the San Francisco Gas Company and the California Electric Light Company merged to form PG&E. A year later, the Great Western Company was incorporated. However, just as these two rivals were rising, the Great San Francisco Earthquake of 1906 struck the region. Thousands of disaster refugees relocated from San Francisco to Oakland, and by 1910, the East Bay's population had grown to 150,000. In response to the disaster and power shortage, PG&E began acquiring smaller firms and integrating their systems into larger networks. The Great Western Electric Company invested in new infrastructure, including the construction of the Oakland X Substation (originally known as the 37th Street Substation).

The Oakland X Substation, which cost $49,000 to build, was connected to the electric grid in 1908. By 1909, the Great Western Power Company contracted the Thompson Garratt Construction Company to double the substation's size for an additional $45,000. Between 1910 and 1920, both major utility companies developed long-distance electric lines to meet the rising demand for electricity. As construction projects accelerated, PG&E continued to acquire dozens of smaller utilities, and by 1925, it attempted to purchase its largest competitor, the Great Western Power Company. In 1930, PG&E successfully acquired the company, establishing a monopoly on utilities in northern California.

PG&E projected that the area's energy demand would double between 1945 and 1955. To meet this growing need, PG&E launched a $370 million construction program to expand electricity and natural gas services throughout northern and central California. This investment was crucial for the East Bay, which continued to experience significant growth. The Moraga Substation was built between 1946 and 1948 to serve the expanding population. The substation included a functional control building and industrial components, such as a maintenance garage and switchyard. It was also designed with an Italianate-inspired transformer-handling house, which helped to reduce the visual impact of the industrial facility in a largely residential area. The transformer-handling house was one of PG&E's last attempts to design substations that harmonized with the surrounding natural environment. In the 1950s, PG&E shifted to constructing more utilitarian structures with industrial, modern facades made from mass-produced materials.

Historic aerial photographs show that the Oakland-Moraga High Voltage Power Lines have been regularly maintained since its initial construction. Today, both the Oakland X and Moraga substations continue to serve customers in Oakland, Berkeley, Moraga, Orinda, and nearby communities.

Residential Growth

In 1871, the area that now forms the western half of the Area of Potential Impact (API) was a grassy recreational space known as "Lake Park." In the 1880s, the land was owned by San Francisco banker Peder Sather. After his death in 1886, his widow opened the area back up to the public. In 1893, Francis Marion "Borax" Smith's Oakland Traction Company extended a trolley line from downtown Oakland to the intersection of Grosvenor Place and Holman Road via Park Boulevard. The trolley used a large wooden trestle to cross Indian Gulch, bringing passengers directly to the park. Though the trestle was demolished in 1906, the area continued to be referred to as "Trestle Glen."

In 1915, Wickham Havens and Walter H. Leimert purchased the Trestle Glen land with plans for a residential development. They hired the Olmsted Brothers, renowned landscape architects, to design Trestle Glen as an upscale residential neighborhood inspired by the "garden suburbs" of England. The development featured winding streets, preserved natural areas, and large homes on spacious lots. To ensure the exclusivity of the neighborhood, Havens and Leimert formed the Lakeshore Homeowners Association in 1917, one of the oldest such organizations west of the Mississippi River.

The formation of the homeowners' association was deemed necessary as the East Bay saw significant population shifts during neighborhood development. Between 1914 and 1918, industrial growth driven by World War I, alongside improvements in transportation, sanitation, and urban infrastructure, brought in new residents. As the East Bay's demographics shifted, the Lakeshore Homeowners Association implemented racial covenants and exclusionary tactics to prevent individuals and families of color from moving into the area. These racial covenants were removed from the neighborhood's bylaws in 1979.

The Lakeshore Homeowners Association invited selected "desirable individuals" to tour Trestle Glen and view model homes built in various architectural styles, including Italianate, Tudor, Spanish, Monterey, French Provincial, Normandy, Colonial, Craftsman, and Mediterranean. Each home was equipped with the latest electric appliances. The majority of homes in Trestle Glen were built in the late 1910s and 1920s. The success of Trestle Glen led to further development in nearby areas, with Leimert establishing the Oakmore Highlands, Lakeshore Heights, and Dimond Canyon neighborhoods along Park Boulevard. As these new neighborhoods grew, Oakland's boundaries expanded eastward into the hills.

To meet the rising demand for utilities, the East Bay Municipal Utility District (EBMUD) was formed and began providing wastewater services. By 1930, Oakland's neighborhoods were encroaching on nearby towns like San Leandro, Berkeley, Alameda, and Emeryville. Although development slowed during the Great Depression, it picked up again by 1933. In 1935, the East Bay Street Railway added a new route connecting Piedmont Pines with Oakland Hills, and the East Bay Sibley Volcanic Regional Preserve was established in 1936. Initially, residents used the railway to visit the preserve, and in 1937, the Caldecott Tunnel opened, providing easier access between Oakland, the preserve, and Contra Costa County.

The opening of the Caldecott Tunnel spurred some residential growth in the nearby communities of Orinda, Glorietta, Lost Valley, and Moraga. However, it was the post-World War II baby boom that fueled the region's first major population surge. Improved transportation between Contra Costa and Alameda counties made it easier for families to move eastward, and by the late 1940s and early 1950s, suburban neighborhoods with ranch-style homes began to dominate the area. The popularity of personal motor vehicles also led to a decline in the use of electric trams. By the mid- to late-1950s, the streetcar lines that had once facilitated the East Bay's residential expansion were repurposed for street lighting.

While development in the API area remained relatively stagnant after the mid-20th century, a new road was constructed through the Trestle Glen neighborhood in the late 1950s and early 1960s. This project led to the demolition of 160 residences. Orinda, located at the eastern edge of the API, was incorporated as a city in 1985.

Cultural Resource Data Collection- Methods and Results

Defining the Areas of Potential Impacts

Two APIs were identified, one for the archaeological analysis and one for the architectural analysis. Both APIs are located within the City of Orinda, unincorporated areas of Contra Costa County, and the Cities of Oakland and Piedmont within Alameda County. The Project starts in the City of Orinda at Moraga Substation, with power lines extending southwestward across hilly open space and park land in unincorporated Contra Costa County, including lands owned by EBRPD and EBMUD. This section of the project is referred to as the eastern section. The lines then continue southwestward into the central and western sections

through residential, open space, and recreational use areas to Oakland X Substation in the City of Oakland, Alameda County.

The archaeological API is defined as all proposed locations of ground disturbance including laydown areas and staging areas, aboveground usage areas along the power lines, and access roads proposed as part of the Project, which encompasses an additional 150-foot radius beyond all Project elements and areas of ground disturbance. The entire archaeological API encompasses 636.98 acres, and the vertical limits extend up to approximately 30 feet below the existing ground surface for new power line structure foundations. Excavation for underground utility installation would extend up to approximately 13 feet below surface.

The architectural API encompasses areas in which potential physical, visual, atmospheric, or audible effects from the Project could occur. The architectural API encompasses 633 acres, including areas related to the Project's construction, operation, and maintenance. The architectural API includes parcels that intersect with Project activities and adjacent parcels where visual impacts are possible. Because the use of staging areas (which include existing paved lots, existing graded or gravel lots, and portions of existing paved streets) and access roads would not result in changes that would impact historic resources, these are not included in the architectural API. The vertical extent of the architectural API does not exceed 168 feet above the existing ground surface for the replacement line structures and 30 feet above the existing ground surface for the substations' improvements. The visibility of the lines was field verified in the eastern and central sections of the Project, where the structures and conductors would be replaced above ground.

Background Research and Record Search Methods

Extensive background research was completed in support of the archaeology and architectural studies and included a records search, Sacred Lands File (SLF) search and Native American outreach (details of which are provided in Section 3.16 Tribal Cultural Resources), archival research, and a buried site sensitivity analysis. Background research included searches of PG&E's Confidential Cultural Resource Database (CCRD), the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), California Inventory of Historic Resources, California Points of Historic Interest, California Historical Landmarks, California Department of Transportation Bridge Inventory, and Historic Properties Directory. In addition, historical maps and aerial photographs were reviewed, including: the USGS repository; David Rumsey Map Collection; ProQuest Sanborn Fire Insurance Maps Collection; National Environmental Title Research; and the University of California, Berkeley, Earth Sciences and Map Library historical topographic map collections. The records search included a 0.25-mile buffer around the archaeological API and the architectural API.

Additional background research to identify architectural resources within the architectural API and develop a historic context included a review of primary and secondary sources available at repositories and online, such as maps, aerial images, regional histories, and historic newspapers. Statewide historic contexts pertinent to the architectural API also were reviewed. Repositories and information sources consulted include the following:

- Alameda and Contra Costa County libraries
- Alameda and Contra Costa County Historical Society Historical Societies
- Oakland Museum of California
- Orinda Historical Society
- Moraga History Center
- National Park Service
- Ancestry.com
- ChroniclingAmerica.loc.gov (Library of Congress historic newspaper database)
- General Land Office land records
- National Archives
- Newspapers.com
- NewspaperArchive.com
- National Register Focus Database
- ParcelQuest
- USGS topographic maps
- U.S. Census Records

Pedestrian Survey Methods

Archaeology

An archaeological survey of the API was conducted by Jacobs archaeologist Katie Jacobson from December 11 to 13, 2023. Given that most of the API is hardscaped, the survey focused on the EBRPD lands on the northeastern side of the area where the ground surface is exposed. A total of approximately 93 percent (78.98 acres) of the survey area (85.4 acres) was intensively examined, with transects spaced no more than 49.2 feet (15 meters) apart. About 7 percent (6.36 acres) of the area was surveyed at a reconnaissance level due to dense vegetation and steep slopes. Less than 1 percent (0.06 acre) of the survey area was inaccessible due to fencing around private property.

All exposed soils, including the edges of paved areas, erosion features, and landscaped sections, were inspected for evidence of precontact or historical cultural resources, as well as buried archaeological deposits such as modified artifacts or changes in soil color or texture.

Built Environment

The architectural field survey of the API was conducted and overseen by investigators who meet the Secretary of the Interior's Professional Qualification Standards in Architectural History and History, as outlined in 36 Code of Federal Regulations Part 61. The survey took place on March 19, April 1, April 2, and May 29, 2024, and was designed to meet local, state, and federal requirements, following the guidance of the California Office of Historic Preservation's Instructions for Recording Historical Resources (Office of Historic Preservation, 1995). It was also consistent with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (Federal Register Volume 48, Section 44716).

The survey was conducted from public vantage points and public rights-of-way (ROWs). If resources were not visible or accessible from public areas, supplemental research was conducted to record and evaluate the resources, including reviewing current mapping software, historic maps, aerial imagery, real estate listings, historic newspaper databases, city directories, and other relevant sources.

Before fieldwork began, investigators imported parcel data for the architectural API from the Alameda and Contra Costa County Assessor's offices and Parcel Quest into ArcGIS Collector. This data included parcel boundaries, addresses, assessor's parcel numbers, and construction years. Investigators also uploaded shapefiles indicating the locations of previously recorded architectural resources within the API. These parcels were reviewed for the presence of resources built in 1979 or earlier.

Investigators visited parcels with previously recorded resources or those built in 1979 or earlier. During the survey, investigators used the ArcGIS Collector app and a digital camera to document properties, including accessory resources (if present), and to make notes on architectural style, form, condition, and historic integrity. Construction dates for properties were estimated based on field verification, assessor data, professional judgment, and historical research from sources such as historic maps, aerial imagery, and newspaper databases.

The architectural API's extent was verified in the field to assess whether the proposed Project would be visible from nearby parcels. In some cases, the architectural API was expanded to include the full extent of a parcel or related properties, based on conditions such as topography or a lack of visual obstructions. Parcels adjacent to tower replacements were included if they could see Project elements, which would be above ground and permanent. Properties were excluded if factors such as vegetation, topography, or orientation meant the Project would not be visible from them. For example, properties along Park Boulevard were excluded because the work is mainly subterranean, and no long-term visual impact was expected.

During fieldwork, investigators assessed views from public vantage points, the historic character and setting of the area, building orientation, existing vegetation, topography, and the age of visual intrusions. If field

observations indicated that the rebuilt line would not result in a visible change, the resources were not included in the survey matrix or on DPR 523 forms.

Built environment resources within the API that were not eligible for individual listing in the CRHR are summarized in the PEA, with each resource assigned a Resource Identifier (ID) number. Resources built after 1979, or those that did not show exceptional significance, were not recorded. Resources older than 45 years (constructed before 1979) and eligible for inclusion in the CRHR are summarized in Section 5 of the PEA and were recorded on DPR 523 forms.

Background Research and Record Search Results

The CCRD search showed that 109 cultural resource investigations had been conducted within the study area. Of these, 22 were regional or thematic studies that did not involve focused surveys. The remaining 87 studies included surveys or other focused investigations of parts of the API, covering about 60 percent of the total Project area. These studies were conducted between 1974 and 2023.

The records search showed that 97 cultural resources had been previously documented within the 0.25-mile radius study area. Among these, 31 are located within the API. These included two PG&E substations (Oakland X Substation, P-01-000861 and Moraga Substation, P-07-004686), the Moraga Substation Transformer House (P-07-004687), the Sibley Volcanic Regional Preserve Historic District (P-07-004486), the Contra Costa-Moraga Transmission Line (P-07-004688), an abandoned railroad segment (TSP-01H), and various private residences, commercial properties, and other utilities (Table 3.5-1). Of the 66 resources outside the API but still within the 0.25-mile radius, all but one are historical built-environment resources. All resources listed in the table below include their National Register of Historic Places and California Register of Historic Resources status, ranging from not evaluated, to not eligible for listing, or appears eligible for listing. Details for each of these resources eligibility can be found in the accompanying Archaeological technical report.

Table 3.5-1. Cultural Resources Withing Archaeological and Built Environment APIs Identified in Record Searches

ID	Name	Description	In API	NRHP/CRHR Evaluation
P-01-012014	Electrical power line tower (project structure EN29)	Electrical power line tower	Yes	7 – Not evaluated for the NRHP or CRHR
P-07-004486	Sibley Volcanic Regional Preserve	Dedicated in 1936. Includes trails for hiking and equestrian riding, a c. 1940 park residence, a modern interpretive center, and several modern bathrooms.	Yes	3S – Appears eligible for separate listing in the NRHP
P-07-004587	Moraga Substation Transformer House	Transformer house for Moraga Substation	Yes	3S – Appears eligible for separate listing in the NRHP
P-01-000861	Oakland X Substation	Built in 1908-1909 by Great Western Power Company, this substation was the terminus of long-distance transmission lines from hydroelectric plants on the Feather River.	Yes	7b – Not evaluated for the NRHP or CRHR
P-01-11337	Abandoned segment of the Oakland Antioch & Eastern Railway (OA&E) grade, locally referred to as the Montclair Railroad.	Abandoned segment of a railway	Yes	7 – Not evaluated for the NRHP or CRHR

ID	Name	Description	In API	NRHP/CRHR Evaluation
P-07-004484	HP02 – Single family property; HP14 - Government building; HP31 - Urban open space; HP35 - New Deal public works project; HP42 - Stadium/sports arena	Historic building and features	Yes	7 – Not evaluated for the NRHP or CRHR
P-07-004491	HP02 – Single family property	Historic building	Yes	7 – Not evaluated for the NRHP or CRHR
P-07-004586	Moraga Substation	Power substation	Yes	6Z – Not eligible for listing on the NRHP, the CRHR, or local designation through survey evaluation
P-07-004688	Built in 1949, 131 steel lattice structures extending 27 miles from the Contra Costa Powerplant to Moraga Substation	Steel lattice structures	Yes	6Z – Not eligible for listing on the NRHP, the CRHR, or local designation through survey evaluation
P-07-004487	CA-CCO-825H	Wall/fence; Other	Yes	7 – Not evaluated for the NRHP or CRHR
P-07-004586	Moraga Substation	Substation	Yes	6Z – Not eligible for listing on the NRHP, the CRHR, or local designation through survey evaluation
P-07-004583	Colton Blvd Oakland	6856 Colton Blvd Oakland; APN 048-7332-029	Yes	7 – Not evaluated for the NRHP or CRHR
P-07-004584	Colton Blvd Oakland	6857 Colton Blvd Oakland; APN 048-7334-026	Yes	7 – Not evaluated for the NRHP or CRHR
P-07-004585	Colton Blvd Oakland	6878 Colton Blvd Oakland; APN 048-7332-030	Yes	7 – Not evaluated for the NRHP or CRHR
P-07-004589	Colton Blvd Oakland	6900 Colton Blvd Oakland; APN 048-7332-031	Yes	7 – Not evaluated for the NRHP or CRHR
P-07-004590	Colton Blvd Oakland	6906 Colton Blvd Oakland; APN 048-7332-032	Yes	7 – Not evaluated for the NRHP or CRHR
P-07-004591	Colton Blvd Oakland	6912 Colton Blvd Oakland; APN 048-7332-033	Yes	7 – Not evaluated for the NRHP or CRHR
P-07-004592	Colton Blvd Oakland	6918 Colton Blvd Oakland; APN 048-7332-034	Yes	7 – Not evaluated for the NRHP or CRHR
P-07-004593	Colton Blvd Oakland	6924 Colton Blvd Oakland; APN 048-7332-035	Yes	7 – Not evaluated for the NRHP or CRHR
P-07-004594	Colton Blvd Oakland	6930 Colton Blvd Oakland; APN 048-7332-036	Yes	7 – Not evaluated for the NRHP or CRHR
P-07-004595	Colton Blvd Oakland	6942 Colton Blvd Oakland; APN 048-7332-037	Yes	7 – Not evaluated for the NRHP or CRHR
P-07-004596	Colton Blvd Oakland	6948 Colton Blvd Oakland; APN 048-7332-038	Yes	7 – Not evaluated for the NRHP or CRHR
P-07-004597	Colton Blvd Oakland	6954 Colton Blvd Oakland; 0 APN 48-7332-039	Yes	7 – Not evaluated for the NRHP or CRHR
P-07-004598	Colton Blvd Oakland	6960 Colton Blvd Oakland; APN 048-7332-040	Yes	7 – Not evaluated for the NRHP or CRHR

ID	Name	Description	In API	NRHP/CRHR Evaluation
P-07-004599	Colton Blvd Oakland	6966 Colton Blvd Oakland; APN 048-7332-041	Yes	7 – Not evaluated for the NRHP or CRHR
P-07-004600	Colton Blvd Oakland	6972 Colton Blvd Oakland; APN 048-7332-001	Yes	7 – Not evaluated for the NRHP or CRHR
P-07-004601	Colton Blvd Oakland	6980 Colton Blvd Oakland; APN 048-7332-001	Yes	7 – Not evaluated for the NRHP or CRHR
P-07-004603	Bedrock mortar	Bedrock mortar	Yes	7 – Not evaluated for the NRHP or CRHR

Native American Heritage Commission Sacred Lands File Search Results

On December 1, 2023, Jacobs archaeologists conducted a SLF search with the NAHC. The NAHC responded on December 4, 2023, with negative results and provided a list of 25 tribes to contact for request for consultation. The details of tribal consultation can be found in section 3.16 Tribal Cultural Resources of this EIR.

Archaeological Survey Results

No previously unrecorded archaeological or cultural resources were identified during the field survey. However, two previously recorded resources were revisited at their plotted locations. These resources include P-01-011377 (an abandoned segment of the Oakland Antioch & Eastern Railway (OA&E) grade, last updated on March 24, 2017) and P-07-004486 (the Sibley Volcanic Regional Preserve Historic District, initially recorded on October 6, 2021). Both resources were found to be in the same condition as described in the previous site records, with no need for updates based on field observations.

The southwestern portion of the archaeological API lies in a highly developed residential part of northeast Oakland, specifically the hillside neighborhood of Montclair in east-central Alameda County. An understanding of the biological and geological profiles of an area aids in understanding past land uses and helps anticipate what might be expected to be encountered during ground disturbance. Soils in these surveyed areas were variable, including medium brown sandy loam, medium yellow-brown loamy silt, and light grey-brown loam with angular and subangular gravel inclusions. Vegetation in the overstory consists of Eucalyptus groves and native oak woodland species, such as pine and bay laurel, while the understory includes various annual grasses and shrubs, including blackberry brambles and ferns. Slopes in this area ranged from gentle to steep, averaging 20 percent, but reaching approximately 60 to 70 percent near Shepherd Canyon and the hiking trails east of the EBRPD Huckleberry Botanic Regional Preserve. Ground surface visibility was variable, ranging from poor (0 to 25 percent) in areas with dense vegetation, duff, wood chips, ornamental landscaping, or hardscape, to fair (25 to 50 percent) where vegetation was managed in fields adjacent to private properties, and good (50 to 75 percent) in areas maintained for hiking trails and riparian zones near San Leandro Creek. Bioturbation disturbances, primarily from rodent activity, were occasionally observed.

The northeastern part of the archaeological API is within the lightly developed EBRPD Sibley Volcanic Regional Preserve in Contra Costa County. Soils in this area varied as well, consisting of medium grey-brown clayey silt, medium brown clay loam, and yellow-brown silt with small angular and subangular gravel inclusions. Vegetation here includes oak woodland and grassland, with the overstory composed of oak, bay laurel, and coast redwood, while the understory contains bush monkeyflower, ferns, blackberry, poison oak, foothill lupine, coyote brush, and a mix of native and non-native grasses and shrubs. Slopes in this area ranged from gentle, averaging 3 percent, to steep, averaging around 50 percent in the steep drainage ravines and hills north and south of the park road. Ground surface visibility varied, ranging from poor (0 to 25 percent) in areas with dense vegetation, duff, erosion control netting, ecological restoration landscaping, or hardscaping, to good (50 to 100 percent) in areas managed through grazing, maintained

trails, and dirt driveways. Disturbances from bioturbation, primarily from rodent activity, were observed throughout this area. Some unpaved roads were covered with imported gravel, and modern structures were present within the survey area. Much of the API has been disturbed by extensive cattle grazing. General refuse, consistent with ongoing use as a preserve and grazing land, was observed throughout the API, including bricks, treated wood posts, barbed wire fencing, and rusty equipment and hardware. Some out-of-use roads were noted but not recorded, as no diagnostic resources were found. These roads showed faint tire tracks and signs of modern use.

Built Environment Survey Results

The background research and architectural field survey identified 81 architectural resources within the architectural API that meet the 45-year survey cutoff (i.e., constructed in or before 1979). These resources had the potential to be physically or visually impacted by the Project and required recordation in the survey results matrix or on DPR 523 forms. Of the 81 architectural resources, 70 are single-family residential properties, two are multi-family residential properties, one is a set of public stairs, one is a public golf course, one is a church and school, one is a railroad, one is park land, and four are utilities, such as substations or lines. The residential properties mostly consist of single-family homes with Modern, Contemporary, Ranch, Mediterranean, Spanish, and Monterey-style elements.

Out of the 81 resources, 76 were recorded for the first time as part of this Project. Five were previously identified, and their records were updated as part of this assessment. Three of these five resources are eligible for listing in the California Register of Historical Resources (CRHR): Oakland X Substation (P-01-000861), the Sibley Volcanic Regional Preserve Historic District (P-07-004486), and the Moraga Substation Transformer House (P-07-004587). Two new resources identified during this assessment were potentially eligible for inclusion in the CRHR for the purposes of the Project: the Moraga–Oakland 115 kV Power Lines (the existing project lines), which was recommend ineligible after evaluation due not meeting any of the criterion of listing on the CRHR, and 44 Cortez Court, a redwood residence, which is constructed of mostly redwood in an effort to blend with its natural surroundings, in Oakland. Only 44 Cortez Court, the redwood residence, was evaluated as eligible for the CRHR.

In summary, of the 81 resources identified, 77 were determined to lack the potential for inclusion in the CRHR individually under applicable criteria, and 4 were determined to be eligible.

Buried Archaeological Sensitivity

Review of recent geologic maps and data produced by the Dibblee Geological Foundation (Dibblee and Minch 2005) finds that the Project area is underlain primarily by a mix of surficial sediments (Qa) from the Holocene (present day to 10,000 years ago), material from the Orinda Formation (Tor/Tbm) from the Pliocene (2.6 to 5.3 million years ago [mya]), material from the Monterey Formation (Tm) dating to the Miocene (5.3 to 23 mya), and marine clastic material (Tes) from the Eocene (33 to 56 mya).

The Soil Survey Geographic Database maintained by the United States Department of Agriculture, Natural Resources Conservation Service indicates that soils of Early Pleistocene age (1.9 million to 25,000 years ago) or older have formed on the underlying geology. These include soils of the Diablo, Los Osos, and Millsholm Complexes, Urban Land, and Xerorthents (PG&E, 2024).

As noted in recent geoarchaeological studies completed for Caltrans District 4, which includes Alameda and Contra Costa counties, as well as other studies, discovery of buried sites depends on numerous factors, not just the age of the underlying landform. These include distance from watercourses, micro-topographic variations (for example, the presence of buried stream channels, former sloughs, springs, or natural levees), proximity to known archaeological sites, and the extent and severity of past disturbances (PG&E, 2024; Jacobs, 2024). Currently, the Project area spans five named creeks, and one Native American resource was identified via the record search within the 0.25-mile study area buffer. Water courses in general, including current and historic creeks, are considered highly sensitive for Tribal Cultural Resources. In

addition, roughly three-quarters of the southwestern Project area has been partially cleared, leveled, and developed for residential and commercial uses, roadway construction, and utility installation (PG&E, 2024). Lastly, PG&E has indicated that the closest ground disturbing activity to a creek (Cobbledick Creek) would be approximately 40 feet away for one rebuilt powerline structure (PG&E, 2025). Based on this information, the likelihood of encountering unknown buried cultural resources is considered moderate.

3.5.2. Applicable Regulations, Policies, and Standards

Federal

No federal regulations related to cultural resources are applicable to the Project.

State

California Environmental Quality Act

Various laws apply to the evaluation and treatment of cultural resources. CEQA requires lead agencies to evaluate cultural resources by determining whether these evaluations meet sets of specified criteria that make such resources eligible to the CRHR. Those cultural resources eligible to the CRHR are historical resources. The evaluation then influences the analysis of potential impacts to such historical resources and the mitigation that may be required to reduce any such impacts.

CEQA and the CEQA Guidelines define significant cultural resources under two regulatory definitions: historical resources and unique archaeological resources. A historical resource is defined as a "resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources", or "a resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code," or "any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the agency's determination is supported by substantial evidence in light of the whole record." (Cal. Code Regs., tit. 14, § 15064.5(a)). Historical resources that are automatically listed in the CRHR include California historical resources listed in or formally determined eligible for the NRHP and California Registered Historical Landmarks from No. 770 onward (Pub. Resources Code, § 5024.1(d)).

Under CEQA, a resource is generally considered historically significant if it meets one or more of the following criteria for listing in the CRHR. (Cal. Code Regs., tit. 14, § 15064.5(a)(1); Pub. Resources Code, § 5024.1(c)):

- Criterion 1, is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Criterion 2, is associated with the lives of persons important in our past;
- Criterion 3, embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- Criterion 4, has yielded, or may be likely to yield, information important in prehistory or history.

In addition, historical resources must also possess integrity of location, design, setting, materials, workmanship, feeling, and association (Cal. Code Regs., tit. 14, § 4852(c)). Historic resources must retain enough of their historic character or appearance to be recognizable as historic resources and to convey the reasons for their significance to be eligible for listing in the CRHR. Thus, the resource must have historic integrity, meaning the ability of a property to convey its significance and is defined as the authenticity of a resource's historic identity, evidenced by the survival of characteristics that existed during the resource's period of significance. Integrity must be evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. A resource that has lost its historic character or appearance still may have sufficient integrity for the CRHR if it maintains the potential to yield significant scientific or historical information or specific data.

Even if a resource is not listed or determined to be eligible for listing in the CRHR, CEQA requires the lead agency to make a determination as to whether the resource is a historical resource as defined in Public Resources Code, sections 5020.1(j) or 5024.1. (Cal. Code Regs., tit. 14, § 15064.5(a)(1).)

In addition to historical resources, archaeological artifacts, objects, or sites can meet CEQA's definition of a unique archaeological resource, even if the resource does not qualify as a historical resource (Cal. Code Regs., tit. 14, § 15064.5(c)(3)). Archaeological artifacts, objects, or sites are considered unique archaeological resources if it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that the resource meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person. (Pub. Resources Code, § 21083.2[g]).

To determine whether a proposed project may have a significant effect on the environment, staff analyzes the project's potential to cause a substantial adverse change in the significance of historical or unique archaeological resources. The magnitude of an impact depends on:

- the affected historical resource(s);
- the specific historic significances of any potentially impacted historical resource(s);
- how the historical resource(s) significance is manifested physically and perceptually;
- appraisals of those aspects of any historical resource's integrity that figure importantly in the manifestation of the resource's historical significance; and
- how much the impact will change historical resource integrity appraisals (California Natural Resources Agency, 2023).

Title 14, California Code of Regulations, section 15064.5(b) defines a "substantial adverse change" as the "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired."

California Register of Historical Resources

Under CEQA, a resource is generally considered historically significant if it meets one or more of the criteria for listing in the CRHR, as discussed above. (Cal. Code Regs., tit. 14, § 15064.5(a)(1); Pub. Resources Code, § 5024.1(c).) As stated above, historic resources must retain their historic integrity to be eligible for listing in the CRHR.(Cal. Code Regs., tit. 14, § 4852(c)).

Resources listed in a local historic register or deemed significant in a historical resources survey, as provided under PRC Section 5024.1(g), are presumed to be historically or culturally significant unless a preponderance of evidence demonstrates that they are not. A resource that is not listed on or determined to be ineligible for listing on the CRHR, not included in a local register of historical resources, or not deemed significant in a historical resources survey may nonetheless be historically significant, as determined by the lead agency (Pub. Resources Code, § 21084.1).

Assembly Bill 52

Assembly Bill (AB) 52 established that impacts to Tribal Cultural Resources (TCR) must be considered by the lead agency under CEQA and also established additional Native American consultation requirements to be undertaken by the lead agency. (Pub. Resources Code, § 21080.3.1). A TCR is a site, feature, place, cultural landscape, sacred place, or object that is considered of cultural value to a California Native American tribe, and that is:

- Listed or eligible for listing in the CRHR or in a local register of historical resources as defined in PRC Section 5020.1(k).
- 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 PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency will consider the significance of the resource to a California Native American tribe. (Pub. Resources Code, § 21074(a).)

A historical resource described in Public Resources Code Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a) of Section 21074.

The Governor's Office of Planning and Research has issued revised CEQA Guidelines to incorporate AB 52 requirements. Refer to Section 3.16, Tribal Cultural Resources, for further discussion of the Project's potential impacts to TCRs.

California Health and Safety Code and Public Resources Code

Broad provisions for the protection of Native American cultural resources are contained in the California Health and Safety Code, Division 7, Part 2, Chapter 5 (Sections 8010 through 8030).

Several provisions of the PRC also govern archaeological finds of human remains and associated objects. Procedures are detailed under PRC Section 5097.98 through 5097.996 for actions to be taken whenever Native American remains are discovered. In addition, Section 7050.5 of the California Health and Safety Code states that any person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the PRC. Any person removing human remains without authority of law or written permission of the person or persons having the right to control the remains under PRC Section 7100 has committed a public offense that is punishable by imprisonment.

PRC Chapter 1.7, Section 5097.5/5097.9 defines any unauthorized disturbance or removal of a fossil site or remains on public land as a misdemeanor and specifies that state agencies may undertake surveys, excavations, or other operations as necessary on state lands to preserve or record paleontological resources.

Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the Project is not subject to local (city and county) discretionary regulations except for air districts and Certified Unified Program Agencies with respect to air quality and hazardous waste regulations, respectively. However, plans and policies for the City of Orinda, Contra Costa County, the City of Oakland, and the City of Piedmont

are considered for informational purposes to assist with the CEQA review process, based on the expected location of Project construction activities. These counties and cities are considered local agencies that must comply with their own plans and policies, as described in the following subsections.

City of Orinda

Chapter 17.25 of the Orinda Municipal Code: Historic Landmarks Ordinance

Chapter 17.25 of the Orinda Municipal Code, known as the **Historic Landmarks Ordinance**, provides a comprehensive framework for the identification, designation, and preservation of historic landmarks within the City of Orinda. This ordinance outlines specific criteria, procedures, and responsibilities to ensure the protection of the city's cultural and historical resources (City of Orinda, 2024).

1. Purpose and Authority

The ordinance grants the **City Council** the authority to designate by ordinance a site, building, structure, monument, tree, work of art, or other object in the city as a historical landmark (City of Orinda, 2024).

2. Criteria for Designation

To be considered for landmark status, a property or object must meet at least three of the following eight criteria (City of Orinda, 2024):

A. Exemplifies or reflects special elements of the city's cultural, social, economic, political, aesthetic, engineering, architectural, or natural history.

B. Is associated with significant events in the city's history.

C. Is associated with significant persons in the city's past.

D. Embodies distinctive characteristics of a style, type, period, or method of construction, or represents the work of a master or possesses high artistic values.

E. Has yielded, or may be likely to yield, important information in prehistory or history.

F. Is a unique location or contains singular physical characteristics representing an established and familiar visual feature of a neighborhood or the city.

G. Embodies elements of architectural design, detail, materials, or craftsmanship that represent a significant architectural innovation.

H. Is associated with important cultural, educational, economic, political, or social aspects of the city.

3. Designation Process

The process for designating a **historic landmark** involves several steps (City of Orinda, 2024):

- **Application Submission:** An application is submitted to the **Planning Department**, including documentation describing the landmark.
- **Review by Historic Landmarks Committee:** The application is reviewed by the **Historic Landmarks Committee**, which provides a recommendation.
- **Planning Commission Review:** The **Planning Commission** evaluates the application and the committee's recommendation.
- **City Council Decision:** The **City Council** holds a public hearing and may designate the landmark by ordinance, requiring a four-fifths majority approval.

City of Orinda General Plan

Policy 4.1.1.A: Preservation of Cultural **Resources**

This policy emphasizes the importance of identifying and preserving sites, structures, and objects of historical, cultural, or archaeological significance. It mandates that development projects incorporate measures to protect these resources, ensuring that any potential impacts are adequately mitigated. This aligns with CEQA's requirements to evaluate and minimize adverse effects on cultural resources.

Policy 4.1.2.A: Integration of Cultural Resource Considerations

Under this policy, the city advocates for the integration of cultural resource considerations into the planning and development process. It encourages early consultation with relevant agencies and stakeholders to identify potential cultural resources and develop strategies for their preservation. This proactive approach facilitates compliance with CEQA by addressing cultural resource impacts early in the project lifecycle.

Incorporating these policies into the EIR's Cultural Resources section ensures that the project aligns with the city's commitment to preserving its cultural heritage. It also demonstrates adherence to CEQA guidelines by proactively identifying and mitigating potential impacts on cultural resources (City of Orinda, 1992).

Preservation of Historic Resources

Plan Orinda stresses the importance of preserving Orinda's historic structures and landmarks. It emphasizes adaptive reuse, encouraging property owners to repurpose historic buildings instead of demolishing them. This approach aligns with the city's goal to balance growth with preservation, ensuring that the cultural identity of Orinda is maintained while accommodating future development (City of Orinda, 2023).

The plan requires that all proposed developments involving historic structures undergo a thorough evaluation for potential impacts on cultural resources, following the guidelines of **CEQA** (California Environmental Quality Act). This evaluation assesses whether the proposed project would adversely affect historical or cultural landmarks and includes measures to mitigate any negative impacts (City of Orinda, 2023). Furthermore, any modifications to historic structures must adhere to strict preservation standards that respect the building's architectural style, historical context, and cultural significance (City of Orinda, 2023).

Integration with State and Local Laws

Plan Orinda aligns with both state and local regulations governing the preservation of cultural resources. In particular, the plan emphasizes compliance with CEQA, which requires environmental review for projects that could impact historical resources. This includes mandatory surveys of proposed development sites to identify any cultural resources, such as historic buildings or archaeological sites, that may be present (City of Orinda, 2023).

The plan specifies that when such resources are identified, developers are required to implement mitigation strategies to preserve these resources, such as adjusting project designs or incorporating preservation elements into the development (City of Orinda, 2023). In cases where preservation is not feasible, alternative strategies such as documentation, relocation, or other mitigation measures may be implemented to ensure the historical value is retained (City of Orinda, 2023).

Additionally, Plan Orinda recognizes and integrates the National Historic Preservation Act (NHPA) and other relevant federal and state laws, ensuring that all development within the city complies with the highest standards for cultural resource protection (City of Orinda, 2023).

Contra Costa County

Contra Costa County enforces cultural resource regulations to protect historical, archaeological, and tribal cultural resources. These regulations ensure that the county's cultural heritage is preserved during

development projects and that Native American tribes are consulted when resources of cultural significance are affected.

Identification and Evaluation of Resources

Projects within Contra Costa County are required to undergo cultural resource assessments, which include archival research, field surveys, and consultation with Native American tribes. This process ensures that potential impacts to cultural resources are identified and appropriately mitigated. The county emphasizes early consultation with tribes to incorporate their knowledge and concerns into the planning process (Contra Costa County, 2023, p. 7-37).

Impact on Cultural Resources

If a project has the potential to significantly impact a cultural resource, particularly a tribal cultural resource, it is considered a significant environmental effect under the California Environmental Quality Act (CEQA). In such cases, mitigation measures must be implemented to reduce impacts to a less-than-significant level. The county's policies align with CEQA requirements, ensuring that cultural resources are adequately protected during development activities (Contra Costa County, 2023, p. 7-38).

Cultural Resource Discovery During Construction

In the event that cultural resources are discovered during construction, work must be halted immediately, and the lead agency must be notified. A qualified professional evaluates the significance of the discovery, and if it is found to be significant, the county consults with relevant parties, including tribes, to develop appropriate mitigation strategies. This protocol ensures that unexpected discoveries are managed in a manner that respects and preserves cultural heritage (Contra Costa County, 2023, p. 7-39).

Enforcement and Compliance

All development projects in Contra Costa County are subject to these regulations. Failure to comply with cultural resource protection measures can result in project delays or legal consequences. The county's commitment to enforcing these regulations underscores the importance of preserving cultural and tribal resources for future generations.

General Plan

Goal COS-10: Preservation of Historic and Cultural Resources

This goal emphasizes the importance of identifying and preserving sites, structures, and objects of historical, cultural, or archaeological significance. It mandates that development projects incorporate measures to protect these resources, ensuring that any potential impacts are adequately mitigated. This aligns with CEQA's requirements to evaluate and minimize adverse effects on cultural resources.

Goal COS-11: Integration of Cultural Resource Considerations

Under this goal, the county advocates for the integration of cultural resource considerations into the planning and development process. It encourages early consultation with relevant agencies and stakeholders to identify potential cultural resources and develop strategies for their preservation. This proactive approach facilitates compliance with CEQA by addressing cultural resource impacts early in the project lifecycle.

Incorporating these goals into the EIR's Cultural Resources section ensures that the project aligns with the county's commitment to preserving its cultural heritage. It also demonstrates adherence to CEQA guidelines by proactively identifying and mitigating potential impacts on cultural resources (Contra Costa County, 2023, pp. 7-37 to 7-39).

City of Oakland

Historic Preservation Ordinance (Oakland Municipal Code, Chapter 17.110)

The Historic Preservation Ordinance (Oakland Municipal Code, Chapter 17.110) is a key regulation in Oakland aimed at preserving historic landmarks and districts throughout the city. This ordinance grants the City of Oakland the authority to designate significant structures, districts, and sites as historic landmarks. The ordinance ensures that these properties are protected from demolition or alterations that would negatively affect their historical integrity. To designate a property as a historic landmark, the city considers its architectural style, historical significance, association with notable figures or events, and other criteria. Once designated, any changes to the property, such as renovations or demolitions, must go through a review process to ensure the alterations respect the property's historic value. The ordinance also facilitates Mills Act property tax incentives for owners who agree to maintain and restore historic properties (City of Oakland, n.d.).

Oakland Cultural Heritage Survey (OCHS)

The Oakland Cultural Heritage Survey (OCHS) is a comprehensive survey undertaken by the City of Oakland to identify historic resources within the city. The survey evaluates buildings, sites, and districts to determine their historical and architectural significance. The findings of the survey are used to inform planning decisions and to identify properties that should be considered for designation as historic landmarks. The survey includes detailed criteria for evaluating resources, such as architectural style, cultural importance, and historical associations. The OCHS provides a critical tool for preservation efforts, ensuring that culturally and historically significant properties are recognized and protected (City of Oakland, 2024a).

Oakland General Plan, Historic Preservation Element

GOAL 1: Identifying Properties Potentially Warranting Preservation

The City aims to adopt an objective, consistent, well-documented, and widely accepted method for identifying properties that warrant preservation efforts. This process will determine the relative importance of each property to ensure preservation efforts are appropriately prioritized. Identification criteria will allow for significant exposure to preservation benefits across Oakland, recognizing the city's unique array of older properties. However, the process will also balance preservation with other concerns, acknowledging that not all properties may warrant preservation. The identification process will be structured to address the entire city comprehensively and efficiently, ensuring results are presented in a clear and accessible manner for broad community dissemination.

GOAL 2: Preservation Incentives and Regulations

The City seeks to develop a system of preservation incentives and regulations for significant older properties that enhance the economic feasibility of preservation. This system will provide predictable and appropriate levels of protection based on each property's importance, while balancing preservation with other concerns such as property owner interests and economic factors. The system will operate efficiently, avoiding unnecessary regulatory procedures and delays. Preservation regulations will be linked with incentives to encourage property owners to accept the regulations and to justify public investment in the incentives. Stronger regulations will be reserved for the most important properties, and demolition postponement provisions will be strengthened to ensure demolition is not permitted unless specific findings are made. Clear standards and design guidelines will be developed for approving projects involving regulated properties, weighing public benefits, design quality, and potential hardships on owners or users. During demolition postponements, owners and stakeholders will be provided with information on alternatives to demolition.

GOAL 3: Historic Preservation and Ongoing City Activities

The City will integrate historic preservation into its routine activities, ensuring that significant older properties are protected during City-sponsored or assisted projects, programs, and regulatory activities. Administrative procedures and criteria will be established to prevent unnecessary adverse effects on these properties. Emphasis will be placed on repair and rehabilitation rather than demolition for damaged, hazardous, or abandoned buildings, with efforts to expedite rehabilitation processes. Effective building security methods will be developed and implemented, and zoning and land use regulations will be reviewed to ensure they do not promote adverse changes to significant older properties. The City will also preserve its own significant older properties as an example to encourage others.

GOAL 4: Archeological Resources

The City will develop comprehensive databases to identify existing and potential archeological sites and adopt procedures to protect significant archeological resources. These procedures will be applied to projects requiring discretionary City approval, ensuring that archeological sites are preserved and their historical value is maintained.

GOAL 5: Information and Education

The City will enhance public and staff appreciation of older properties through informational and educational programs. These programs will aim to increase technical knowledge for cost-effective preservation methods. Information on the City's historic property identification methods, preservation incentives, regulations, and policies will be widely disseminated and clearly explained. Public awareness of Oakland's history and architecture will be promoted through markers, walking tours, school programs, and publications, fostering a deeper connection to the city's cultural heritage.

These goals form the foundation for the policies and actions outlined in subsequent chapters of the Historic Preservation Element.

City of Piedmont

Piedmont Municipal Code, Chapter 17.28

The Historic Preservation Ordinance (Piedmont Municipal Code, Chapter 17.28) is a regulation that provides the framework for the identification and protection of historic landmarks and properties within Piedmont. This ordinance allows the city to designate buildings, sites, structures, or districts as historic landmarks based on their historical, architectural, or cultural significance. Once a property is designated, it is protected from demolition or alterations that would compromise its historical integrity. The ordinance also outlines a process for property owners to apply for historic designation and for city officials to review any proposed changes to designated properties. The goal of this ordinance is to preserve the character of Piedmont's historic resources and ensure that new development or alterations respect the city's cultural heritage (City of Piedmont, n.d.).

Piedmont General Plan, Design and Preservation Element

The Piedmont General Plan's Design and Preservation Element provides policies and guidelines for the preservation and enhancement of cultural and historic resources in the city. This element outlines the city's commitment to identifying and protecting significant historic properties, structures, and districts. It also stresses the importance of preserving the city's unique architectural styles and historical landscapes. As part of the General Plan, the city encourages the documentation and surveying of historic resources to ensure that they are recognized and preserved. The policies within the Design and Preservation Element guide future development projects and require that they be compatible with the preservation of historic properties (City of Piedmont, 2023).

Goal 30: Tribal and Archaeological Resources

This goal promotes the protection of Native American cultural and archaeological resources within Piedmont. It emphasizes early identification and preservation through specific policies and procedures:

- **Policy 30.1: Archaeological Resource Protection**
  Requires that if archaeological materials are discovered during construction, work must stop within 50 feet of the find. A qualified archaeologist must assess the discovery, and appropriate mitigation must be implemented if the find is significant.
- **Action 30.A & 30.B**
  Provide protocols for managing archaeological resources and Native American human remains, including notification of the County Coroner and the Native American Heritage Commission and consultation with the Most Likely Descendant, in accordance with state law.
- **Policy 30.2: Archaeological Resources Assessment and Treatment**
  Requires archaeological assessments for projects that involve ground disturbance, using qualified professionals and following state guidelines. If significant resources are identified, appropriate mitigation (such as avoidance or data recovery) must be implemented to reduce impacts.

Goal 31: Historic Preservation

Goal 31 focuses on maintaining Piedmont's historic and cultural identity by preserving historically significant buildings, landscapes, and neighborhoods:

- **Policy 31.1–31.4**:
  Encourage a broad and context-sensitive preservation approach that considers architectural, cultural, and natural features. Alterations should respect the historical character of structures and neighborhoods, and restoration of original details is supported.
- **Policy 31.5–31.6**:
  Promote high standards of stewardship for public historic buildings and landscapes, ensuring new infrastructure remains compatible with the historic context.
- **Policy 31.7–31.9**:
  Encourage adaptive reuse of historic buildings over demolition and recognize the value of post-war modern architecture from the "recent past."
- **Policy 31.10: Historical Resources Assessment and Treatment**
  Requires a formal historic resources evaluation (DPR 523 forms) for projects involving significant alteration or demolition of buildings 45 years or older. If a resource is determined significant, the project must comply with the Secretary of the Interior's Standards or, where infeasible, produce HABS-like documentation prepared by a qualified professional.

Piedmont Municipal Code, Chapter 17

Chapter 17 of the City of Piedmont's Municipal Code outlines zoning and land use regulations, emphasizing the preservation of the city's architectural heritage, neighborhood character, and culturally significant resources. The Code articulates the City's intent to:

> "Preserve the architectural heritage and beauty of the city's homes, the mature vegetation, the tranquility and privacy that now exist, and significant views" (City of Piedmont, 2025).

This intent provides the foundation for regulatory oversight over projects that may impact cultural resources through zoning approvals, conditional use permits, and design review procedures.

3.5.3. Environmental Impacts

3.5.3.1. Impact Analysis Approach

Impacts to cultural resources can be direct and/or indirect and must be significant enough to cause a substantial adverse change in the significance of a historical resource or historic property. Direct impacts to cultural resources during construction can include immediate physical alterations, damage, or destruction of all or a part of an archaeological resource or demolish or materially alter the physical characteristics of an archaeological resource. In contrast, indirect impacts are effects that are often caused by visual, noise, vibration, or setting changes that would cause substantial adverse change in the significance of a cultural resource. Information from record searches, pedestrian survey, and built environment assessment discussed in Section 3.5, Affected Environment, were compared to significance criteria in Section 3.5.3.2 to assess whether proposed Project's construction and operational activities would adversely impact any known archeological resources. The Applicant Proposed Measures (APMs) listed in Table 3.5-2 would be implemented as part of the proposed Project. With implementation of these APMs, cultural resource impacts that could result from Project activities would be substantially reduced.

Table 3.5-2. Applicant Proposed Measures – Cultural Resources

APM	Description
Cultural Resources	
APM CUL-1 Workers Environmental Awareness Program	■ PG&E will design and implement a worker environmental awareness program that will be provided to all project personnel involved in earth-moving activities. This training will be administered by a qualified cultural resource professional either as a standalone training or as part of the overall environmental awareness training required by the project and may be recorded for use in subsequent training sessions. No construction worker will be involved in field operations without having participated in the worker environmental awareness program, which will include, at a minimum: ■ A review of archaeology, history, precontact, and Native American cultures associated with historical resources near the project ■ A review of applicable local, state, and federal ordinances, laws, and regulations pertaining to historic preservation ■ A discussion of procedures to be followed in the event that unanticipated cultural resources are discovered during implementation of the project ■ A discussion of disciplinary and other actions that could be taken against persons violating historic preservation laws and PG&E policies ■ A statement by the construction company or applicable employer agreeing to abide by the Worker Education Program, PG&E policies, and other applicable laws and regulations
APM CUL-2 Discovery of Unanticipated Cultural Resources	If unanticipated cultural resources are identified during construction, the following procedures will be initiated: ■ All ground-disturbing construction activities within 100 feet of the discovery will halt immediately. ■ The construction crew will protect the discovery from further disturbance until a qualified archaeologist has assessed it. ■ The construction supervisor will immediately contact the project environmental inspector and the PG&E cultural resource specialist. ■ The PG&E cultural resources specialist will coordinate with the state lead officials, as appropriate. If the discovery can be avoided or protected and no further impacts will occur, then the resource will be documented on DPR 523 forms, and no further effort will be required. If the resource cannot be avoided and may be subjected to further impacts, qualified personnel will evaluate the significance of the discovery in accordance with the state laws outlined previously; personnel will implement data recovery or other appropriate treatment measures, if warranted. A qualified historical archaeologist will complete an evaluation of historic period resources, while evaluation of precontact resources will be completed by a qualified

APM	Description
	archaeologist specializing in California prehistoric archaeology. Evaluations may include archival research, oral interviews, and/or field excavations to determine the full depth, extent, nature, and integrity of the deposit.
APM CUL-3 Unanticipated Discovery of Human Remains	If human remains or suspected human remains are discovered during PG&E construction, work within 100 feet of the find will stop immediately and the construction supervisor will contact the PG&E cultural resources specialist, who meets the Secretary of Interior's Standards for archaeology. Upon discovery, the Coroner Division of the Alameda County Sheriff's Office will be contacted for identification of human remains. The Coroner has 2 working days to examine the remains after being notified. If the remains are Native American, the Coroner must notify the NAHC of the discovery within 24 hours. The NAHC then will identify and contact a Most Likely Descendant (MLD). The MLD may make recommendations to the landowner or representative for the treatment or disposition, with proper dignity, of the remains and grave goods. When proper consultation has occurred, a procedure that may include the preservation, excavation, analysis, and curation of artifacts and/or reburial of those remains and associated artifacts will be formulated and implemented. If the remains are not Native American, the Coroner will consult with the archaeological research team and the lead agency to develop a procedure for the proper study, documentation, and ultimate disposition of the remains. If a determination can be made as to the likely identity – either as an individual or as a member of a group – of the remains, an attempt should be made to identify and contact any living descendants or representatives of the descendant community. As interested parties, these descendants may make recommendations to the owner or representative for the treatment or disposition, with proper dignity, of the remains and grave goods. Final disposition of any human remains or associated funerary objects will be determined in consultation between the landowner and the MLD.

3.5.3.2. Impact Significance Criteria

The significance criteria listed below are used to determine whether a project or alternatives would result in significant impacts under CEQA related to cultural resources. These criteria are also from CEQA Appendix G. Under CEQA, the proposed Project would cause a significant impact if it caused a substantial adverse change in the significance of a historical resource, an archeological resource, or human remains as defined under CCR, Title 14, Chapter 3, Section 15064.5.

The proposed Project would have a significant impact on these cultural resources if it would:

- Damage or cause degradation to, or loss of, a unique archaeological resource as defined by CEQA or a resource of archaeological, tribal, or historical value that is listed, or eligible for listing, on the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR) or local listing;
- Significantly alter the integrity (i.e., location, setting, materials, design, workmanship, feeling, or association) of NRHP- or CRHR-eligible properties; or
- Disturb any human remains, including those interred outside of formal cemeteries.

3.5.3.3. Impacts Analysis

Impact CUL-1: Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5.

Construction

LESS THAN SIGNIFICANT WITH MITIGATION.Four built environment resources have been evaluated and meet the criteria for listing in the CRHR and are recognized as historical resources under CEQA regulations for this Project. These are Oakland X Substation (P-01-000861), the Sibley Volcanic Regional Preserve Historic District (P-07-004486), the Moraga Substation Transformer House (P-07-004587), and 44 Cortez Court. Project replacement structures would be constructed either on the same parcels as these resources or on nearby parcels. These new structures would result in minimal visual changes, which is explained in greater detail in EIR Section 3.2 Aesthetics, due to their resemblance in size, type, and appearance to the current structures.

The historical resources would not be physically altered, ensuring that their integrity in terms of location, design, materials, craftsmanship, feeling, and association remains intact. Their historic and current functions, along with key character-defining elements such as materials, orientation, and landscaping, would remain the same. Planned actions, including tower removal, undergrounding powerlines, and replacing support structures along the existing PG&E lines, would not compromise these defining attributes. These resources would continue to serve their intended purposes without visual or physical disruptions, preserving their significance under applicable CRHR criteria. As such, construction related to this Project would have a less-than-significant impact on known historical resources under Impact CUL-1.

Vibration impacts have been analyzed in EIR Section 3.11, Noise, and found to be less than significant with implementation of Mitigation Measure (MM) N-2a (Vibration Assessment and Control) during construction of the underground power line. As a result, vibration levels from construction activities, such as pile driving associated with underground construction if in the immediate vicinity of a resource, would be minimized such that the Project would not cause a substantial adverse change in the significance of a historical resource.

As with all projects that involve ground disturbing activities there is a chance to encounter unknown buried resources that could be determined to be historical resources under CEQA. Additionally, as discussed in the buried archaeological sensitivity analysis in Section 3.5.1.5 above, the potential to encounter buried archaeological resources that could be considered historical resources under CEQA within the API is moderate. PG&E has proposed APM CR-1: Workers Environmental Awareness Program and APM CR-2 Unanticipated Discovery of Cultural Resources. APM CR-1 would require all workers conducting construction activities within the Project area be educated about the possible types of resources that may be encountered, even if unexpected. APM CR-2 outlines the 100-foot stop work buffer and procedures to follow in the event of a potential cultural resource discovery. With implementation of APM CR-1 and APM CR-2, impacts to unknown buried resources would be less than significant under Impact CUL-1.

Operations and Maintenance

NO IMPACT. Ground-disturbing activities are not part of the standard operational or maintenance profile of the proposed Project. Therefore, impacts on cultural resources are not expected during normal operation and maintenance.

Mitigation Measure

MM N-2a **Vibration Assessment and Control.** See full text in Section 3.11 (Noise).

With implementation of MM N-2a, the Project would not cause a substantial adverse change in the significance of a historical resource, thus, Impact CUL-1 would be less than significant.

Impact CUL-2: Cause a substantial adverse change in the significance of unique archaeological resources or archaeological resources as defined in State CEQA Guidelines Section 15064.5.

Construction

LESS THAN SIGNIFICANT. No unique archaeological resources, or archaeological resources defined in state CEQA guidelines section 15064.5, were identified during the background research or pedestrian survey. Therefore, the Project would not have an impact on known unique archaeological resources under Impact CUL-2.

As with all projects that involve ground disturbing activities, there is a chance to encounter unknown buried resources that could be determined to be unique archaeological resources under CEQA. Additionally, as discussed in the buried archaeological sensitivity analysis in Section 3.5.1.5 above, the potential to encounter buried archaeological resources within the API is moderate. PG&E is proposing APM CR-1: Workers Environmental Awareness Program and APM CR-2 Unanticipated Discovery of Cultural Resources. APM CR-1 would require all workers conducting construction activities within the Project area to be educated about the possible types of resources that may be encountered, even if unexpected. APM CR-2 outlines the 100-foot stop work buffer and procedures to follow in the event of a potential cultural resource discovery. With the implementation of APM CR-1 and APM CR-2, impacts to unknown buried resources would be less than significant under Impact CUL-2.

Operations and Maintenance

NO IMPACT. Ground-disturbing activities are not part of the standard operational or maintenance profile of the proposed Project. Impacts on cultural resources are therefore not anticipated during normal operation and maintenance.

Impact CUL-3: Disturb human remains, including those interred outside of formal cemeteries.

Construction

LESS THAN SIGNIFICANT. No human remains, including those interred outside of formal cemeteries, were identified during the background research and pedestrian survey. Therefore, the Project would not impact known human remains under Impact CUL-3.

As with all projects that involve ground disturbing activities there is a chance to encounter unknown buried resources that could include human remains. Additionally, as discussed in the buried archaeological sensitivity analysis in Section 3.5.1.5 above, the potential to encounter buried archaeological resources within the API is moderate. PG&E proposes APM CUL-3 Unanticipated Discovery of Human Remains, which states if human remains are encountered (or suspected) during onsite construction activities, Section 7050.5 of the California Health and Safety Code must be followed and outlines communication procedures consistent with the California Health and Safety Code. With implementation of APM CUL-3, impacts to unknown buried resources, including human remains, would be less than significant.

Operations and Maintenance

NO IMPACT. Ground-disturbing activities are not part of the standard operational or maintenance profile of the proposed Project. Impacts on cultural resources are therefore not expectable during normal operation and maintenance.

3.5.4. Mitigation Measures

MM N-2a **Vibration Assessment and Control.** See full text in Section 3.11 (Noise).

3.5.5. References

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3.6. Energy

This section describes existing conditions and potential impacts on energy as a result of construction, operation, and maintenance of the Project. The analysis concludes that less-than-significant impacts on energy will occur. The Project's potential effects on energy resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in and discussed in more detail in Section 3.6.3.

The scoping effort conducted by CPUC from February 25 through March 27, 2025, resulted in no public comments relating to energy.

3.6.1. Environmental Setting and Methodology

Local and state websites were reviewed for regulatory background information and information on existing energy providers and resources in Contra Costa and Alameda counties. Energy consumption is quantified based on the best available forecast of Project activities. The activity assumptions, emission factors, and resulting quantities of emissions appear in the Applicant's PEA Appendix A: Air Quality Calculations (PG&E, 2024a), and Appendix D: Energy Calculations (PG&E, 2024b), which have been independently reviewed by the CPUC and found to be reasonable.

The impact analysis used assumptions regarding construction-related fossil fuel use and operational energy requirements. Construction-related fossil fuel use was estimated based on the anticipated construction equipment use, vehicle trips, and helicopter use. The California Air Resources Board (CARB) Off-Road Emissions Inventory (CARB, 2024b) was used to estimate the gasoline and diesel fuel used by construction equipment, based on equipment category and horsepower rating. Refer to PEA Appendix D for energy use details.

EMFAC2021 (CARB, 2024a) motor vehicle emissions model was used to estimate the gasoline and diesel fuel used by on-road vehicles, assuming the following based on vehicle miles traveled (VMT):

- Workers are assumed to travel in gasoline-fueled passenger vehicles (65 percent light-duty automobiles, 5 percent light-duty trucks class 1, and 30 percent light-duty trucks class 2) or gasoline-fueled light-duty trucks (14 percent light-duty trucks class 1 and 86 percent light-duty trucks class 2), even though some of these trips may occur in electric or plug-in hybrid vehicles.
- Material and equipment transport are assumed to occur in either diesel-fueled medium-duty or heavy-duty trucks (100 percent medium heavy-duty trucks or 100 percent heavy heavy-duty trucks, respectively), even though some of these trips may occur in gasoline-fueled, electric, or natural gas-fueled vehicles.
- Vendor deliveries are assumed to occur in diesel-fueled light heavy-duty trucks (80 percent light heavy-duty trucks class 1 and 20 percent light heavy-duty trucks class 2), even though some of these trips may occur in gasoline-fueled or electric vehicles.
- Construction support vehicles are assumed to occur in either diesel-fueled light heavy-duty trucks (80 percent light heavy-duty trucks class 1 and 20 percent light heavy-duty trucks class 2) or gasoline-fueled light-duty trucks (14 percent light-duty trucks class 1 and 86 percent light-duty trucks class 2).

Jet fuel use by helicopters was estimated using the methodology from the Swiss Federal Office of Civil Aviation (Rindlisbacher and Chabbey, 2015), assuming up to three landing and takeoffs (LTO) and five or six hours of in-flight operation per day per helicopter. Electricity use during construction and operation of the proposed Project was assumed to be minimal. (PG&E, 2024)

Although most construction activities were evaluated as occurring in 2027, construction energy use estimates were developed using equipment and vehicle for calendar year 2026 fleet, which is the year in

which construction was expected to begin at the time of this evaluation. After this evaluation completed, the anticipated construction schedule moved to start in 2028. Even with the construction start moving forward in time, this approach provides for a more conservative energy use estimate as equipment and vehicle are expected to improve each year based on developments in energy efficiency technologies and the required use of cleaner equipment and vehicles over time. (PG&E, 2024)

3.6.1.1. Existing Electrical and Natural Gas Services

For electricity, Contra Costa and Alameda counties are served by a variety of service providers. Specifically:

- The City of Orinda, which is in Contra Costa County, is served by PG&E (Find Energy, 2024a).
- The City of Oakland, which is in Alameda County, is served by PG&E, Ava Community Energy, and the Port of Oakland (Find Energy, 2024b).
- The City of Piedmont, which is also in Alameda County, is served by PG&E and Ava Community Energy (formerly East Bay Community Energy) (Find Energy, 2024b).
- Unincorporated Contra Costa County is served by PG&E and Marin Clean Energy.

PG&E provides natural gas service within Contra Costa and Alameda counties.

Contra Costa County has 29 power plants, with natural gas being the primary fuel for electricity generation. Other gases, wind, solar, and purchased steam also are used for electricity generation, but to a far lesser degree than natural gas (approximately 5 percent in total as compared to approximately 95 percent for natural gas) (Find Energy, 2024a). The largest electric power generator located in Contra Costa County is the Delta Energy Center, which is an 880-MW natural gas-fired, combined-cycle electric generating facility (CEC, 2024b).

Alameda County has 23 power plants, with natural gas being the primary fuel for electricity generation. Wind, biomass gas (landfill gas), and solar also are used for electricity generation, but to a far lesser degree than natural gas (a total of approximately 18 percent of the megawatt-hours [MWh] produced in Alameda County compared to approximately 78 percent for natural gas) (Find Energy, 2024b). The largest electric power generator located in Alameda County is the Russell City Energy Center, which is a 600-MW natural gas-fired, wet-cooled, combined-cycle electric generating facility (CEC, 2024d). Of the 23 power plants in Alameda County, three are in the City of Oakland, none are in the City of Piedmont. These three consist of two biomass plants at the East Bay Municipal Utility District wastewater treatment plant and the Oakland Power Plant near the Port of Oakland. The Oakland Power Plant, operated by Dynegy (a subsidiary of Vistra Energy), is a jet-fueled peaker power plant, which generally only run during times when demand for energy is high. (PG&E, 2024)

3.6.1.2. Nonrenewable Energy

Within the proposed Project area, PG&E currently transmits high-voltage electricity to existing substations, where the voltage is stepped down for distribution throughout the area. PG&E provides 115 kV power between Moraga and Oakland X substations. The two existing double-circuit power lines between the substations are located within an existing PG&E right-of-way that ranges from approximately 100 to 250 feet wide, with each line supporting a 115 kV circuit to either side of a tower or pole. The project infrastructure will continue to be available for interconnection outside of the project scope from both renewable and nonrenewable energy sources. The project will not add capacity for the specific purpose of distributing energy from a nonrenewable energy resource.

The California Energy Commission (CEC) provides data on energy production sources. Table 3.6-1 shows energy production sources for the electricity providers previously identified.

Table 3.6-1. 2021 Energy Resources for Electricity Service Providers in Contra Costa and Alameda Counties

Retail Suppliers	Eligible Renewables (Total)[a]	Coal	Large Hydroelectric	Natural Gas	Nuclear	Other	Unspecified Power	Total
Ava Energy[b]	36.9%	1.8%	11.7%	36.6%	9.3%	0.1%	3.7%	100.0%
PG&E[b]	32.8%	0.0%	13.8%	0.0%	53.4%	0.0%	0.0%	100.0%
Port of Oakland	23.1%	0.0%	19.8%	0.0%	0.0%	0.0%	57.0%	100.0%

Source: CEC, 2024a, PG&E, 2024

[a] Eligible renewable resources include biomass and biowaste, geothermal, hydroelectric, solar, and wind.

[b] Both Ava Energy (formerly East Bay Community Energy) and PG&E offer several different service plans. The energy resources shown here conservatively reflect the plans with the fewest renewables.

[c] Port of Oakland energy resources shown here are for the Port of Oakland only, not the 2023 CA Power Mix.

3.6.1.3. Existing Energy Use

Within Contra Costa and Alameda counties, total energy consumption has increased since the early 1990s. However, energy consumption has increased at a lower rate than population has increased, suggesting less energy usage per person or greater energy efficiency (CEC, 2024c; U.S. Census Bureau, 2024a; U.S. Census Bureau, 2024b). In 2022, residential consumption of electricity in Contra Costa and Alameda counties was approximately 3,099 million kilowatt hours (kWh) and 3,195 million kWh, respectively. Non-residential consumption in Contra Costa and Alameda counties was approximately 5,239 million kWh and 7,200 million kWh, respectively (CEC, 2024c). Energy consumption in the immediate Project area is directly correlated with these particular land uses.

3.6.1.4. Energy Conservation

PG&E sponsors several energy conservation programs that include education such as home energy check-ups, solar energy incentives including the Green Saver Program, electric cars including the Pre-Owned EV Rebate Program and Residential Charging Solutions Rebate, the fluorescent lighting business program, and programs for low-income families including Low-Income Home Energy Assistance Program (LIHEAP) Relief for Energy Assistance Through Community Help (REACH), CARE/FERA, and Energy Savings Assistance Program (PG&E, 2025). These services are intended to reduce energy consumption in homes through the replacement of inefficient appliances and minor housing repairs, making homes more energy efficient. Consumers also receive educational materials that provide energy-saving tips and information.

3.6.2. Applicable Regulations, Policies, and Standards

The following sections contain an overview of regulations related to the use of energy and energy conservation.

3.6.2.1. Federal

Energy Policy Act of 2005

The Energy Policy Act created energy-related tax incentives from 2005 to 2016 to promote energy efficiency and conservation pertaining to renewable energy, oil and gas production and transmission, coal production, and electric generation and transmission.

Energy Independence and Security Act of 2007

On December 19, 2007, President Bush signed the Energy Independence and Security Act (EISA) with the goal of pushing the nation toward greater energy independence and security. Building on Executive Order 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, EISA introduced

more-aggressive requirements and created provisions that aim to further develop renewable fuel production and increase the efficiency of products, buildings, and vehicles (USEPA, 2024a).

American Recovery Reinvestment Act of 2009

As part of a larger stimulus package, the American Recovery Reinvestment Act authorized federal funding to the U.S. Department of Energy to forward specific energy priorities, including modernizing the nation's electric transmission grid.

3.6.2.2. State

Renewable Portfolio Standard Program

Established in 2002, California's Renewable Portfolio Standard aims to ensure that a minimum amount of renewable energy is included in the portfolio of electricity resources serving the state or a county. In September 2018, Senate Bill (SB) 100 was signed into law, which directed the CPUC, CEC, and CARB to plan for 100 percent of total retail sales of electricity in California to come from eligible renewable energy resources and zero-carbon resources by December 31, 2045. SB 1020, known as the Clean Energy, Jobs, and Affordability Act of 2022 builds on SB 100 and sets interim targets for retail electricity provides, requiring 90% of electricity retail sales come from eligible renewable and zero-carbon resources by 2035, 95% by 2040 and 100% by 2045. AB 1279, the California Climate Crisis Act establishes State policy to achieve carbon neutrality no later than 2045 and maintain net negative greenhouse gas emissions thereafter. The law notes that new and modified electric transmission facilities may be necessary to facilitate the state achieving its renewable portfolio standard targets.

Renewable Energy Transmission Initiative

The Renewable Energy Transmission Initiative 2.0 from 2015 to 2017 conducted a statewide, nonregulatory planning effort, convened by the California Natural Resources Agency, with participation from the CEC, CPUC, California Independent System Operator, and the U.S. Bureau of Land Management, California Office. The Renewable Energy Transmission Initiative 2.0 was created to explore the renewable generation potential available to California utilities to help meet statewide greenhouse gas (GHG) reduction and renewable energy goals, and to identify the potential transmission implications of accessing and integrating these resources.

California 2008 Energy Action Plan Update

Originally developed in 2003 and updated in 2005 and 2008, the California Energy Action Plan identifies specific action areas to ensure that California's energy resources are adequate, affordable, technologically advanced, and environmentally sound. The plan's first-priority actions to address California's increasing energy demands are energy efficiency and demand response (namely, reduction of customer energy usage during peak periods to address system reliability and support the best use of energy infrastructure). Additional priorities include the use of renewable sources of power and distributed generation. The plan also notes that investment in conventional transmission infrastructure is crucial to helping the state meet its renewable energy goals (CPUC, 2008).

Clean Energy and Pollution Reduction Act

In 2015, SB 350 was signed into law, establishing new clean energy, clean air, and GHG reduction goals for 2030 and beyond. Specifically, SB 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. SB 350 establishes a two-year Integrated Resource Planning (IRP) cycle to adopt the optimal portfolio of energy resources that minimizes costs, maintains reliability, and reduces greenhouse gas (GHG) emissions. The CPUC oversees the process for PG&E and ensures that

PG&E's IRP achieves a balance between reliability, cost, and achieving California's renewable energy and GHG reduction targets.

Integrated Energy Policy Report

The CEC adopts an Integrated Energy Policy Report (IEPR) every 2 years and updates it every other year. The IEPR provides a cohesive approach to identifying and solving the state's pressing energy needs and issues. The report contains an integrated assessment of major energy trends and issues facing California's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources and ensure a reliable, secure, and diverse energy supply, among other objectives. The most recently published update in February 2023 addresses 2022 trends. Some of the key recommendations or actions from this update, as related to energy resources, include the following (CEC, 2023):

- Examine how to balance the roles of distributed energy resources and grid assets in making the energy transition away from fossil fuels.
- Examine the role of interconnection and how utility process reform can increase the pace of distributed energy resource deployment.
- Initiated efforts to analyze opportunities for additional reliability investments and develop a Clean Energy Reliability Investment Plan.
- Enacted the Strategic Electricity Reliability Reserve to make additional generation and load reduction available during extreme events.

3.6.2.3. Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the project is not subject to local (city and county) discretionary regulations except for air districts and Certified Unified Program Agencies with respect to air quality and hazardous waste regulations, respectively. However, plans and policies for Contra Costa County, the City of Orinda, Alameda County, the City of Oakland, and the City of Piedmont are considered for informational purposes and to assist with the CEQA review process, based on the expected location of project activities. These counties and cities are considered local agencies that must comply with their own plans and policies, as described in the following subsections.

Contra Costa County General Plan

The Contra Costa County Climate Action Plan was adopted in 2015 and updated in 2024. The General Plan provides the long-term resiliency framework of goals and policies, while the Climate Action Plan includes goals to reduce community-wide emissions 15 percent below 2005 levels by 2020, consistent with AB 32, and establishes a 2035 target of approximately 57 percent reduction below 2005 levels, based on the Executive Order B-30-15 target for 2030 (Contra Costa County, 2024). The County intends to update the Climate Action Plan to include a target reduction of 80 percent below 1990 levels by 2050, in accordance with the state's adopted GHG emissions reduction targets (Contra Costa County, 2024). Together these plans aim to accomplish the following (Contra Costa County, 2024):

- Decrease energy use
- Improve energy efficiency
- Develop renewable energy
- Reduce vehicle miles traveled
- Increase multimodal travel options
- Expand green infrastructure
- Reduce waste
- Improve the efficiency of government operations

The goal relevant to the proposed Project is Goal COS-14: Increased generation of and reliance on renewable, sustainable, and carbon energy and reduced energy use. Key policies associated with these energy-related goals include the following (Contra Costa County, 2024):

- **Policy COS-P14.3:** Support distributed electricity generation, including development of microgrids, renewable energy sources, storage capacity, and associated technologies. Encourage these throughout urban areas, and in nonurban areas when significant environmental impacts can be avoided or successfully mitigated.

City of Orinda General Plan

The *City of Orinda General Plan* identifies goals and policies aimed at increasing energy conservation, increasing renewable energy resources, and minimizing exposure to natural and human-created hazards. Key policies associated with these energy-related goals include the following (City of Orinda, 2023):

- **Policy S-52:** Renovate existing City-owned assets and design future facilities to incorporate renewable energy generation systems, battery storage systems, and energy-efficient design and features, as feasible.
- **Policy S-53:** Coordinate with East Bay Municipal Utilities District to explore ways to improve and increase energy storage capacity and generation efficiency.
- **Policy S-55:** Encourage new developments and existing property owners to incorporate sustainable, energy-efficient, and environmentally regenerative features into their facilities, landscapes, and structures to reduce energy demands and improve onsite resilience. Support financing efforts to increase community access to these features.
- **Policy 4.1.2. N**: Develop a comprehensive energy conservation plan. The plan should be coordinated with those of adjoining communities and utility companies and with experts in the field. It should include policies, ordinances and informational elements.

Alameda County Major Energy Initiatives

The Alameda County General Services Agency (GSA) aims to strengthen the community through a variety of innovations and services. These innovations include the following key energy initiatives, which have been enacted since 2001 by the GSA (Alameda County, 2024a):

- Financing installations of solar panels at two community housing projects
- 12 large-scale solar installations in county buildings
- 1.5-MW fuel cell power plant installation at the Santa Rita Jail
- The first net positive California jail, with Santa Rita Jail exporting 2 million watt-hours of energy to the utility grid that is allocated via energy credits to two adjacent sites—East County Hall of Justice and the Regional Training Center—reducing energy costs at those sites
- New lighting in 52 county buildings, using 30 percent less electricity
- Generating enough daytime electricity to power more than 3,000 homes
- Preventing 38,600 tons of carbon emission over the next 30 years
- Enrolling in East Bay Community Energy, from which the County procures all energy for its facilities from renewables or low-carbon resources

Alameda County General Plan

Although Alameda County does periodically publish a General Plan, the most recent update for 2020 focuses largely on housing developments. The Community Climate Action Plan Element, adopted by the

Alameda County Board of Supervisors in 2014, outlines community wide actions to reduce GHG emissions within unincorporated Alameda County, aiming to reduce GHG emissions to 15% below 2005 levels by 2020 and 80 percent below 1990 levels by 2050 (Alameda County, 2014). The climate action areas include transportation, land use, building energy, water, waste, and green infrastructure.

- E-1: Work with PG&E and Alameda County cities to accelerate "Smart Grid" integration in the community
- E-10: Require or provide incentives for new construction to use building materials containing recycled content.
- WS-2: Strengthen the Construction and Demolition Debris Management Ordinance

Alameda County Community Climate Action Plan

The Alameda County Community Climate Action Plan (CCAP) includes strategies, measures and actions in the areas of land use and mobility, buildings, infrastructure, waste, agriculture and vegetation, health and resiliency, and community engagement and monitoring. Strategies and measures that are applicable to the proposed Project include (Alameda County, 2024b):

- MEASURE IN-1.3: Support the development of innovative approaches to energy generation, distribution, and storage (e.g., energy recapture [in-conduit hydro, co-generation], developing clean microgrids for schools, hospitals, or neighborhoods).
- MEASURE IN-6.1: Improve energy sector resilience.

City of Oakland Climate Action Plan

The City of Oakland released its *2030 Equitable Climate Action Plan* in July 2020, which aims to leverage state and regional incentives for electrification, efficiency, and energy storage. Other goals include the following (City of Oakland, 2024):

- Creating green jobs for clean energy development and installation
- Transitioning building energy systems from natural gas to electricity from clean sources
- Identifying and removing barriers to strategies that support carbon reduction, adaptation, resilience, and equity goals, including community solar and energy storage
- Powering 100 percent of the city fleet with clean energy
- Piloting new low-carbon technologies
- Securing grant funding for building out clean energy infrastructure

City of Piedmont Climate Action Plan

The City of Piedmont released its *Climate Action Plan 2.0* in March 2018, which was amended in 2023, that quantified the City's GHG emissions and established residential and governmental priorities to reduce the City's three largest sources of GHG emissions (City of Piedmont, 2024). The *Climate Action Plan 2.0* also includes several specific objectives to support state and local GHG emission reduction goals. Some of these objectives include increasing renewable energy consumption to 100 percent, reducing energy consumption, and accelerating the adoption of electric vehicles (City of Piedmont, 2024).

3.6.3. Environmental Impacts

3.6.3.1. Impact Analysis Approach

Construction- and operation-related activities would require use of energy-consuming equipment and processes. This analysis presents a qualitative discussion of the proposed Project's energy use for all

phases and components. As set forth in the State CEQA Guidelines, Appendix F: Energy Conservation, the goal of conserving energy implies the wise and efficient use of energy, including:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on fossil fuels such as coal, natural gas and oil; and
- Increasing reliance on renewable energy sources.

The energy impact analysis emphasizes avoiding or reducing inefficient, wasteful and unnecessary consumption of energy resources, and determining whether the Project would result in a potentially significant environmental impact due to inefficient, wasteful, and unnecessary consumption of energy resources. CEQA Guidelines Section 15126.2(b) and Appendix F require analysis of a project's energy use, in order to ensure that energy implications are considered in project decisions. If analysis of a project's energy use reveals that the project may result in significant environmental effects due to inefficient, wasteful, or unnecessary use of energy, then the analysis must identify ways to mitigate that energy use. Appendix F.II.A factors include:

- Energy consuming equipment and processes which will be used during construction, operation and/or removal of the project. If appropriate, this discussion should consider the energy intensiveness of materials and equipment required for the project.
- Total energy requirements of the project by fuel type and end use.
- Energy conservation equipment and design features.
- Identification of energy supplies that would serve the project.
- Total estimated daily vehicle trips to be generated by the project and the additional energy consumed per trip by mode.

Information regarding Appendix F.II.A factors including in the proposed Project are provided in Applicant's PEA Appendix A: Air Quality Calculations (PG&E, 2024a). Examples of energy conservation measures that may be relevant to addressing energy are provided in Appendix F: Energy Conservation, within the CEQA Guidelines.

The impact analysis used assumptions regarding construction-related fossil fuel use and operational energy requirements. Construction-related fossil fuel use was estimated based on the anticipated construction equipment use, vehicle trips, and helicopter use. The California Air Resources Board (CARB) Off-Road Emissions Inventory (CARB, 2024b) was used to estimate the gasoline and diesel fuel used by construction equipment, based on equipment category and horsepower rating (PG&E, 2024, PEA Appendix D).

The EMFAC2021 (CARB, 2024a) motor vehicle emissions model was used to estimate the gasoline and diesel fuel used by on-road vehicles, assuming the following based on vehicle miles travelled (VMT):

- Workers are assumed to travel in gasoline-fueled passenger vehicles (65 percent light-duty automobiles, 5 percent light-duty trucks class 1, and 30 percent light-duty trucks class 2) or gasoline-fueled light-duty trucks (14 percent light-duty trucks class 1 and 86 percent light-duty trucks class 2), even though some of these trips may occur in electric or plug-in hybrid vehicles.
- Material and equipment transport are assumed to occur in either diesel-fueled medium heavy-duty trucks or heavy heavy-duty trucks, even though some of these trips may occur in gasoline-fueled, electric, or natural gas-fueled vehicles.
- Vendor deliveries are assumed to occur in diesel-fueled light heavy-duty trucks (80 percent light heavy-duty trucks class 1 and 20 percent light heavy-duty trucks class 2), even though some of these trips may occur in gasoline-fueled or electric vehicles.

- Construction support vehicles are assumed to occur in either diesel-fueled light heavy-duty trucks (80 percent light heavy-duty trucks class 1 and 20 percent light heavy-duty trucks class 2) or gasoline-fueled light-duty trucks (14 percent light-duty trucks class 1 and 86 percent light-duty trucks class 2).

PG&E's estimates for helicopter emissions use factors from the Swiss Federal Office of Civil Aviation (FOCA) Guidance on the Determination of Helicopter Emissions, assuming up to three landing and takeoffs (LTO) and five or six hours of in-flight operation per day per helicopter (PG&E, 2024). Additionally, battery-operated drones may be used in the central and western sections of the proposed Project to remove existing overhead line where it would not be replaced, and to string the new static ground wire (SW) and an optical ground wire (OPGW) in the rebuilt overhead alignment. It is anticipated that the drone would be used for approximately 2 calendar weeks up to 8 hours per day, and would have a flight time of up to approximately 40 minutes at which point the battery would need to be charged to resume operation. Use of a drone avoids use of a helicopter or extensive labor, which would involve multiple days walking the alignment, crossing through yards, dragging rope, and throwing rope over obstacles. Electricity use during construction and operation of the proposed project was assumed to be minimal. The activity assumptions and emission factors are found in PG&E's emissions estimates (PG&E, 2024, PEA Appendix A).

Although most construction activities were evaluated as occurring in 2027, construction energy use estimates were developed using equipment and vehicle for calendar year 2026 fleet, which is the year in which construction was expected to begin at the time of this evaluation. After this evaluation was completed, the anticipated construction schedule moved to start in 2028. Even with the construction start moving forward in time, this approach provides for a more conservative energy use estimate as equipment and vehicle efficiency is expected to improve each year based on developments in energy efficiency technologies and the required use of cleaner equipment and vehicles over time (PG&E, 2024).

PG&E did not propose Applicant Proposed Measures (APMs) related to energy supply or energy use.

3.6.3.2. Impact Significance Criteria

Significance Criteria

The significance criteria listed below are based on Appendix G of the CEQA Guidelines:

Would the proposed Project:

- **EN-1:** Result in wasteful, inefficient, or unnecessary consumption of energy?
- **EN-2:** Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Analysis of the significance of impacts is informed by the factors listed under Appendix F.II.C As set forth in the State CEQA Guidelines, Appendix F: Energy Conservation, the goal of conserving energy implies the wise and efficient use of energy including:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on fossil fuels such as coal, natural gas and oil; and
- Increasing reliance on renewable energy sources.

The energy impact analysis emphasizes avoiding or reducing inefficient, wasteful and unnecessary consumption of energy resources, and whether the project would result in a potentially significant environmental impact due to inefficient, wasteful, and unnecessary consumption of energy resources. State CEQA Guidelines, Section 15126.2(b) requires the analysis to focus on energy use that is caused by the project. If analysis of the project's energy use reveals that the project may result in significant environmental effects due to inefficient, wasteful, or unnecessary use of energy, then the analysis must identify ways to mitigate that energy use.

Examples of energy conservation measures that may be relevant to addressing energy are provided in Appendix F: Energy Conservation, within the CEQA Guidelines.

3.6.3.3. Impacts and Mitigation Measures

Impact EN-1: Result in wasteful, inefficient, or unnecessary consumption of energy.

Construction

LESS THAN SIGNIFICANT. Construction activities would consume nonrenewable energy resources, primarily petroleum-based transportation fuels (diesel, gasoline, and aviation fuel), to power construction equipment, construction vehicles, and helicopters. Additionally, construction would require the manufacture and delivery of new equipment and materials, which would require energy use.

The short-term use of fuels by off-road equipment, motor vehicle trips, and helicopters during construction would be necessary to install new facilities and remove and replace existing facilities. Construction of the Project would result in the consumption of an estimated 35,422 gallons of gasoline, 309,231 gallons of diesel, and 38,119 gallons of jet fuel (PG&E, 2024).

To put these volumes into perspective, data from the CEC indicates that California's refineries normally produce around 1.5 million barrels per week of diesel, 6.2 million barrels per week of gasoline, and 1.7 million gallons per week of jet fuel (CEC, 2025b). This amounts to statewide production of roughly 9 million gallons of diesel, 36 million gallons of gasoline, and 10.4 million gallons of jet fuel each day. In comparison, the total diesel, gasoline, and jet fuel volume used during the entirety of proposed Project construction (35,422 gallons of gasoline, 309,231 gallons of diesel, and 38,119 gallons of jet fuel) would represent about 0.4 percent, 0.8 percent and 0.4 percent, respectively, of California's typical daily production volume.

Additionally, the construction plan and sequence of the proposed Project was developed efficiently in order to minimize vehicle trips and avoid wasteful, inefficient, or unnecessary consumption of energy. Implementation of APM GHG-1, which minimizes unnecessary construction vehicle idling time, would further reduce energy consumption. Therefore, the consumption of these energy resources would not be unnecessary, inefficient, or contribute to a wasteful use of energy, and impacts during construction would be less than significant.

Operations and Maintenance

NO IMPACT. Operation and maintenance of the proposed Project would include the use of fossil fuels and thus consumption of nonrenewable resources for motor vehicle trips, off-road equipment, and occasional helicopter use. PG&E currently operates and maintains the existing infrastructure that would be rebuilt under the proposed Project, and as such, future energy consumption for operation and maintenance is expected to be similar to current levels of consumption. PG&E power line inspection process involves three types of inspections including ground inspections, aerial inspections, and climbing that looks for abnormalities. Existing lines are inspected annually by existing O&M crews, rotating between inspections, or as needed when driven by an emergency or otherwise necessary event. Typically, no O&M inspections are conducted on new power lines for the first 5 years following the in-service date, and rebuilt line inspections would include routine and detailed ground inspections for the underground portion of the hybrid lines. For this reason, fuel consumption for O&M activities was not estimated. With no substantial change in O&M fuel consumption as compared to current levels, there would be no impact.

Impact EN-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Construction

LESS THAN SIGNIFICANT. The proposed Project would enable reliable and ongoing delivery of electricity to the East Bay, including from renewable energy sources, by rebuilding existing facilities. The proposed Project Objectives include providing lifecycle updates of Moraga–Oakland X 115 kV four circuit power line path by removing and replacing four circuits to avoid future reliability issues while maintaining safe operations. It would not conflict with the Contra Costa County General Plan as it would not increase long-term energy use, decrease energy efficiency, increase VMT or increase waste. It would not conflict with the City of Orinda General Plan as it would not conflict with the City's goals to increase renewable energy generation and energy storage, and would not conflict with Policy 4.1.2 N. It would not conflict with any Alameda County Major Energy Initiatives that are focused on increasing the production of and use of renewable energy. The Alameda County General Plan Community Climate Action Plan Element includes measures to work with PG&E to accelerate "Smart Grid" integration and provide incentives for new construction building materials to include recycled content, and to improve energy sector reliance. The proposed Project improves energy sector reliance by improving the distribution of electricity throughout PG&E's distribution area. The City of Oakland includes actions for electrification, efficiency and energy storage, which the proposed Project does not conflict with as it improves an existing power line. The City of Piedmont Climate Action Plan includes objectives to increase renewable energy consumption and reduce total energy consumption, which the proposed Project does not conflict nor obstruct with. The construction activities necessary to implement the proposed Project would neither conflict with nor obstruct state or local plans for renewable energy or energy efficiency, and, therefore, impacts would be less than significant.

Operations and Maintenance

NO IMPACT. Under CPUC rules, guidelines and regulations (Section 2.6.1), PG&E has the responsibility to ensure that electrical transmission and distribution systems have sufficient capacity to maintain safe, reliable, and adequate service to customers. The proposed rebuild Project would remain similar to the existing transmission system but would operate with upgraded components. The Project Objectives include achieving a replacement for the power line path that would accommodate the region's reasonably foreseeable future energy demands. Use of the upgraded power line path would not obstruct any of PG&E's efforts towards achieving California's renewable energy and GHG reduction targets as guided by CPUC's IRP process. Overall, the proposed Project would upgrade existing electric transmission infra-structure and would not disrupt California's ability to increase renewable energy use or achieve statewide renewable energy goals. The proposed Project would neither conflict with nor obstruct state or local plans for renewable energy or energy efficiency, and, therefore, would have no impact.

3.6.4. Mitigation Measures

No mitigation would be required.

3.6.5. References

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3.7. Geology and Soils

This section describes existing conditions and potential impacts on geology and soils as a result of construction, operation, and maintenance of the Project. The analysis concludes that, although these resources would be temporarily affected by Project construction, with implementation of APMs described in Section 3.7.3.1, Project-related impacts on geology and soils would be less than significant.

The Project's potential effects on geology and soils were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. Potential impacts are organized and discussed based on the impact questions. Conclusions regarding impacts are discussed in Section 3.7.3.3.

The impacts include whether the proposed Project would: directly or indirectly cause or exacerbate potential substantial adverse effects, including the risk of loss, injury, or death, due to rupture of a known earthquake fault, seismic ground shaking, or liquefaction; result in substantial soil erosion or loss of topsoil; 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; or be located on expansive soil, creating substantial direct or indirect risks to life and property. The focus of this analysis is whether the proposed Project would cause risks to life and property as a result of Project activities within areas that have existing geologic, soil, or seismic hazards. In addition, erosion and the loss of topsoil are also addressed.

EIR Section 3.10, *Hydrology and Water Quality*, addresses whether the proposed Project would substantially alter the drainage pattern of the area in a manner that would cause substantial erosion. In addition, Section 3.3, *Air Quality*, includes a discussion of dust control measures during construction, which could reduce the potential for wind erosion of loose soils.

The scoping effort conducted by CPUC from February 25 through March 27, 2025, resulted in several public comments and concerns relating to geology and soils. Concerns communicated in the scoping process that are related to geology and soils and were considered in the analysis below include:

- Concern that previous tree removal and maintenance by PG&E crews would cause erosion and landslides; therefore, proposed underground lines should happen as soon as possible.
- Concern with the steep slopes in Shepherd Canyon and associated high erosion potential that is worsened by the power line right-of-way and could be exacerbated by the Project. Include applicable erosion control measures.

The issues brought up during scoping are addressed in Section 3.7.1.4 under "Erosion," and in Section 3.7.3.3 under Impacts GEO-2 and GEO-3.

3.7.1. Environmental Setting

3.7.1.1. Geographic Features

The Project area extends approximately 5 miles from the East Bay Hills to the sloping alluvial plain along the Bay. Major geographic features in the Project area include the Hayward Fault line, Sausal Creek, and Shephard Creek. The topography in the area consists of rolling hills, vegetated canyons, and higher elevations in the eastern and central segments of the Project. A more gradual slope with less topographical variation occurs along the Project alignment in the western portion of the Project. Project elevation ranges from approximately 650 feet above sea level at Moraga Substation to approximately 1,370 feet above sea level when the lines crest the Oakland Hills, and then elevation descends to approximately 140 feet above sea level at Oakland X Substation.

3.7.1.2. Geologic Units

The East Bay Hills, along with the Diablo Mountain Range and San Francisco Bay, are within the Coast Range geomorphic province, a belt of sedimentary, volcanic, and metamorphic rocks that include the Franciscan Complex. The complex geology of the East Bay Hills reflects the forces that have shaped the region. The East Bay Hills are a sequence of Mesozoic rocks (252 to 66 million years ago) overlain by younger strata. The Franciscan Complex, likely composed of Jurassic (99.6 to 145.5 million years ago) oceanic crust, pelagic deposits, and turbidites, underlies most of the Bay Area and crops out in a portion of the study area (Graymer, 2000). The Great Valley Complex, representing accreted and deformed ocean crust and thick turbidite sequences, is another Bay Area basement rock sequence that crops out in the Project area. The Great Valley Complex can be divided into the Great Valley Sequence and Coast Range Ophiolite, both of which crop out in the Project area. Younger, fault-bounded rock bodies are grouped into assemblages (Graymer, 2000). The Project area contains rock sequences from Assemblage I, which dates from the Paleocene (66 to 56 million years ago) to the Miocene (23.03 to 5.333 million years ago), and Assemblage II, which dates to the Pliocene (5.3 to 2.6 million years ago).

West of the East Bay Hills is the San Francisco Bay Area coastal plain. The San Francisco Bay occupies a depression in the Coast Ranges between the San Andreas Fault to the west and the Hayward Fault to the east. This depression is filled with sediments eroded from uplands and deposited by streams flowing into the Bay, forming a thick layer of sediment dating from the Pleistocene (2.6 million to 11,700 years ago) and Holocene (11,700 years ago to the present) periods. The western end of the study area is on an alluvial fan extending from the hills toward the Bay.

Bedrock in the Coast Range geomorphic province ranges in age from Jurassic (99.6 to 145.5 million years ago) to Pleistocene (2.6 million to 11,700 years ago). In the San Francisco Bay area, the oldest rocks are deformed Mesozoic (252 to 66 million years ago) sedimentary and volcanic rocks of the tectonically accreted Mesozoic Franciscan Complex and the contemporaneous Great Valley Sequence. During the Last Glacial Maximum (~20,000 years ago), significant relief of the bedrock was formed resulting from incision of creeks and streams to reach the elevation of the global sea level, which was approximately 140 feet lower than it is today. As sea level rose, lowland areas in the San Francisco Bay area were subject to the deposition of alluvial sediments. Younger alluvial deposits have accumulated in the valleys as stream deposits. Geologic units are discussed below and shown in Figure 3.7-1 (Geologic Map) in Appendix A.

Quaternary Deposits

These deposits span recent, Holocene (11,700 years ago to the present), and Pleistocene (2.6 million to 11,700 years ago) periods. In the study area, these deposits are in valley bottoms and at the western end of the Project area along the coastal plain.

- Artificial fill (af) is material deposited by humans from various sources.
- Stream channel deposits (Qhsc) are Holocene-age sand, clay, silty sand, or sandy gravel with minor cobbles of modern stream courses.
- Holocene alluvial deposits (Qhaf) are brown to tan, medium dense to dense, gravelly sand or sandy gravel that grades upward to sandy or silty clay. The best-developed Holocene alluvial fans are on the San Francisco Bay plain. Other alluvial fan and fluvial deposits are confined to narrow valley floors.
- Quaternary (2.6 million years ago to present) alluvial deposits (Qpaf) are Pleistocene-age alluvial deposits. They are brown, dense, gravelly and clayey sand or gravel that grades upward to sandy clay. These deposits occur along most modern stream channels outboard of Holocene deposits.

Assemblage I

Assemblage I is a series of Miocene (23.03 to 5.333 million years ago) to Paleocene-age (66 to 56 million years ago) rock at the eastern end of the Project area, notable for containing volcanic material (Graymer, 2000). The folded and tilted bedrock forms relatively narrow series of East Bay Hills ridges at the east end of the study area. Assemblage I rock in the study area include the following:

- Siesta Formation (Tst) is late Miocene-age nonmarine siltstone, claystone, sandstone, and minor limestone.
- Moraga Formation (Tmb and Tms) is late Miocene-age volcanic rock with two subunits: Tmb and Tms. Tmb is basalt and andesite with minor rhyolite tuff that crops out discontinuously. Tms is Moraga Formation sedimentary rock deposited between the volcanic units.
- Orinda Formation (Tor) is a late Miocene-age formation widespread in the East Bay Hills, comprised of distinctly to indistinctly bedded, pebble to boulder conglomerate, conglomeratic sandstone, coarse- to medium-grained lithic sandstone, and green and red siltstone and mudstone.
- Claremont chert (Tcc) is a late to middle Miocene-age laminated, bedded chert, minor brown shale, and white sandstone. Distinctive black, laminated chert crops out locally in the Berkeley Hills.
- Glauconitic mudstone (Tsm) is Miocene and Oligocene-age (33.9 to 23 million years ago) brown mudstone interbedded with sandy mudstone with prominent glauconite grains. The unit is bounded by faults.
- Mudstone (Tes) is Eocene-age (56 to 33.9 million years ago) green and maroon, foraminifera-rich mudstone, locally interbedded with hard quartz sandstone. This unit is bounded by faults.
- Glauconitic sandstone (Ta) is Paleocene-age, coarse-grained, green, glauconite-rich, lithic sandstone with well-preserved coral fossils, and locally interbedded with gray mudstone and hard, fine-grained, mica-bearing quartz sandstone. Outcrop of this unit is restricted to a small, fault-bounded area in the Oakland Hills.

Great Valley Sequence

Great Valley Sequence is a series of Jurassic (99.6 to 145.5 million years ago) and Cretaceous-age (143.1 to 66 million years ago) rock Of thickly deposited accumulations of mudstone, sandstone, and conglomerate. They represent sequences of turbidites deposited on the oceanic crust. The Great Valley Sequence is located west of Assemblage I and includes the following units:

- Redwood Canyon Formation (Kr) is distinctly bedded, cross-bedded to massive, thick beds of biotite, quartz-rich sandstone, and thin interbeds of mica-rich siltstone.
- Shephard Creek Formation (Ksc) is distinctly bedded mudstone, shale, mica-rich siltstone, and thin fine-grained, mica-rich sandstone beds.
- Oakland conglomerate (Ko) is massive, medium- to coarse-grained biotite, quartz-rich sandstone, and prominent interbedded pebble to cobble conglomerate lenses.
- Joaquin Miller Formation (Kjm) is thinly bedded shale with minor sandstone.
- Keratophyre (Jsv) are highly altered intermediate and silicic volcanic and sub-volcanic rock.

Coast Range Ophiolite

West of the Great Valley Sequence is a series of rock bodies known as Coast Range Ophiolite. This material is a slab of oceanic upper mantle and crust formed from the middle to the late Jurassic. The ophiolite sequences that occur in the study area include:

- Massive basalt and diabase (Jb) are types of igneous rock, volcanic and intrusive, with a similar composition.
- Serpentinite (sp) is a metamorphic rock that forms in mid-ocean ridges and in subduction zones.

Franciscan Complex

Located west of the Coast Range Ophiolite is a series of fault bounded rock units known as the Franciscan Complex, which consists in this area of deformed and metamorphosed sedimentary and volcanic rocks of late Jurassic (99.6 to 145.5 million years ago) to late Cretaceous age (143.1 to 66 million years ago). The Franciscan Complex units in the study area are:

- Sandstone Novato Quarry (Kfn) is distinctly bedded to massive, mica-bearing, lithic sandstone. Where distinctly bedded, sandstone beds are about 1 meter thick, and siltstone interbeds are a few centimeters thick.
- Franciscan Complex (KJfm) is sheared black argillite, sandstone, and minor green tuff, containing blocks and lenses of sandstone and meta-sandstone, chert, shale, metachert, serpentinite, greenstone, amphibolite, tuff, eclogite, quartz schist, greenschist, basalt, marble, conglomerate, and glaucophane schist. Blocks range in size from pebbles to several hundred meters in length.
- Sandstone rock (Kjfs) are formed by submarine currents, called a turbidite.

The mapped geologic units and subsurface conditions that underlie Project structures are shown in Table 3.7-1 (Kleinfelder, 2024). Refer to Figure 2.1-2 (Proposed Project Detail Map) in Appendix A for locations of Project structures listed in Table 3.7-1.

Table 3.7-1. Mapped Geologic Units and Subsurface Conditions

Project Structure ID	Mapped Geologic Unit and Subsurface Conditions
RN1, RS1, RN2, RS2	Siesta Formation (Tst). At Tower 0/1 sandy fat clay in upper 3 to 4 feet, underlain by weathered claystone.
RN3, RS3, RN4, RS4	Moraga Formation Sedimentary Rocks (Tms). At Tower 0/3 upper 1 to 2 feet fat clay with sand, underlain by weathered sandstone.
RN5, RS5, RN6, RS6, RN7, RS7, RN8, RS8	Orinda Formation (Tor). Fat clay at ground surface. Geologic map description notes conglomerate/conglomeritic sandstone, consistent with field observations.
RN9, RS9	Claremont Chert (Tcc). Bedded chert with thin shale and sandstone interbeds.
RN10, RS10, RN11, RS11, RN12, RS12	Glauconitic Mudstone (Tsm). Boring At Tower 1/10 weathered sandy mudstone and sandstone.
RN13, RS13, RN14, RS14	Mudstone (Tes). Mudstone with interbedded hard quartz sandstone.
RN15, RS15	Glauconitic Sandstone (Ta). Coarse grained fossiliferous sandstone with mudstone interbeds, highly weathered in surface exposures.
RN16, RS16, RN17, RS17	Redwood Canyon formation (Kr). Bedded to massive sandstone and siltstone interbeds.
RN18, RS18	Shephard Creek Formation (Ksc). Interbedded mudstone, shale, siltstone, and sandstone.
RN19, RS19	Oakland Conglomerate (Ko). Massive medium to coarse grained sandstone with pebble to cobble conglomerate interbeds.

Project Structure ID	Mapped Geologic Unit and Subsurface Conditions
RN20, RS20	Keratophyre (Jsv). Within Hayward/Chabot fault zone, variable rock conditions. Highly altered intermediate and silicic volcanic and sub-volcanic rock.
RN21, RS21	Franciscan Complex Melange - sandstone (KJfs). In Hayward/Chabot fault zone. Sheared sandstone units with variable rock conditions.
RN22, RS22	Franciscan Complex Melange (KJfm). Sheared shale, sandstone, with blocks of chert, greenstone, and serpentinite.
RN23, RS23, RN24, RS24, RN25, RS25	Sandstone Novato Quarry (Kfn). Massive sandstone at Towers 3/24 and 3/25, upper 2 to 3 feet is fat clay with sand soil, tends to creep down-slope.
RN26, RS26, TN27A, TN27B, TS27A, TS27B	Sandstone Novato Quarry (Kfn). Bedded to massive fine to coarse grained sandstone, with thin siltstone interbeds.
Borings B-3 and B-4 (underground segment along Park Boulevard between Estates Drive and Glenfield Avenue)	Sandstone Novato Quarry (Kfn). Fill is highly variable, stiff lean clay, and sandy lean clay, overlies hard sandstone and shale layers at depth 3 to 8 feet.
Borings B-1 and B-2 (underground segment along Park Boulevard between Glenfield Avenue and Oakland X Substation)	Pleistocene-age alluvium (Qpaf). Sand and gravel fill underlain by very stiff lean clay, sandy lean clay, and clayey sand.

Source: Kleinfelder, 2024; Graymer, 2000.

3.7.1.3. Seismic Hazards

Active Faults

For the purposes of this analysis, active faults within approximately 10 miles that may potentially affect the Project were identified using the United States Geological Survey (USGS) Interactive Fault Map (USGS and CGS, 2025). The fault map shown in Figure 3.7-2 (Fault Map) in Appendix A includes Quaternary faults that fall into four categories including "historic" (has generated earthquakes accompanied by surface rupture during approximately the last 150 years), "latest Quaternary" (has shown evidence of fault displacement during approximately the last 15,000 years), "late Quaternary" (evidence of fault displacement during approximately last approximately 130,000 years), or "undifferentiated Quaternary" (evidence of fault displacement during approximately the last 1.6 million years) (USGS and CGS, 2025). For the purposes of this evaluation, a fault is considered "active" if it is designated as a "latest Quaternary" or Historic fault. Three active faults are located within approximately 10 miles of the Project, including the Hayward Fault, which crosses the overhead portion of the Project alignment near SR 13, and the Calaveras and Concord Faults, which are approximately 6.5 and approximately 10.1 miles from the proposed Project, respectively.

In addition, faults considered inactive are within approximately 10 miles of the Project. These include the Franklin Fault, approximately 5.9 miles from the proposed Project, and the Mount Diablo Thrust Fault, approximately 7 miles from the proposed Project. Refer to Figure 3.7-2 (Fault Map) in Appendix A.

More broadly, the Project's geotechnical investigation identified additional significant faults within 30 miles of the proposed Project (Kleinfelder, 2024), including the San Andreas Fault approximately 18 miles from the Project. Significant faults identified within approximately 10 to 30 miles of the Project are listed in Table 3.7-2.

Table 3.7-2. Significant Faults within 10 to 30 Miles of the Project

Fault Name	Closest Distance to the Project (miles)	Fault Name	Closest Distance to the Project (miles)
Green Valley	14.1	San Gregorio	22.0
Clayton	14.1	West Napa	22.3
Mission	15.6	Point Reyes	22.8
Greenville	15.8	Monte Vista Shannon	23.9
San Andreas	18.1	Silver Creek	25.5
Great Valley 05 (Pittsburg-Kirby Hills)	19.2	Rodgers Creek-Healdsburg	26.4
Pilarcitos	21.8	Great Valley 06 (Midland)	28.1

Source: Kleinfelder, 2024

Descriptions of the three Alquist-Priolo Fault Hazard Zones within approximately 10 miles of the Project are presented in the following subsections.

Hayward Fault

The Hayward Fault, a northwest-striking right-lateral (dextral) slip-strike fault, is the central part of the 195-mile-long Rodgers Creek-Hayward-Calaveras fault system. The fault extends from San Jose approximately 74 miles northward along the base of the East Bay Hills to San Pablo Bay. The Hayward Fault is characterized by (1) moderate aseismic creep rates, (2) microseismicity and historical earthquakes (1868 magnitude 6.5 earthquake), and (3) relatively simple fault geometry (in some cases, it includes two creeping traces) with local structural complexities (PG&E, 2024). The creep rate for the Hayward Fault is estimated to range from approximately 4.0 to 7.2 millimeters per year (mm/year) (25.4 mm equal 1 inch), while the long-term geologic slip rate for the southern section of the Hayward Fault, which extends from near the Oakland-Berkeley border to San Jose, is estimated at approximately 9 mm/year (PG&E, 2024). Creep refers to the slow, aseismic movement along a fault. Unlike sudden seismic slip that occurs during earthquake events, creep occurs gradually over time. The long-term slip rate represents the average rate of fault movement over geological timescales. Ideally, the long-term slip rate corresponds to the deep slip rate along the fault. During earthquakes, the shallow portion of the fault catches up to the deeper portion, resulting in episodic slip. The section of the Hayward Fault crossed by the Project alignment is actively exhibiting fault creep (CGS, 2003). Detailed studies of aseismic creep-related deformation and a compilation of previous fault studies help to constrain fault location along much of the fault length (PG&E, 2024).

Calaveras Fault

The Calaveras Fault is a northwest-striking right-lateral (dextral) slip-strike fault. This fault is approximately 76 miles long, extending from the San Andreas fault near Hollister and terminating at Danville at its northern end. The Calaveras Fault experiences a creep rate of approximately 3 to 4 mm/year (PG&E, 2024). The most recent moderate earthquakes were a magnitude 5.1 event in 2022 and a magnitude 5.6 event in 2007. The most recent event was the 1984 Morgan Hill earthquake with a magnitude of 6.2.

Concord Fault

The Concord Fault is a northwest-striking right-lateral (dextral) slip-strike fault. The fault is approximately 11 miles long and extends from Mount Diablo to the Carquinez Strait. The Concord Fault is connected to, and considered to be part of, the same fault zone as the Green Valley Fault, which lies just a few miles to the north across Suisun Bay. The Concord Fault experiences a creep rate of approximately 2.5 to 3.5 mm/year (PG&E, 2024). The last large earthquake linked to this fault occurred more than 400 years ago.

Alquist-Priolo Earthquake Fault Zones

As discussed in Section 3.7.2.2, the Alquist-Priolo Act requires the establishment of "earthquake fault zones" along surface traces of known active faults in California. An active fault, for the purposes of the Alquist-Priolo Act, is one that has ruptured in the last 11,000 years.

The Hayward Fault is the only fault within the Project vicinity (100 feet from the Project alignment) with an associated Alquist-Priolo Earthquake Fault Zone. The Chabot Fault was determined not to have sufficient evidence for Holocene activity and, therefore, was not considered in the revised Alquist-Priolo Fault Zone (LCI, 2024). The Hayward Earthquake Fault Zone, which is crossed by the Project alignment, is shown in Figure 3.7-2 (Fault Map) in Appendix A.

Fault Rupture

Displacement Magnitude

An earthquake in 1868 (moment magnitude [Mw] 7.0) was the most recent significant earthquake along the Hayward Fault, with surface rupture extending approximately 30 miles from the Montclair district of Oakland south to Fremont. There are reports of up to 3 feet of displacement as a result of the 1868 surface rupture on the Hayward Fault (PG&E, 2024). Trench studies were completed on the Hayward Fault in the ballfield in Montclair Park and found evidence of rupture in the 1868 earthquake (PG&E, 2024). Vertical offset of 6 centimeters (cm) (2.4 inches) was used to infer 80 cm (2.6 feet) of right-lateral displacement produced by the 1868 earthquake.

Probabilistic estimates of coseismic (during the earthquake event) displacement and afterslip (post-event movement) calculated as part of the HayWired Earthquake Scenario for the Hayward Fault estimates a maximum coseismic surface displacement of more than 2 meters (approximately 7 feet) and 0.5 to 1.5 meters (approximately 1.5 to 5 feet) of afterslip (PG&E, 2024). The HayWired Earthquake Scenario, led by the USGS, anticipates the impacts of a hypothetical magnitude-7.0 earthquake on the Hayward Fault.

Fault Trace Locations

A Project-specific study by Lettis Consultants International, Inc. (LCI, 2024) reviewed the faults and traces of the Hayward Fault and the Chabot Fault, as well as the fault location uncertainty zones (PG&E, 2024). At the site, two traces of the Hayward Fault as mapped by Lienkaemper and Graymer (eastern and western traces) intersect the Moraga–Oakland X 115 kV utility corridor (PG&E, 2024). The Hayward Fault traces are moderately well constrained based on creep features and tectonic geomorphology and consistently mapped by various authors.

Eastern Trace: The LCI study (LCI, 2024) notes that the eastern trace of the Hayward Fault was originally mapped by Radbruch (PG&E, 2024). Later studies delineated the eastern trace of the fault as a series of west-facing scarps in Pleistocene alluvium, linear drainages, and deflected drainages. LCI noted the eastern Hayward Fault trace is generally coincident with a faulted contact mapped by Graymer. The discontinuous eastern trace makes a small, 22-meter (72-foot) left step across Shephard Creek and Palo Seco Creek before crossing the western trace of the Hayward Fault approximately 1,300 feet northwest of the utility corridor. The LCI study (LCI, 2024) (provided a revised location for the eastern trace of the Hayward Fault, crossing the Project alignment approximately at SR 13, as well as a fault location uncertainty zone. Near the Project alignment, the eastern fault trace is mapped as an alignment of southwest-facing scarps, slope breaks, and linear troughs.

Western Trace: The LCI study (LCI, 2024) noted that the western trace of the Hayward Fault is mapped by Lienkaemper as a series of discontinuous northwest-striking traces ranging from 800 to 1,500 feet in length. In the vicinity of the Moraga–Oakland utility corridor, Lienkaemper constrains the western trace

through several field observations of creep along the fault and alignment arrays that identify specific fault locations (PG&E, 2024).

Chabot Fault Trace: The LCI study (LCI, 2024) noted that the Chabot Fault is a northwest-striking, steeply east-dipping fault that is considered a splay of the larger, more-active Hayward Fault system. The fault crosses the Project alignment at approximately Shephard Creek. The geomorphology along the fault is relatively poorly expressed with limited evidence of significant late Pleistocene (2.6 million to 11,700 years ago) and Holocene (11,700 years ago to the present) faulting, and LCI concurs with past assessments that the Chabot Fault is not a Holocene fault. All available studies indicate the Chabot Fault is inactive (pre-Holocene), and LCI agrees with this assessment based on its review of geomorphology and local fault studies.

Strong Ground Motion

The Project crosses the active Hayward Fault zone as defined by the Alquist-Priolo Act (Bryant and Hart, 2007). However, the Project is in an area that is subject to ground shaking from earthquakes generated on faults associated with the Coast Ranges, primarily the Calaveras, Hayward, and San Andreas faults, but including other more distant faults (CGS, 2024). Shaking from an earthquake can result in structural damage and can trigger other geologic hazards such as liquefaction. Ground shaking is affected by the earthquake magnitude, duration, and distance from the source. Ground conditions also will influence impacts from strong ground motions. Seismic waves attenuate with distance from their sources, so estimated bedrock accelerations are highest in areas closest to the source. Local soil conditions may amplify or dampen seismic waves as they travel from the underlying bedrock to the ground surface.

The Project is in the seismically active San Francisco Bay region, which has experienced repeated moderate to large earthquakes. Notable historic seismic events affecting the Project area are presented in Table 3.7-3. The most recent Uniform California Earthquake Rupture Forecast (UCERF3) assigns a 72 percent chance that the San Francisco Bay region will experience one or more magnitude-6.7 or greater earthquakes in the next 30 years and a 51 percent chance of a magnitude 7.0 or greater earthquake (PG&E, 2024). In addition, there is a 98 percent chance of one or more magnitude-6.0 or greater earthquakes hitting the San Francisco Bay region in that same timeframe. There is a corresponding probability of 32 percent that the Hayward-Rodgers Creek Fault will produce an earthquake of magnitude greater than 6.7 in the next 30 years, the highest probability for any San Francisco Bay region fault other than the San Andreas Fault (LCI, 2024). Therefore, the Project is likely to experience periodic minor to moderate earthquakes and potentially a major earthquake (magnitude 7.0 or greater) during its service life.

Table 3.7-3. Major Historical Earthquakes in San Francisco Bay Area

Date	Magnitude[a]	Name, Location, or Region Affected	Epicenter Latitude	Epicenter Longitude	Approximate Distance from Project (miles)
2014, August 24	6.0	South Napa	38.22	-122.31	27.5
1989, October 17	6.9	Loma Prieta	37.04	-121.88	57.3
1984, April 24	6.2	Morgan Hill	37.31	-121.68	45.8
1911, July 1	6.6	Morgan Hill area	37.25	-121.75	47.1
1906, April 18	7.8	Great San Francisco Earthquake	37.70	-122.50	18.6
1898, March 31	6.4	Mare Island	38.20	-122.50	30.3
1892, April 19	6.6	Vacaville	38.40	-122.00	40.8
1868, October 21	7.0	Hayward Fault	37.70	-122.10	10.5
1865, October 8	6.5	Santa Cruz Mountains	37.20	-121.90	46.4

Date	Magnitude[a]	Name, Location, or Region Affected	Epicenter Latitude	Epicenter Longitude	Approximate Distance from Project (miles)
1838, June	Uncertain; 7.4 estimated	San Francisco to San Juan Bautista	37.30	-122.15	36.6
1836, June 10	Uncertain; 6.4 estimated	Near San Juan Bautista[b]	36.90	-121.50	74.8

Source: California's Big Earthquakes (PG&E, 2024)
[a] Includes earthquakes of magnitude greater than or equal to 6.5, or that caused loss of life or more than $200,000 in damage.
[b] Older reports noted that this quake was possibly larger and centered near Oakland.

Liquefaction

Liquefaction is a phenomenon in which saturated cohesionless soils, such as sand and silt, temporarily lose their strength and liquefy when subjected to dynamic forces, such as intense and prolonged ground shaking. The liquefaction hazards are associated with sandy and silty soils of low plasticity. To be susceptible to liquefaction, potentially liquefiable soils must be saturated or nearly saturated. In general, liquefaction hazards are most severe in saturated soils within the upper 50 feet of the ground surface. The potential for liquefaction increases with shallower groundwater.

The Project area is generally not located within a known area of liquefaction hazard as shown in Figure 3.7-3 (Liquefaction Hazard Map) in Appendix A (PG&E, 2024); however, localized areas of low to high liquefaction potential occur within the Project area, including the following:

- **Moraga Substation:** Moraga Substation is in an area mapped as none or moderate susceptibility to liquefaction; however, the Project does not include any structural modifications to the substation. This area is underlain by Holocene-age (11,700 years ago to the present) alluvial and fluvial deposits (Qhaf).
- **State Route 13 Overhead Lines Crossing:** The area immediately adjacent to the southbound (west) side of SR 13 (Shephard Creek alignment) at the overhead lines crossing is mapped as high susceptibility to liquefaction. This area is underlain by Pleistocene-age (2.6 million to 11,700 years ago) alluvial and fluvial deposits (Qpaf).
- **Park Boulevard Underground Portion (Partial):** The underground portion of the Project alignment along Park Boulevard between the Glenview District retail area and Oakland X Substation is mapped as very low susceptibility to liquefaction. This area is underlain by Pleistocene-age alluvial and fluvial deposits (Qpaf).

These areas of potential liquefaction are shown in Figure 3.7-3 (Liquefaction Hazard Map) in Appendix A. Based on the findings of the geotechnical investigation performed for the Project (Kleinfelder, 2024), soils underlying the underground part of the Project alignment and Oakland X Substation consist generally of stiff to very stiff clays and dense sands and gravels. Groundwater at the Oakland X substation was encountered at a depth of approximately 45 feet below ground surface (bgs). Prior investigations along Park Boulevard encountered groundwater at or below 30 feet bgs. These soil and groundwater conditions are not susceptible to significant liquefaction or related effects (Kleinfelder, 2024).

Subsidence

Subsidence is the relative downward displacement of the ground surface, which can be induced by groundwater or petroleum extraction or consolidation of underlying material. Groundwater extraction that leads to subsidence occurs on a regional scale over long periods of time; however, there are no significant regional scale groundwater extraction activities occurring in the Project area. Soils underlying the Project alignment and Oakland X Substation are not within a known subsidence area.

Landslides

A landslide is a mass of rock, soil, or debris that has been displaced downslope by sliding, flowing, or falling. Landslides and mudslides generally have the potential to occur in areas with steep slopes. Several factors contribute to landslide risk, including slopes greater than 15 percent; weak, unconsolidated, or shallow soils; water saturation; a history of landslides; active earthquake faults; and extensive grading or vegetation removal (from fires or development activity). Historic landslides in an area make it more likely that that there will be future landslides in that area. The deformation from a landslide results in lower soils strength (remolded strength). Slope failures occur most frequently during and following the rainy season when high groundwater (elevated pore pressure) conditions persist. Landslides also can occur during or following earthquakes, triggered by the strain induced in soil and rock by the ground-shaking vibrations, or following significant rainfall events.

As shown on Table 3.7-4 in Section 3.7.1.4, steep slopes (15 to 75 percent) are present within most of the Project area, and landslide risk is exacerbated by the presence of the Hayward Fault. The Project area is located within a known landslide hazard area, as indicated by the California Landslide Susceptibility Map (Figure 3.7-4, Landslide Susceptibility Map, in Appendix A) prepared by the California Geological Survey (CGS) (PG&E, 2024).

An assessment of conditions and potential geologic hazards, including desktop compilation and analyses of available geologic and soil data and satellite imagery in Google Earth, was prepared for the Project (InfraTerra, 2024). Landslide inventory mapping performed for this study provides a basis for determining the most likely locations for future shallow and deep-seated slope failure based on identification of past and current slope movement. The desktop interpretation of light detection and ranging (LiDAR) and aerial imagery for the Project, validated by field reconnaissance, confirms the presence of numerous landslides along the central and eastern portions of the Project corridor; however, field reconnaissance documented the absence of active slope failure extending beneath existing and proposed aboveground structure locations. Study findings are summarized in the following subsections.

Aboveground Structures

No landslides have been identified beneath proposed aboveground structures. Two proposed locations are near active or prehistoric/older slides, with the structures typically located uphill from mapped landslides. Locations with nearby slides that could potentially extend uphill toward structures include proposed rebuild structures RN8 and RS16. However, these locations are on intact ground with no evidence of recent undercutting or active encroachment from the slides lower on the slope.

CGS mapped a large landslide extending beneath Park Boulevard just east of the intersection with Estates Drive (near milepost 3.9)CGS, 2003. This slide appears to have been identified based on interpretation of historic aerial imagery and was not confirmed as part of an assessment for the Project (InfraTerra, 2024). The replacement structures are located east of the slide margin and are therefore not considered at risk from the slide, if present.

Underground Portion

Relatively few and generally shallow slides are mapped in the vicinity of the underground portion of the Project, and no mapped landslides are crossed by the underground route.

3.7.1.4. Soils

Soil Characteristics

Soils are a mixture of organic matter from biological activity and minerals weathered from rock and alluvium. The United States Department of Agriculture, National Resources Conservation Service (USDA NRCS) compiles soil data from across the country and makes them available through its Web Soil Survey.

Mapped soil units over which the Project route passes are listed in Table 3.7-4 and shown in Figure 3.7-5 (Soil Map) in Appendix A.

Table 3.7-4. NRCS Soil Units and Properties that the Project Intersects

NRCS Soil Unit	NRCS Soil Unit Name	Slope	Erosion Hazard (On /Off-Road) Ratings[a]	Corrosion of Concrete Rating[b]	Corrosion of Steel Rating[b]	Shallow Excavation Rating[c]	Dwellings Without Basements – Shrink/Swell Potential[d]
Contra Costa County							
CkB	Cropley clay	2 to 5%	Slight/Slight	Low	High	Somewhat Limited	1.00
DdE	Diablo clay	15 to 30%	Severe/Moderate	Low	High	Very Limited	1.00
FaG	Felton loam	50 to 75%	Severe/Very Severe	Low	Low	Very Limited	No Rating
LcF	Lodo clay loam	30 to 50%	Severe/Severe	Low	Low	Very Limited	0.27
LhF	Los Osos clay loam	30 to 50%	Severe/Severe	Low	High	Very Limited	1.00
MeG	Millsholm loam	20 to 60%	Severe/Severe	Moderate	Moderate	Very Limited	0.02
Alameda County							
126	Maymen loam	30 to 75%	Severe/Very Severe	Moderate	Moderate	Very Limited	No Rating
127	Maymen-Los Gatos complex	30 to 75%	Severe/Very Severe	Low	Moderate	Very Limited	No Rating
152	Urban land-Tierra complex	15 to 30%	No Rating	Low	No Rating	No Rating	No Rating
158	Xerorthents-Los Osos complex	30 to 50%	No Rating	Low	No Rating	No Rating	No Rating
159	Xerorthents-Millsholm complex	30 to 50%	Severe/Severe	High	Moderate	Very Limited	No Rating
MeGcc	Millsholm loam	20 to 60%	Severe/Severe	Moderate	Moderate	Very Limited	0.02

Source: PG&E, 2024

[a] The erosion hazard rating indicates the hazard of soil loss. The on-road rating is for unsurfaced roads and trails; the off-road rating is for off-road and off-trail areas after disturbance activities that expose the soil surface. On-road ratings are based on soil erosion factor K, slope, and content of rock fragments while off-road ratings are based on slope, soil erosion factor K, and an index of rainfall erosivity (R). The hazard is described as "slight," "moderate," "severe," or "very severe."

[b] The corrosion of concrete rating is based on the sulfate and sodium content, texture, moisture content, and acidity of the soil. The corrosion of steel rating is based on the soil moisture, particle size distribution, acidity, and electrical conductivity of the soil. Both rating systems express rates as "low," "moderate," or "high."

[c] The shallow excavation rating is an evaluation of the ease of digging to approximately 6 feet, based on the ease of digging and the soil's resistance to sloughing. A "somewhat limited" rating describes soil that could be moderately difficult to excavate, but difficulties can be overcome by engineering protocols. A "very limited" rating describes a soil that could prove difficult to excavate and could require significant engineering maintenance.

[d] The Dwelling without Basement – Shrink/Swell Potential is not directly applicable to the Project as no building modifications are planned; however, it is a proxy for evaluating overall shrink/swell potential of shallow soils. The shrink/swell potential rating is shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Erosion

Erosion is the process by which rocks, soil, and other land materials are abraded or worn away from the Earth's surface over time. The rate of erosion depends on many factors, including soil type and geologic parent materials, slope and placement of soils, and human activity. The potential for erosion is highest in loose, unconsolidated soils. The steepness of slopes and absence of vegetation are also factors that

increase the natural rates of erosion. Thus, erosion potential is high in steep, unvegetated areas, especially those disturbed by grading or other construction activities. This is consistent with a scoping comment stating that previous tree removal and maintenance conducted by PG&E crews has increased the potential for erosion and landslides, indicating a benefit to moving power lines underground to minimize these hazards. Within Contra Costa County, the erosion hazard for soil in the Project area ranges from slight to very severe, with severe being the most common classification. Within Alameda County, the erosion hazard ratings generally range from severe to very severe; however, two soil units were unrated. The severe to very severe erosion hazard ratings in Alameda County are consistent with a scoping comment regarding the steep slopes and associated high erosion potential in Shepherd Canyon, located in this portion of the Project area.

The Project-specific assessment of conditions and potential geologic hazards by InfraTerra (InfraTerra, 2024) described and mapped 36 erosion sites in the vicinity of the Project based on interpretation of available LiDAR and aerial imagery; the sites were confirmed where accessible via field reconnaissance. These potential erosion sites generally consist of hillside gullies, incised slope erosion, and creek or drainage crossings. Several locations along the proposed aboveground and underground portions have an elevated level of impact of moderate erosion hazard, including a location near structures ES3 and RS3 and a location near structures EN23 and RN21 east of Mountain Boulevard.

Soil Hazards

Unstable / Unsuitable Soils

Within Contra Costa County, the shrink/swell potential of soil within the Project area ranges from almost no limitation (0.02) to substantial impact (1.00) on development. Within Alameda County, most soil types in the Project area are not rated for adverse impacts from shrink/swell potential; however, one soil unit, Millsholm loam, is rated as having a very low potential (0.02) for adverse impact on development.

No known areas of soil susceptible to collapse have been identified in the Project area.

Project soil corrosion potential of steel and concrete ranges from low to high (Table 3.7-4). The Project geotechnical report identified low sulfate content in all three samples, indicating low corrosion potential of concrete (Kleinfelder, 2024). Soil resistivity test results indicate Project soils may be moderately corrosive to steel (Kleinfelder, 2024).

3.7.2. Applicable Regulations, Policies, and Standards

3.7.2.1. Federal

Earthquake Hazards Reduction Act of 1977

The Earthquake Hazards Reduction Act of 1977 is a law formulating a national policy to diminish the dangers of earthquakes in the United States. The Earthquake Hazards Program is part of the USGS Natural Hazards Mission Area and is the USGS component of the multi-agency National Earthquake Hazards Reduction Program (NEHRP), established by Congress in 1977. The USGS Advanced National Seismic System was established by Congress as an NEHRP facility. The NEHRP agencies pursue the goals of the program through collaboration with each other and numerous partners. In addition to other federal agencies, program partners include state and local governments, universities, research centers, professional societies, trade associations and businesses, as well as associated councils, commissions, and consortia. NEHRP's work encompasses research, development, and implementation activities. Program research helps to advance understanding of why and how earthquakes occur and impact the natural and built environments. The program develops strategies, tools, techniques, and other measures that can reduce the adverse effects of earthquakes and also facilitates and promotes implementation of these measures, thereby strengthening earthquake resilience among at-risk communities.

3.7.2.2. State

Alquist-Priolo Earthquake Fault Zoning Act

California enacted the Alquist-Priolo Special Studies Zones Act in 1972, which was renamed the Alquist Priolo Earthquake Fault Zoning Act in 1994. Also known as the Alquist-Priolo Act, it requires the establishment of "earthquake fault zones" along known active faults in California (Bryant and Hart, 2007). Regulations on development within these zones are enforced to reduce the potential for damage resulting from fault displacement. Information on earthquake fault zones is provided for public information purposes (refer to Section 3.7.1.3, Seismic Hazards, for further discussion).

Seismic Hazards Mapping Act

The Seismic Hazard Mapping Act (SHMA) of 1990 addresses earthquake hazards other than fault rupture, including liquefaction and seismically induced landslides. Seismic hazard zones are to be mapped by the State Geologist to assist local governments in land use planning. The SHMA states that "it is necessary to identify and map seismic hazard zones in order for cities and counties to adequately prepare the safety element of their general plans and to encourage land use management policies and regulations to reduce and mitigate those hazards to protect public health and safety." Section 2697(a) of the SHMA additionally requires that "cities and counties shall require, prior to the approval of a project located in a seismic hazard zone, a geotechnical report defining and delineating any seismic hazard."

3.7.2.3. Local

Because the California Public Utilities Commission has exclusive jurisdiction over the siting, design, and construction of the Project, the Project is not subject to local discretionary land use regulations. The following subsections analyze local regulations related to geologic and seismic hazards for informational purposes and to assist with CEQA review. Local regulations informing on soil (specifically erosion) are included in Section 3.10.2.3. These specific documents are discussed in the following subsections:

- City of Orinda General Plan
- Contra Costa County General Plan
- Oakland 2045 General Plan
- City of Piedmont General Plan

The Alameda County General Plan does not cover the Project alignment because all portions of the Project alignment within Alameda County are within the jurisdiction of the City of Oakland or the City of Piedmont.

Although PG&E is not subject to local discretionary permitting, ministerial permits will be secured, as required.

City of Orinda

Section 2.3 of the Safety Element in the *City of Orinda General Plan* (City of Orinda, 2023) outlines geologic and seismic hazards. Section 3.3 defines goals, policies, and actions related to those hazards. A goal and policy that may be relevant to the Project include the following:

GOAL S-3: A community that seeks to minimize risks to public health, safety, and welfare resulting from geologic and seismic hazards.

- Policy S-23: Minimize fault rupture hazards through enforcement of the following policies:
  - Require infrastructure systems, such as energy, communications, and transportation infrastructure, that cross a fault be designed to resist fault rupture for the maximum plausible earthquake scenario.

Contra Costa County

Chapter 9, the Health and Safety Element, of the *Contra Costa County General Plan* (Contra Costa County, 2024) identifies seismic hazards and ground failure and landslide hazards, respectively. A goal and policies include the following:

Goal HS-11: Communities and infrastructure that are protected from seismic and geologic hazards, including severe ground shaking, fault rupture, liquefaction, landslides, and unstable slopes.

- HS-P11.1: For projects in Alquist-Priolo Earthquake Fault Zones or Seismic Hazard Zones (areas considered to be at risk of earthquake triggered liquefaction or landslide displacement) delineated by the California Geological Survey, as well as any other areas of steep slopes or areas of suspected ground failure known to the County, require submittal of appropriately detailed engineering geologic or geotechnical investigations. The reports must be compliant with State Guidelines and include:
  (a) A map showing the outline of any geologic or potentially hazardous soil condition and areas subject to inundation.
  (b) Recommended means of mitigation of any adverse condition representing a hazard to improvements.
  (c) Recommendations to assure proper implementation of mitigation measures during construction.
- HS-P11.3: Discourage construction of critical facilities and buildings intended for human occupancy in Alquist-Priolo Fault Zones and encourage earthquake retrofitting where such development already exists. If there is no feasible alternative to siting critical facilities and buildings intended for human occupancy in the Fault Zones, buildings must be sited, designed, and constructed to withstand the anticipated seismic stresses.
- HS-P11.4: Refer geotechnical and engineering geologic reports to the County Peer Review Geologist for evaluation of their adequacy, as required by State Law for projects in State-designated hazard zones. Reports deemed inadequate will require further engineering analysis and revision until the findings/ opinions of the Peer Review Geologist have been addressed to the County's satisfaction.
- HS-P11.5: Discourage development on slopes exceeding 15 percent, and prohibit development on slopes of 26 percent or greater, to avoid slope instability, unnecessary grading, and extensive land disturbance, and facilitate long-term control of erosion and sedimentation. Exceptions may be considered for infrastructure projects and development on existing legal lots where no other feasible building sites exist.
- HS-P11.7: Do not accept public road dedications or allow construction of private roads on unstable hillsides or in landslide hazard areas unless potential hazards have been mitigated to the County's satisfaction. All private roads constructed in such areas must be fully compliant with private road standards adopted by the County and fire protection district with jurisdiction.

City of Oakland

Section 2.1 of the Safety Element of the *Oakland 2045 General Plan* (City of Oakland, 2023) outlines geologic and seismic hazards and includes the following goal and polices that may be relevant to the Project:

GOAL SAF-1: Minimize the Risk to Life and Property Caused by Seismic and Geologic Hazards

- SAF-1.1: Seismic Hazards. Develop and continue to enforce and carry out regulations and programs to reduce seismic hazards and hazards from seismically triggered phenomena. Prioritize programs in areas of highest seismic risk and seismic vulnerability.
- SAF-1.4: Seismic Hazard Coordination. Work with other public agencies to reduce potential damage from earthquakes to lifeline utility, economic, and transportation systems, including Caltrans; BART; PG&E, EBMUD, and other utilities providers; the Port of Oakland; and others.

City of Piedmont

Section 6, the Environmental Hazards Element, of the *City of Piedmont General Plan* (City of Piedmont, 2024) identifies geologic and seismic hazards, including strong ground motions, landslides, and liquefaction. Goals, policies, and actions include the following:

GOAL 18: Minimize the loss of life, personal injury, and property damage resulting from earthquakes, landslides, unstable soils, and other geologic hazards.

- Policy 18.2: Seismic Design Standards. Maintain and enforce seismic design and construction standards which meet or exceed the standards established by the Building Code. Piedmont's Municipal Code should be periodically reviewed, updated, and amended to incorporate the most current knowledge and highest standards of seismic safety.
- Policy 18.3: Infrastructure Reliability. Maintain road and infrastructure design standards which address geologic conditions in Piedmont, including the potential for earthquakes and landslides. Infrastructure should be retrofitted where necessary to improve reliability during and after an earthquake.

3.7.3. Environmental Impacts

3.7.3.1. Impact Analysis Approach

Potential impacts on geology and soils are assessed by describing potential Project activities that could cause risks to life and property as a result of existing geologic, soil, and seismic hazards, as well as cause erosion or loss of topsoil.

PG&E's Applicant Proposed Measures (APMs) listed in Table 3.7-5 would be implemented as part of the proposed Project. With implementation of these APMs, geology and soils impacts that could result from Project activities would be substantially reduced.

Table 3.7-5. Applicant Proposed Measures – Geology and Soils

APM	Description
Geology and Soils	
APM GEO-1: Development of Seismic Design Criteria and Appropriate Seismic Safety Design Measures Implementation	The project will be designed based on current seismic design practices and guidelines. As part of design, site-specific seismic analyses will be performed to evaluate peak ground accelerations for design of project components. Because the proposed power cables will be lifeline utilities, the 84th percentile motions (one standard deviation above the median) will be used. Additionally, the Institute of Electrical and Electronics Engineers (IEEE) Standard 693, Recommended Practices for Seismic Design of Substations, has specific requirements to mitigate past substation equipment damage. These design guidelines will be implemented during equipment replacement at substations. Substation equipment will be purchased using the seismic qualification requirements in IEEE 693.
APM GEO-2: Site-Specific Landslide Assessment	As described in Section 3.7.1.3, two proposed structure locations are near active or prehistoric/older slides, with the structures typically located uphill from mapped landslides. A site-specific design-level evaluation of these locations will be performed to evaluate the potential for these landslides to impact project facilities. Appropriate design measures for the protection of the power line structure stability, which may include foundation design enhancements or adjustments to structure locations, will be incorporated into the design.
APM GEO-3: Appropriate Design Measures Implementation	Potentially problematic subsurface conditions during project construction include soft or loose soils that could be susceptible to liquefaction, especially at and in the vicinity of stream or river crossings. Where soft or loose soils are encountered during design studies or construction, appropriate measures will be implemented to avoid, accommodate, replace, or improve soft or loose soils. Such measures may include the following: ■ Overexcavating soft or loose soils and replacing them with nonexpansive engineered fill.

APM	Description
	■ Increasing the density and strength of soft or loose soils through mechanical vibration and compaction. ■ Treating soft or loose soils in place with binding or cementing agents.
APM HYD-1: Prepare and Implement a SWPPP	Stormwater discharges associated with project construction activities are regulated under the CGP. Cases in which construction will disturb more than 1 acre of soil require submittal of a Notice of Intent, development of an SWPPP (both certified by the Legally Responsible Person), periodic monitoring and inspections, retention of monitoring records, reporting of incidences of noncompliance, and submittal of annual compliance reports. PG&E will comply with all CGP requirements for construction of project components. Following project approval, PG&E will prepare and implement an SWPPP, which will address erosion and sediment control concerns to minimize construction impacts on surface water quality, as well as reduce the potential for stormwater runoff to impact adjacent properties. The SWPPP will be designed specifically for the hydrologic setting of the proposed project (surface topography, storm drain configuration, and other factors). Implementation of the SWPPP will help stabilize graded areas and reduce erosion and sedimentation. The SWPPP will propose BMPs that will be implemented during construction activities. Erosion and sediment control BMPs – such as straw wattles, erosion control blankets, and silt fences – will be installed in compliance with the SWPPP. Suitable soil stabilization BMPs will be used to protect exposed areas during construction activities, as specified in the SWPPP. During construction activities, BMPs will be implemented to reduce exposure of construction materials and wastes to stormwater. BMPs will be installed following manufacturer's specifications and according to standard industry practice. Erosion and sediment control measures may include the following: ■ Straw wattle, silt fence, or gravel bag berms ■ Trackout control at all entrances and exits ■ Stockpile management ■ Effective dust control measures ■ Good housekeeping measures ■ Stabilization measures, which may include wood mulch, gravel, and seeding Identified erosion and sediment control measures will be installed prior to the start of construction activities and will be inspected and improved as required by the CGP. Temporary sediment control measures intended to minimize sediment transport from temporarily disturbed areas such as silt fences or wattles will remain in place until disturbed areas are stabilized. In areas where soil is to be temporarily stockpiled, soil will be placed in a controlled area and will be managed using industry-standard stockpile management techniques. Where construction activities occur near a surface waterbody or drainage channel, the staging of construction materials and equipment and excavation spoil stockpiles will be placed and managed in a manner to minimize the risk of sediment transport to the drainage. Any surplus soil will be transported from the site and disposed of in accordance with federal, state, and local regulations. The SWPPP will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials will be permitted, if necessary. A copy of the SWPPP will be provided to CPUC for recordkeeping. The plan will be maintained and updated during construction as required by the CGP.
APM AIR-1: Dust Control During Construction	PG&E will implement measures to control fugitive dust consistent with BAAQMD's Basic Best Management Practices (BAAQMD, 2023) as follows: ■ All exposed surfaces within the active construction area (for example, parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day as necessary to contain dust. ■ All haul trucks transporting soil, sand, or other loose material offsite will be covered.

APM	Description
	■ All visible mud or dirt trackout onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. ■ All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph). ■ All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. ■ All grading activities shall be suspended when average wind speeds exceed 20 mph. If excavating soils when average wind speeds exceed 20 mph, soil piles will be lightly sprayed with water to contain dust to the work area. ■ Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations. Where project activities are within 1,000 feet of residential areas, PG&E will also implement the following additional BMPs, consistent with BAAQMD's Enhanced BMPs (BAAQMD, 2023): ■ Limit the simultaneous occurrence of excavation, grading, and ground-disturbing construction activities. ■ Minimize the amount of excavated material or waste materials stored at the site. ■ Stabilize soil where project grading occurred and the area is inactive for at least 14 calendar days. Soil stabilization measures may include wood mulch, gravel, seeding or application of other non-toxic soil stabilizer consistent with APM HYD-1.

3.7.3.2. Impact Significance Criteria

The significance criteria below are adapted from Appendix G of the CEQA Guidelines and address potential impacts related to the rupture of a known earthquake fault, seismic ground shaking, or liquefaction; substantial erosion or loss of topsoil; geologic units that are 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; and expansive soils.

The criteria are whether the proposed Project would:

- **GEO-1**: Directly or indirectly cause or exacerbate potential substantial adverse effects, including the risk of loss, injury, or death, due to rupture of a known earthquake fault, seismic ground shaking, or liquefaction?
- **GEO-2**: Result in substantial soil erosion or loss of topsoil?
- **GEO-3**: Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off- site landslide, lateral spreading, subsidence, liquefaction, or collapse?
- **GEO-4**: Be located on expansive soil, creating substantial direct or indirect risks to life and property?

The focus of significance criterion GEO-1, which is addressed under Impact GEO-1 below, is on earthquake-related hazards, whereas unstable geologic units and soils are addressed under significance criterion GEO-3 and discussed under Impact GEO-3. Because landslides may occur as a result of an earthquake (Impact GEO-1), as well as from geologic units and soils that become unstable due to heavy rainfall, erosion, and construction activities (Impact GEO-3), potential landslide hazards could be discussed under both of these impact headings. To consolidate the discussion within this document, however, landslide hazards are addressed under Impact GEO-3 only, with an understanding that the discussion could also be generally applicable to seismic-related hazards addressed under Impact GEO-1.

3.7.3.3. Impacts and Mitigation Measures

Impact GEO-1: Directly or indirectly cause or exacerbate potential substantial adverse effects, including the risk of loss, injury, or death, due to rupture of a known earthquake fault, seismic ground shaking, or liquefaction.

Construction

LESS THAN SIGNIFICANT. During construction, construction workers may be exposed to safety hazards if a seismic event occurs, and workers are struck by falling debris or structural components. Implementation of APM HAZ-3 during construction would require safety training and the use of personal protective equipment. The public would be excluded from work areas to ensure safety during construction.

Prior to construction, the Project components would be designed in accordance with seismic standards and design measures as required under APMs GEO-1, GEO-2, and GEO-3. In addition, under APM GEO-3, any potentially problematic subsurface conditions would be addressed during construction, including the replacement of soft or loose soils with engineered fill or other appropriate soil treatments. With implementation of these measures, Project construction would not directly or indirectly cause or exacerbate potential substantial adverse effects due to rupture of a known earthquake fault, seismic ground shaking, or liquefaction. Therefore, impacts under this criterion would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. As described in Chapter 2, Project Description, the proposed Project includes rebuilding the four PG&E existing 115 kV lines and structures, and minor modifications to Moraga and Oakland X substations. Approximately 4 miles of the existing 5 miles of overhead lines would be rebuilt overhead, and approximately 1 mile would be rebuilt underground in City streets. The portion that would be rebuilt underground would replace an approximately 1-mile portion of existing overhead lines located to the west, which would be removed.

Project components could cause adverse effects if they would be placed in areas that are susceptible to seismic hazards and would become unstable during an earthquake, causing risks to life and property. The Project would be designed and built in accordance with seismic standards and design measures as required under APMs GEO-1 through GEO-3. As discussed in more detail below, with implementation of this measure, the proposed Project would not directly or indirectly cause or exacerbate potential substantial adverse effects due to rupture of a known earthquake fault, seismic ground shaking, or liquefaction. Therefore, impacts would be less than significant. Specific impacts from operation and maintenance within each portion of the Project alignment are discussed further in the following sections.

Overhead Power Line Rebuild

Fault Rupture

Power line structures are susceptible to damage or failure if they directly overlie a fault trace that experiences surface rupture. Site-specific geological studies have been performed at locations where overhead portions of the proposed power lines cross the mapped Hayward Fault zone and intersect individual fault traces (PG&E, 2024). The proposed power line structures would not be sited on active traces of the fault. In addition, with implementation of APM GEO-1, overhead power lines would be designed to accommodate expected surface fault displacements by bending (sagging) or straightening in response to differential movement between the power line structure locations. Therefore, the overhead power line rebuild would not directly or indirectly cause or exacerbate potential substantial adverse effects due to rupture of a known earthquake fault.

Ground Shaking

During its life, the Project is likely to be exposed to at least one moderate or greater earthquake located close enough to produce strong ground shaking in the Project area. The greatest potential for strong seismic ground shaking within the Project area comes from the Hayward Fault, which has produced moderate to large earthquakes during historical time.

Power Lines. Strong seismic ground shaking resulting in tower failure can cause shearing and damage to lines. However, generally, overhead power lines can accommodate strong ground shaking because they would be designed in accordance with seismic standards, as specified in APM GEO-1. The Project would be designed and constructed in accordance with applicable industry standards to help protect the structures and lines during strong seismic ground shaking. Wind-loading design requirements for overhead lines generally result in greater loading than those developed to address strong seismic ground shaking. APM GEO-1 would require the development of seismic design criteria and appropriate safety design measures. In the event that an earthquake produces strong ground motion that affects the Project, PG&E would send crews to inspect the lines and repair any damage detected, in accordance with existing practices and procedures. Therefore, the overhead power line rebuild would not directly or indirectly cause or exacerbate potential substantial adverse effects due to seismic ground shaking.

Substation Equipment. Some types of substation equipment are susceptible to damage from earthquake shaking. PG&E has reviewed historical substation damage to determine the vulnerabilities of each specific type of equipment. The review included immediate visits to substations following past earthquakes. PG&E personnel were in Los Angeles and Japan reviewing substation damage shortly after the Northridge (1994) and Kobe (1995) earthquakes. Damage has been found to vary dramatically with voltage, with extensive damage to 500 kV substations, sizable damage to 230 kV substations, and minor damage to equipment in voltage classifications of 115 kV and lower. The types of equipment most susceptible to damage from strong seismic ground shaking are transformer radiators and bushings, circuit breakers, circuit switchers, and disconnect switches. APM GEO-1 would require the development of seismic design criteria and appropriate safety design measures. Therefore, the overhead power line rebuild would not directly or indirectly cause or exacerbate potential substantial adverse effects due to seismic ground shaking.

Liquefaction

The Project is generally not within a known area of liquefaction hazard; however, localized areas of moderate and high liquefaction potential occur within the Project area. These locations include Moraga Substation (moderately susceptible) and an area immediately adjacent to the southbound (west) side of SR 13 at the overhead lines crossing (highly susceptible). No new structures or underground duct banks would be in areas designated as moderate or high liquefaction hazards based on CGS mapping. In addition, no structural changes would be made at Moraga Substation. Furthermore, the findings of the geotechnical investigation performed for the Project indicate that the Project alignment is not susceptible to substantial liquefaction or related effects (Kleinfelder, 2024). Although there is a low probability that conditions conducive to liquefaction would be encountered within the Project alignment, implementation of APMs GEO-1 and GEO-3 would minimize liquefaction and associated ground failure hazards such as lateral spreading that could be exacerbated by strong seismic ground shaking. Therefore, the overhead power line rebuild would not directly or indirectly cause or exacerbate potential substantial adverse effects due to liquefaction.

Overhead Power Line Removal

BENEFICIAL. The overhead power line removal would include removing existing structures out of a seismically active area. Therefore, this Project component would result in a beneficial impact since this portion of the Project area would no longer include any structures that would be susceptible to adverse effects or create adverse effects. Therefore, impacts would be beneficial.

Underground Power Line

LESS THAN SIGNIFICANT. The proposed Project could be subject to strong seismic ground shaking, which can result in damage to the duct bank and possibly cause shearing and damage to lines, especially underground lines at the point of transition to aboveground. APM GEO-1 would require the development of seismic design criteria and appropriate safety design measures to protect the lines during an earthquake. If an earthquake produces strong ground motion that affects the Project, PG&E would send crews to inspect the lines and repair any damage detected, in accordance with existing practices and procedures.

The Project is generally not within a known area of liquefaction hazard. Localized areas of low liquefaction potential occur within the westernmost area of the underground alignment within Park Boulevard. In addition, the findings of the geotechnical investigation performed for the Project indicate that the Project alignment and Oakland X Substation are not susceptible to significant liquefaction or related effects (Kleinfelder, 2024). Although there is a low probability that conditions conducive to liquefaction would be encountered within the Project alignment, implementation of APMs GEO-1 and GEO-3 would minimize liquefaction and associated ground failure hazards such as lateral spreading that could be exacerbated by strong seismic ground shaking. PG&E has committed to implementing its APMs. With implementation of APMs GEO-1 through GEO-3, the underground power line would not directly or indirectly cause or exacerbate potential substantial adverse effects due to rupture of a known earthquake fault, seismic ground shaking, or liquefaction. Therefore, impacts would be less than significant.

Impact GEO-2: Result in substantial soil erosion or loss of topsoil.

Construction

LESS THAN SIGNIFICANT. Construction activities during the rainy season have the potential to cause erosion, as well as ground disturbance during windy conditions. Soil disturbance would result from vehicle movement, minimal grading, vegetation clearing, and similar activities at structure work areas, staging areas, along temporary access routes, and pull and tension sites. Staging areas, work areas, and existing unpaved access roads would be graded as needed, including minor improvements such as blading or scraping the surface of the area, compacting soil, and applying gravel.

Most soil disturbance that could potentially result in erosion would occur during excavation and trenching for installation of the underground portion of the Project, including vaults and conduits. Construction of the overhead power line rebuild, including the installation and removal of structures, would require limited soil disturbance where the use of micropiles and reinforced concrete piers would be used for overhead structure foundations and wooden poles used for guard structures, which have a relatively small footprint. Construction sites would be accessed using existing paved and unpaved access roads. Where the lines are being installed underground, access would be from paved roads.

Ten (10) pairs of lattice steel towers (LSTs) would also be replaced along the Project alignment. LSTs would have four concrete pier-type foundations, each requiring excavations that would range from 3 to 8 feet in diameter with a total disturbance area of approximately 16 to 28 feet in width. Construction of these components would result in localized areas of potential erosion.

Scoping comments indicated concern about the previous tree removal and maintenance conducted by PG&E crews, which could cause erosion and landslides, as well as concern about steep slopes in Shepherd Canyon and the associated high erosion potential that could be exacerbated by the Project. The comment regarding erosion and landslides caused by PG&E tree removal and maintenance activities indicated support for constructing the underground lines as soon as possible, which would then eliminate the need to conduct any further tree removal or aboveground maintenance that would continue to exacerbate these hazards. The underground lines would be constructed at the earliest timeframe in the Project construction schedule (beginning in July 2028) compared to the overhead rebuild and removal portions (beginning in

June 2029), which would address the comment's support for constructing the underground line as soon as possible to reduce hazards. In addition, to reduce the potential for erosion within the Project area, including on steep slopes such as those in Shepherd Canyon, PG&E would develop a Stormwater Pollution Prevention Plan (SWPPP), as described in APM HYD-1. The SWPPP would specify measures for activities with the potential to cause erosion. Erosion control measures may include straw wattle, silt fence, or gravel bag berms; trackout control at all entrances and exits; stockpile management; effective dust control measures; good housekeeping measures; and stabilization measures, which may include wood mulch, gravel, and seeding. APM AIR-1 would also require measures to control dust and loose soil.

These measures would protect soils from wind and rain, slow down water runoff to prevent it from carrying soils, encourage vegetation to anchor soils with roots in addition to breaking the impact of raindrops to reduce soil erosion, and reduce the impact of rainfall and help soils to retain moisture by adding a protective layer (e.g., mulch) to reduce dust and prevent wind erosion. With implementation of these measures, which would physically prevent soils from being moved by wind or water, Project construction would not result in substantial erosion or loss of topsoil. Therefore, impacts would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. Minimal ground disturbance is anticipated during O&M activities, and thus, these activities would not result in substantial erosion or loss of topsoil. Therefore, impacts would be less than significant.

Impact GEO-3: Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off- site landslide, lateral spreading, subsidence, liquefaction, or collapse.

Construction

LESS THAN SIGNIFICANT. Construction activities, including the movement and use of heavy vehicles and equipment on steep slopes or near areas with mapped landslides, could temporarily cause geologic units to become unstable. Construction workers may be exposed to safety hazards if an unexpected geologic hazard occurs (e.g., a sudden landslide), and workers are struck by falling debris or structural components. Implementation of APM HAZ-3 during construction would require safety training and the use of personal protective equipment. The public would be excluded from work areas to ensure safety during construction. Safety measures would include the use of signage and temporary and permanent fencing to inform and protect the public near the construction site (PG&E, 2024).

Once the Project components are installed and construction is complete, the Project components could be exposed to geologic hazards during the O&M phase of the Project, as discussed below. Scoping comments indicated concern about the previous tree removal and maintenance conducted by PG&E crews, which could cause erosion and landslides, as well as concern about steep slopes in Shepherd Canyon and the associated high erosion potential that could be exacerbated by the Project. The comment regarding erosion and landslides caused by PG&E tree removal and maintenance activities indicated support for constructing the underground lines as soon as possible, which would then eliminate the need to conduct any further tree removal or aboveground maintenance that would continue to exacerbate these hazards. The underground lines would be constructed at the earliest timeframe in the Project construction schedule (beginning in July 2028) compared to the overhead rebuild and removal portions (beginning in June 2029), which would address the comment's support for constructing the underground line as soon as possible to reduce hazards. Prior to construction, the Project components would be designed in accordance with design measures as required under APMs GEO-1 through GEO-3 to reduce potential hazards in the Project area, including in areas with steep slopes such as those in Shepherd Canyon. In addition, under APM GEO-3, any potentially problematic subsurface conditions would be addressed during construction,

including the replacement of soft or loose soils with engineered fill or other appropriate soil treatments. With implementation of these measures, Project construction would not permanently cause a geologic unit or soil to become unstable and result in on- or off- site landslide, lateral spreading, subsidence, liquefaction, or collapse. Therefore, impacts would be less than significant.

Operations and Maintenance

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT. The Project is located within an area of known landslide hazard. However, PG&E performed a Project-specific landslide assessment to provide further details on specific areas that are susceptible to landslides (InfraTerra, 2024). No proposed Project facilities, including overhead structures in the overhead portion of the alignment and power lines in the underground portion of the alignment, would be located within a mapped landslide area.

The proposed locations of two structures are near mapped landslides, which could pose a long-term hazard if a landslide occurs and causes damage or collapse of the two structures. The proposed deep foundations, including micropiles and caissons, would minimize the potential for impacts from shallow slope failure. In addition, APM GEO-2 would be implemented to further assess landslide risk at these two structure locations where nearby mapped landslides could potentially migrate toward the structure and pose a long-term risk. Further, under APM GEO-3, appropriate design measures would be developed for localized soil and geologic conditions.

The Project area is generally not located within a known area of liquefaction hazard; however, localized areas of moderate and high liquefaction potential occur within the Project area (see Impact GEO-1). No new structures or underground duct banks would be in areas designated as moderate or high liquefaction hazards based on CGS mapping. Additionally, NRCS does not indicate that any soils of low bearing strength or high collapse potential exist along the Project alignment, as shown in Table 3.7-4. No geotechnical requirements are needed; however, if unstable soils are identified, PG&E would implement APM GEO-3 and apply appropriate design measures as identified in the geotechnical reports based on soil type.

With implementation of APMs GEO-2 and GEO-3, the overhead power line rebuild would not cause a geologic unit or soil to become unstable and potentially result in on- or off- site landslide, lateral spreading, subsidence, liquefaction, or collapse. Therefore, impacts would be less than significant.

Overhead Power Line Removal

BENEFICIAL. The overhead power line removal would include removing existing structures out of areas that have localized liquefaction potential. Therefore, this Project component would result in a beneficial impact since this portion of the Project area would no longer include any structures that would be susceptible to adverse effects or create adverse effects. Therefore, impacts would be beneficial.

Underground Power Line

LESS THAN SIGNIFICANT. No proposed Project facilities within the underground portion of the alignment would be located within a mapped landslide area. CGS mapped a large landslide extending beneath Park Boulevard just east of the intersection with Estates Drive (near milepost 3.9) (PG&E, 2024). This slide appears to have been identified based on interpretation of historic aerial imagery and was not confirmed by the Project landslide assessment (InfraTerra, 2024). The replacement underground facilities are located east of the slide margin and, therefore, are not considered at risk from the slide if present.

The Project area generally is not located within a known area of liquefaction hazard; however, localized areas of moderate and high liquefaction potential occur within the Project area (see Impact GEO-1). No underground duct banks or vaults would be in areas designated as moderate or high liquefaction hazards based on CGS mapping. Additionally, NRCS does not indicate that any soils of low bearing strength or high

collapse potential exist along the Project alignment, as shown in Table 3.7-4. No geotechnical requirements are needed; however, if unstable soils are identified, PG&E would implement APM GEO-3 and apply appropriate design measures as identified in the geotechnical reports based on soil type.

With implementation of APM GEO-3, the underground power line would not cause a geologic unit or soil to become unstable and potentially result in on- or off- site landslide, lateral spreading, subsidence, liquefaction, or collapse. Therefore, impacts would be less than significant.

Impact GEO-4: Be located on expansive soil, creating substantial direct or indirect risks to life and property.

Construction

LESS THAN SIGNIFICANT. Hazards caused by expansive soils are generally gradual and become increasingly destructive over time; therefore, safety hazards for construction workers are unlikely to result from construction activities within expansive soils due to the temporary nature of construction. In addition, because the public would be excluded from work areas to ensure safety during construction, no direct or indirect risks to life and property would result from construction activities within these soils.

Once the Project components are installed and construction is complete, the Project components could be exposed to soil hazards during the O&M phase of the Project, as discussed below. Prior to construction, the Project components would be designed in accordance with design measures as required under APMs GEO-1 through GEO-3. In addition, under APM GEO-3, any potentially problematic subsurface conditions would be addressed during construction, including the replacement of soft or loose soils with engineered fill or other appropriate soil treatments. With implementation of these measures Project construction would not create substantial direct or indirect risks to life and property from expansive soils. Therefore, impacts would be less than significant.

Operations and Maintenance

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT. Expansive soils contain significant amounts of clay that expand when wet and can cause damage to foundations, such as those installed to support replacement structures. Based on a review of NRCS soil survey data for the Project area, expansive soils were identified in the Contra Costa County portion of the Project area (refer to Table 3.7-4). As described in Section 2.3.5, replacement foundations in the overhead portion of the alignment would be either a group of micropiles with a pile cap, or a single drilled-shaft reinforced-concrete caisson. The deep foundations to be used for the aboveground portion of the Project are not susceptible to damage from expansion and contraction of shallow soils. Although portions of the overhead power line rebuild area would be located on expansive soil, this Project component would not create substantial direct or indirect risks to life and property. Therefore, impacts would be less than significant.

Overhead Power Line Removal

LESS THAN SIGNIFICANT. Expansive soils were not identified within the overhead power line removal area. In addition, the removal of the overhead power line would eliminate the potential that structures would be susceptible to adverse effects or create adverse effects, and thus, impacts would be beneficial. Therefore, impacts would be less than significant.

Underground Power Line

LESS THAN SIGNIFICANT. Expansive soils were not identified within the underground power line area. In addition, ~~within this area,~~conduits within the duct banks would be encased in 1.5-foot-thick thermal

concrete located a minimum of 3 feet below the road surface, which would ensure that the duct banks would not be susceptible to damage from expansion and contraction of shallow soils. The underground power line would not be located on expansive soil, creating substantial direct or indirect risks to life and property. Therefore, impacts would be less than significant.

3.7.4. Mitigation Measures

No mitigation measures are required.

3.7.5. References

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3.8. Greenhouse Gas Emissions

This section discusses GHG emissions associated with proposed Project construction, operation, and maintenance. GHG emissions were calculated and reported in carbon dioxide equivalents (CO2e) for carbon dioxide (CO_2), nitrous oxide (N_2O) and methane (CH_4) emissions from on-road vehicles, off-road equipment, and helicopters, as well as for sulfur hexafluoride (SF_6) emissions from new circuit breakers. The analysis concludes that Project impacts associated with GHG emissions would be less than significant. The implementation of the APMs described in Section 3.8.3.1, as well as those described in Section 3.3, Air Quality, would further reduce GHG emissions impacts.

The proposed Project's potential effects on GHG emissions were evaluated using the criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are discussed in more detail in Section 3.8.3.3.

The scoping effort conducted by CPUC from February 25 through March 27, 2025, resulted in no public comments relating to GHG emissions.

3.8.1. Environmental Setting

GHGs are global concerns, in contrast with criteria air pollutants or toxic air contaminants, which are of regional and local concern. Scientific research indicates that observed climate change is most likely a result of increased GHG emissions associated with human activity (Intergovernmental Panel on Climate Change 2023). Global climate change describes a collection of phenomena, such as increasing temperatures and rising sea levels, occurring across the globe. GHGs contribute to climate change by allowing ultraviolet radiation to enter the atmosphere and warm the Earth's surface but preventing some infrared radiation from the Earth from escaping back into space. Anthropogenic GHG emissions are largely caused by the combustion of fossil fuels, which results in CO_2 emissions.

The use of SF_6 in power transformers and circuit breakers at power plants, switchyards, and substations poses a concern because this pollutant can slowly escape from the equipment, and it has an extremely high global warming potential; one pound of SF_6 has the equivalent warming potential of approximately 23,900 pounds of CO_2. When quantifying GHG emissions, the different global warming potentials of GHG pollutants are normalized to CO2e.

California regulates greenhouse gases, including CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6. California is a substantial contributor to global GHG emissions. In 2022, the annual California statewide GHG emissions were 371.1 million metric tons of CO_2 equivalent (MMTCO2e). The transportation sector accounts for approximately 39 percent of the statewide GHG emissions. The industrial and electric power sectors account for approximately 22 percent and 16 percent, respectively, of the total statewide GHG emissions. The dominant GHG emitted is CO_2, primarily from fossil fuel combustion (CARB, 2024a).

3.8.1.1. GHG Setting

The Bay Area Air Quality Management District (BAAQMD), which is the air district with jurisdiction over the proposed Project area, has prepared a GHG emissions inventory to analyze GHG emissions produced within the Bay Area that may contribute to climate change. Table 3.8-1 provides an overview of the 2017 Bay Area GHG emissions inventory, which is the most recently updated inventory available.

Table 3.8-1. 2017 Bay Area GHG Emissions Inventory

End-Use Sector	% of Total Emissions	GHG Emissions (MMTCO2e/year)
Industrial	27.1%	22.0
Residential/Commercial Fuel Usage	11.0%	8.9

End-Use Sector	% of Total Emissions	GHG Emissions (MMTCO2e/year)
Electricity/Co-Generation[a]	14.9%	12.1
Transportation	42.7%	34.6
Agriculture/Farming	1.5%	1.2
Recycling/Waste	2.8%	2.3
Total	100%	81.1

Source: BAAQMD, 2017a, PG&E, 2024
[a] Includes imported electricity emissions of 2.7 MMTCO2e.

As shown in Table 3.8-1, the Bay Area's transportation and industrial/commercial sectors are the two largest contributors of GHG emissions at 42.7 percent and 27.1 percent, respectively. The electric power sector is the next largest contributor of GHG emissions at 14.9 percent. The total GHG emissions of all end-use sectors is 81.1 MMTCO2e per year.

The proposed Project will include the installation of two new SF_6-insulated circuit breakers; leakage from these circuit breakers will contribute to proposed Project-specific GHG emissions. No other existing infrastructure with potential or known GHG emissions will be upgraded or replaced by the proposed Project.

3.8.2. Applicable Regulations, Policies, and Standards

3.8.2.1. Federal

The Supreme Court decision in *Massachusetts et al. v. Environmental Protection Agency et al.* (549 U.S. 497 (2007)), known as the 'endangerment finding,' determined that the U.S. EPA has the authority to list GHGs as pollutants and to regulate emissions of GHGs under the federal Clean Air Act (CAA). On December 7, 2009, U.S. EPA found that CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6 may contribute to air pollution and may endanger public health and welfare (USEPA 2024b). In response to this decision, EPA established reporting regulations that require specific facilities and industries to report their GHG emissions annually and permit their GHG emissions sources.

U.S. EPA GHG Mandatory Reporting Program (40 CFR Part 98)

This rule requires mandatory reporting of GHG emissions for industrial facilities and power plants that emit more than 25,000 metric tons of CO_2-equivalent (MTCO2e) per year. The reporting program (40 CFR Part 98.300, Subpart DD) applies to electric and transmission distribution equipment that use high global warming potential (GWP) gases, including SF_6, for insulation. Currently, there are no federal regulations limiting GHG emissions from the types of sources that would occur with the proposed Project. The circuit breakers and gas switches related to electric power transmission and distribution may be sources of GHG subject to reporting due to the leakage of SF_6.

U.S. EPA SF_6 Emission Reduction Partnership for Electric Power Systems

In 1999, the U.S. EPA and electric power industry established the SF_6 Emission Reduction Partnership for Electric Power Systema collaborative effort to reduce SF_6 emissions through voluntary technical and management solutions (US EPA, 1999).

3.8.2.2. State

In addition to regulating emissions of criteria pollutants and toxic air contaminants, as described in Section 3.3, Air Quality, the California Air Resources Board (CARB) also is responsible for regulating GHG emissions in California. Key laws, policies, and standards through which CARB strives to do so are described in the following subsections.

Executive Order S-3-05

California Governor Executive Order S-3-05 (2005), established GHG reduction targets for the state of California. The targets called for a reduction of GHG emissions to 2000 levels by 2010; a reduction of GHG emissions to 1990 levels by 2020; and a reduction of GHG emissions to 80 percent below 1990 levels by 2050 (Office of the Governor, 2005). The California Environmental Protection Agency secretary is required to coordinate development and implementation of strategies to achieve the GHG reduction targets.

Global Warming Solutions Act of 2006

In 2006, the California State Legislature signed the Global Warming Solutions Act of 2006 (AB 32), which provides the framework for regulating GHG emissions in California. This law requires CARB to design and implement emission limits, regulations, and other measures such that statewide GHG emissions are reduced in a technologically feasible and cost-effective manner to 1990 levels by 2020. The statewide 2020 emissions limit is 431 $MMTCO_2e$ (CARB, 2024d) and, based on the statewide inventory presented in Section 3.8.1.1, this limit has been successfully achieved.

Because the proposed Project is not expected to include the long-term operation of stationary combustion sources, the proposed Project will not be subject to CARB's GHG reporting regulations.

Climate Change Scoping Plan

Part of CARB's direction under AB 32 was to develop a scoping plan that contains the main strategies California will use to reduce GHG emissions that cause climate change. The scoping plan includes a range of GHG reduction actions that include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 cost of implementation fee regulation to fund the program (CARB, 2008). CARB first approved the AB 32 Scoping Plan in 2008, and its latest adopted plan is the 2022 Scoping Plan for Achieving Carbon Neutrality (CARB, 2022). The 2022 scoping plan lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045 (CARB, 2022). This path includes strategies for reducing California's dependency on petroleum (for example, electrifying the transportation sector) and minimizing the use of chemicals and refrigerants with high GWPs (CARB, 2022).

California Renewables Portfolio Standard (RPS) Program

Electric utilities in California must procure a minimum quantity of the sales from eligible renewable energy resources as specified by RPS requirements. The Clean Energy and Pollution Reduction Act of 2015 [Senate Bill 350 (SB 350)] established California's state policy objectives on long-term energy planning and procurement as signed into law on October 7, 2015. The 100 Percent Clean Energy Act of 2018 [Senate Bill 100 (SB 100)] revised the RPS targets to establish the policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045.

With SB 350 and SB 100, California's objectives include:

- To set the Renewable Portfolio Standard (RPS) for the procurement of California's electricity from renewable sources at 33 percent by 2020, 50 percent by 2026, and 60 percent by 2030;
- To plan for 100 percent of total retail sales of electricity in California to come from eligible renewable energy resources and zero-carbon resources by December 31, 2045; and
- To double the energy efficiency savings in electricity and natural gas end uses by retail customers by 2030.

The Clean Energy, Jobs, and Affordability Act of 2022 (SB 1020) added interim targets for renewable energy targets for electricity sales and procurement. The renewable energy and zero-carbon energy retail sales of electricity targets to California end-use customers were set at 90 percent by 2035 and 95 percent by 2040 (CARB, 2022).

Cap-and-Trade Program (17 CCR 95801 to 96022)

The California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation (Cap-and-Trade Program) was initially approved by CARB in 2011. The Cap-and-Trade Program applies to covered entities that fall within certain source categories, including petroleum refiners and suppliers of transportation fuels, and is triggered when facility emissions exceed 25,000 MTCO2e in a year. The covered entities must hold compliance instruments sufficient to cover the actual GHG emissions, as evidenced through the CARB's Mandatory Reporting Regulation requirements. This means that transportation fuel suppliers bear the GHG compliance obligation in the Cap-and-Trade Program for the GHG emissions from motor vehicle and off-road equipment fuels used by construction workforces and crews.

Mandatory Reporting of Greenhouse Gas Emissions (17 CCR 95100 et seq.)

Mandatory reporting of GHG emissions applies to electric generating facilities with a nameplate generating capacity equal to or greater than 1 megawatt (MW) and GHG emissions equal or exceeding 10,000 metric tons per year. As an Electric Power Entity under this rule, PG&E must report GHG emissions associated with providing electricity to end-use customers.

CARB Regulations for Reducing SF_6 and Greenhouse Gas Emissions (17 CCR 95340 to 95346 and 95350 to 95359)

In 2007, CARB approved the reduction of SF_6 emissions from electricity transmission and distribution equipment as an early action measure under the Global Warming Solutions Act of 2006 (AB 32). CARB's "Regulation for Reducing Sulfur Hexafluoride Emissions" was implemented in 2011 as part of AB 32, and contains general prohibitions on the use, sale possession, and release of SF_6 in California, but does not apply to electrical equipment (17 CCR 95340–95346).

CARB's "Regulation for Reducing Greenhouse Gas Emissions from Gas Insulated Equipment" requires switchgear owners to reduce their SF_6 emissions to a 1 percent leak rate by 2020 and requires all regulated entities to submit an annual report of the previous year's activities and emissions to CARB by June 1 of each year. The regulation applies to all owners of SF_6-insulated switchgear (17 CCR 95350–95359.1). In January 2022, this regulation was revised with the intent of phasing out the use of new SF_6 insulated equipment by 2033 and reducing GHG emissions from equipment using other insulating gases. Additionally, allowable annual emissions from gas-insulated equipment would vary with the reporting entity's equipment capacity rather than an absolute limit (CARB, 2024b). PG&E will be subject to annual reporting under this regulation as the owner of gas-insulated equipment that uses covered insulating gas (such as SF_6).

Executive Order B-30-15

Executive Order B-30-15 (April 2015) added the intermediate target of reducing GHG emissions to 40 percent below 1990 levels by 2030.

Senate Bill 32 and Assembly Bill 197

SB 32 and AB 197 (2016) codified the 2030 GHG emissions reduction target of 40 percent below 1990 levels and provided additional direction for updating the scoping plan. The 2017 Scoping Plan established a path that would get California to its 2030 target, which is reiterated and expanded upon in the 2022 update.

Short-Lived Climate Pollutant Reduction Strategy

In continuing implementation of programs in support of AB 32, CARB published the Short-Lived Climate Pollutant Reduction Strategy in March 2017. This plan, developed pursuant to SB 605 and SB 1383, establishes targets for statewide reductions in short-lived climate pollutant emissions of 40 percent below 2013 levels by 2030 for CH_4 and hydrofluorocarbons and 50 percent below 2013 levels by 2030 for anthropogenic black carbon. This strategy was integrated into the 2022 Scoping Plan (CARB, 2024f).

3.8.2.3. Regional

The proposed Project stretches from Contra Costa County to Alameda County, both of which are located within the SFBAAB and under the jurisdiction of the BAAQMD. BAAQMD is the agency charged with preparing, adopting, and implementing emission control measures and standards for mobile, stationary, and area sources of air pollution in the SFBAAB.

The BAAQMD stationary source permitting regulations address GHG emissions from facilities that are subject to the Prevention of Significant Deterioration (PSD) program under 40 CFR Part 52. Because the proposed Project would not include the long-term operation of any major stationary source, the PSD program would not apply.

Clean Air Plans

Under the California CAA, which was approved in 1988 and amended in 1992, BAAQMD is required to develop an air quality plan to achieve and maintain compliance with federal and state non-attainment criteria pollutants within the air district. In response, BAAQMD has developed plans to achieve and maintain compliance with the federal ozone standards. The most recent of these plans is the 2017 Bay Area Clean Air Plan, adopted in April 2017, which provides a regional strategy to protect public health and the climate through a wide range of control measures designed to decrease emissions of particulate matter, ozone, toxic air contaminants, and GHGs. These emission reductions will be achieved primarily through the reduction of fossil fuel combustion, but also through minimization of CH_4 leaks, improved building energy efficiency, and the promotion and advancement of clean vehicles (BAAQMD, 2017b; BAAQMD, 2024).

BAAQMD CEQA Guidelines

BAAQMD adopted CEQA Guidelines in December 1999 to assist local jurisdictions and lead agencies in complying with the requirements of CEQA regarding potentially adverse impacts to air quality (BAAQMD, 1999). BAAQMD updated its CEQA Guidelines in June 2010 to reference its newly adopted thresholds of significance. These thresholds of significance were challenged in court but were ultimately upheld by the California Supreme Court. BAAQMD published a revised version of its CEQA Guidelines in May 2017 (BAAQMD, 2017c) and again in April 2023, following 2022 updates to its CEQA significance thresholds for climate impacts from land use proposed Projects (housing and commercial [offsite and retail] uses) and plans (BAAQMD, 2023; BAAQMD, 2022). Because this proposed Project would not include housing or commercial land uses, the BAAQMD land use thresholds would not apply.

The BAAQMD CEQA Guidelines recognize that construction emissions are temporary and variable, and the BAAQMD has not developed a quantitative threshold of significance for construction-related GHG emissions. However, BAAQMD recommends that agencies should quantify and disclose GHG emissions that would occur during construction. The guidelines include a brightline threshold of significance for stationary sources of 10,000 MTCO2e/yr (BAAQMD, 2023, Section 6.4). This stationary source GHG threshold was first adopted by the BAAQMD Board of Directors on June 2, 2010.

Plan Bay Area 2050

The metropolitan planning organizations for the region, Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG), adopted "Plan Bay Area 2050" in 2021. Plan Bay Area 2050 is a 30-year plan that comprises 35 strategies to reduce GHG emissions from cars and light-duty vehicles by better connecting housing, the economy, transportation, and the environment across the Bay Area's nine counties – Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma. This plan focuses on strategies to preserve affordable housing, spur housing production, improve economic mobility, encourage transit-oriented development, improve public transit, complete street networks, reduce risks from hazards, expand access to parks and open spaces, and reduce climate emissions (MTC, 2021).

3.8.2.4. Local

Because the CPUC has exclusive jurisdiction over proposed Project siting, design, and construction, the proposed Project is not subject to local (city and county) discretionary regulations except for air districts and CUPAs with respect to air quality and hazardous waste regulations. However, plans and policies for the City of Orinda, City of Piedmont, City of Oakland, and Contra Costa County are considered for informational purposes and to assist with the CEQA review process, based on the expected location of proposed Project construction activities.

City of Orinda

The City of Orinda released its Vulnerability Assessment in 2023 that discussed climate change trends (City of Orinda, 2023). This plan also identified energy delivery as one of the key services most vulnerable to climate change based, in large part, on power lines passing through areas of very high wildfire risk, elevated landslide risks, and locations subject to severe weather and high winds – all conditions which may be exacerbated by climate change. With this Vulnerability Assessment, the City of Orinda will be able to identify opportunities for minimizing risk to these vulnerable services in the future (City of Orinda, 2023).

Contra Costa County

The Contra Costa County Climate Action Plan was adopted in 2015 and updated in 2024. The Climate Action Plan included a goal to reduce community-wide emissions 15 percent below 2005 levels by 2020, consistent with AB 32, and established a 2035 target of approximately 57 percent reduction below 2005 levels, based on the Executive Order B-30-15 target for 2030 (Contra Costa County, 2024). The County intends to update the Climate Action Plan to include a target reduction of 80 percent below 1990 levels by 2050, in accordance with the state's adopted GHG emissions reduction targets (Contra Costa County, 2024).

City of Piedmont

The City of Piedmont released its Climate Action Plan 2.0 in March 2018, which was amended in 2023, that quantified the City's GHG emissions and established residential and governmental priorities to reduce the City's three largest sources of GHG emissions (City of Piedmont, 2024). The Climate Action Plan 2.0 also includes several specific objectives to support state and local GHG emission reduction goals. Some of these objectives include increasing renewable energy consumption to 100 percent, reducing the risks of extreme heat, and reducing the risks of damage from extreme weather events (City of Piedmont, 2024).

City of Oakland

The City of Oakland released its 2030 Equitable Climate Action Plan in July 2020 that quantified the City's GHG emissions and established action steps toward achieving the local emissions reduction target of 56

percent relative to 2005 levels (City of Oakland, 2024). The City of Oakland also adopted a 2045 Carbon Neutrality Goal, calling for a dramatic reduction in Oakland's GHG emissions and "deep decarbonization" of the building and transportation sectors by 2045. This follows the previous reduction target of 36 percent by 2020 (City of Oakland, 2024).

3.8.3. Environmental Impacts

3.8.3.1. Impact Analysis Approach

All construction- and operation-related emissions are quantified based on the best available forecast of Project activities. The activity assumptions, emission factors, and resulting quantities of emissions appear in the Applicant's PEA Appendix A: Air Quality Calculations (PG&E, 2024), which have been independently reviewed by the CPUC and found to be reasonable. Implementation of APM GHG-1 and APM GHG-2, would further minimize potential impacts.

Table 3.8-2. Applicant Proposed Measures – Greenhouse Gas Emissions

APM	Description
Greenhouse Gas Emissions	
APM GHG-1	**PG&E Minimize GHG Emissions.** PG&E will implement the following to minimize GHG emissions: ■ If suitable park-and-ride facilities are available in the project vicinity, construction workers shall be encouraged to carpool to the job site. ■ The Applicant shall develop a carpool program to the job site. ■ On-road and off-road vehicle tire pressures shall be maintained to manufacturer specifications. Tires shall be checked and re-inflated at regular intervals. ■ Demolition debris shall be recycled for reuse to the extent feasible. ■ The contractor shall use line power instead of diesel generators at all construction sites where line power is available. ■ The contractor shall maintain construction equipment per manufacturing specifications. ■ Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction supervisors will include briefings to crews on vehicle use as part of preconstruction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.
APM GHG-2	**PG&E Minimize SF_6 Emissions.** PG&E will implement the following to minimize SF_6 emissions: ■ Incorporate Moraga Substation modifications into PG&E's systemwide SF_6 emission reduction program. ■ Require that new breakers at Moraga Substation, as applicable, have a manufacturer's guaranteed maximum leakage rate of 0.5 percent per year or less for SF_6. ■ Maintain substation breakers in accordance with PG&E's maintenance standards. ■ Comply with CARB Early Action Measures as the policies become effective.

3.8.3.2. Impact Significance Criteria

The significance criteria below are from Appendix G of the CEQA Guidelines and address potential impacts related to GHG. The criteria are whether the proposed Project would:

- **GHG-1:** Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- **GHG-2:** Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the greenhouse gas emissions?

BAAQMD does not provide a recommended construction-related significance threshold for GHGs. For purposes of this analysis, the CPUC has determined it is appropriate to rely on an approach developed by the South Coast Air Quality Management District (SCAQMD). For construction-related GHGs, SCAQMD recommends that total emissions from construction be amortized over a typical project lifespan of 30 years and added to operational emissions for comparison to the operation-based significance threshold of 10,000 $MTCO_2e$ per year (SCAQMD, 2008). This quantitative threshold matches the BAAQMD threshold for stationary sources and, therefore, may reasonably be used to evaluate the significance of the proposed Project's construction-related GHG emissions. BAAQMD's operational GHG thresholds are applicable to land use projects and plans, however, since the proposed Project is not classified as a land use project, the operational thresholds are not applicable. Courts have ruled that although there are various potential thresholds and methodologies for evaluating project-level GHG emissions consistent with CEQA, use of statewide emission reduction goals is a permissible criterion of significance where substantial evidence and reasoned explanation are provided to close the analytical gap between the level of effort required at one scale (state level) and the level of effort required at another scale (e.g., a project level). The plan to achieve these statewide emission reduction goals is the 2022 Scoping Plan. Therefore, in lieu of operational GHG thresholds to compare project-level GHG emissions to, consistency with the 2022 Scoping Plan and statewide emission reduction goals was assessed.

3.8.3.3. Impacts and Mitigation Measures

Impact GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

Construction

LESS THAN SIGNIFICANT. Construction of the proposed Project would generate GHG emissions over the estimated 35-month construction period resulting from off-road construction equipment and machinery, helicopter activity, vehicular traffic generated by construction workers, and material hauling and disposal. Following project completion, all construction emissions would cease. As shown in Table 3.8-3, approximately 3,519 MTCO2e would be generated during construction of the proposed Project. Amortized over a project lifespan of 30 years, the estimated construction-phase GHG emissions would be equivalent to a rate of 117 MTCO2e per year (PG&E, 2024).

Table 3.8-3. Estimated Construction-Related Greenhouse Gas Emissions

Construction Year	GHG Emissions (MTCO2e/year)
2026	436
2027	2,471
2028	608
2029	4.45

Construction Year	GHG Emissions (MTCO2e/year)
2030	0.72
Total GHG Emissions, Duration of Construction (MTCO2e)	3,519
Total GHG Emissions, Amortized over Typical Project Lifespan (30 years, MTCO2e/year)	117
Significance Threshold	10,000
Exceeds Threshold?	No

Source: (PG&E, 2024; Appendix A)

The proposed Project's annual, amortized construction-related GHG emissions would be 117 MTCO2e per year, which does not exceed the significance threshold adopted by BAAQMD for stationary sources of 10,000 MTCO2e per year. Reduction in GHG emissions due to implementation of APM GHG-1 may further reduce the proposed Project's construction-related GHG emissions, but this potential reduction would be uncertain and is not quantified or included in the emission estimates. Each individual segment would have GHG emissions less than the total estimated construction emissions reported in Table 3.8-3. Construction GHG emissions would not exceed the threshold, and as such, would not have a significant impact on the environment. This impact would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT.Because the Project would involve the rebuilding of existing infrastructure, minimal changes to current operation and maintenance activities is expected. Maintenance and normal operations, including inspections of the proposed Project components, would require use of equipment and vehicles that would use fossil fuels and create GHG emissions along the power lines. PG&E conducts O&M as necessary for routine upkeep of the existing facilities, and as needed for occasional repairs. Ongoing O&M would cause minor amounts of tailpipe GHG emissions similar to those occurring currently. However, with installation of two new SF_6-insulated circuit breakers, the proposed Project would have an increase in operational GHG emissions resulting from potential SF_6 leakage. The increase in the proposed Project's operational GHG emissions is expected to be approximately 14 MTCO2e per year, based on a SF_6 capacity per breaker of 132 pounds, and a presumed annual leakage rate of 0.5 percent, which is consistent with APM GHG-2. The proposed Project's annual GHG emissions, including the amortized construction emissions and the annual increase in operational emissions due to SF_6 leakage, would be approximately 131 MTCO2e per year which would be less than the threshold of 10,000 MTCO2e per year. The proposed Project's GHG emissions created by O&M activities would not change substantially from current baseline levels, and impacts would be less than significant.

Impact GHG-2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing greenhouse gas emissions.

Construction

LESS THAN SIGNIFICANT. The majority of construction emissions would be from mobile sources, the off-road equipment and on-road motor vehicles, that are not directly subject to GHG controls but would be users of transportation fuels from refiners and suppliers that are required to comply with CARB Cap-and-Trade and Low Carbon Fuel Standard regulations to reduce GHG emissions. Helicopters would use aviation fuels that are exempt from the Low Carbon Fuel Standard. The short-term construction-phase GHG emissions would not interfere with the long-term goal of SB 32 to reduce GHG emissions to 40 percent below 1990 levels by 2030. Additionally, as described in Section 3.3, Air Quality, compliance with applicable airborne toxic control measures would ensure offroad construction equipment and on road vehicles would be operated and maintained in an efficient manner which would reduce GHG emissions consistent with the

Bay Area Clean Air Plan's control strategies. Therefore, construction of the proposed Project would not conflict with plans, policies, or regulations adopted for the purpose of reducing GHG emissions, and impacts would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. GHG emissions from operation and maintenance of the proposed Project would not change from the baseline levels as a result of the overhead power line rebuild and placement of 1.2- miles of powerline underground. A minimal increase in GHG emissions would be expected with the replacement of one oil-insulated circuit breaker and one SF_6-insulated circuit breaker with two new SF_6-insulated circuit breakers at Moraga Substation. Emissions from the new circuit breakers would be minimized by the implementation of APM GHG-2. Stationary source emissions of SF_6 would be subject to and required to comply with the CARB regulation for GHG from gas insulated equipment (17 CCR 95350 to 95359). Operation and maintenance of the new and modified facilities would be similar to existing O&M activities, and GHG emissions from O&M activities would not substantially change from baseline levels.

The MTC Plan Bay Area 2050 includes strategies that do not apply directly to the proposed Project. A strategy category that would potentially apply to the proposed Project is reducing risks from hazards. However, wildfire risk reduction and power system upgrades under this category are related to residential building retrofitting and would not apply to proposed Project activities. As such, the strategies in the Plan do not directly influence or affect the proposed Project activities.

California's overall strategy for achieving GHG reductions and statewide carbon neutrality is set forth by the CARB Climate Change Scoping Plan, which identifies decarbonizing the electricity sector as a crucial pillar of achieving carbon neutrality (CARB, 2022). The California Global Warming Solutions Act of 2006 (AB 32) and Senate Bill 32 (SB 32) of 2016 codified the GHG emissions target to 40 percent below the 1990 level by 2030. Subsequently, California's Clean Energy and Pollution Reduction Act of 2015 [Senate Bill 350 (SB 350)], set ambitious 2030 targets for energy efficiency and renewable electricity, among other actions aimed at reducing GHG emissions across the energy and transportation sectors. SB 350 also connects long-term planning for electricity needs with the state's climate targets, with CARB establishing 2030 GHG emissions targets for the electricity sector in general (CARB, 2022). Implementation of the proposed Project would upgrade electric transmission infrastructure and would not disrupt California's ability to increase renewable energy use or achieve statewide renewable energy goals. The proposed Project would be consistent with the goals of the AB 32 Scoping Plan and would not conflict with the energy efficiency and renewable energy targets of SB 350 and SB 100. Therefore, impacts would be less than significant.

3.8.4. Mitigation Measures

No mitigation is necessary.

3.8.5. References

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3.9. Hazards and Hazardous Materials and Public Safety

This section describes existing conditions and potential impacts related to hazards, hazardous materials, and public safety associated with construction, operation, and maintenance of the Project. The analysis concludes that any impacts related to hazards, hazardous materials, and public safety would be less than significant. The Project's potential impacts associated with hazards, hazardous materials, and public safety were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are discussed in more detail in Section 3.9.3. An Environmental Data Resources, Inc. (EDR) report for hazardous sites and wells reported near the project areas was provided as a part of PG&E's Proponent Environmental Assessment (PG&E, 2024).

Potential impacts regarding wildfire are addressed in Section 3.18, Wildfire, and potential impacts regarding transportation and emergency access are discussed in Section 3.15, Transportation. These topics are not addressed in this section.

PG&E has identified six Applicant Proposed Measures (APMs) applicable to hazards and hazardous materials that would be implemented to avoid or reduce impacts. These are discussed in Section 3.9.3.1.

No comments were received during the scoping process related to hazardous materials.

3.9.1. Environmental Setting

As discussed in Section 2.0, Project Description, the proposed Project is located within the City of Orinda, unincorporated areas of Contra Costa County, and the cities of Oakland and Piedmont. The proposed Project would replace approximately 4 miles of overhead power lines with similar overhead lines and would remove approximately 1 mile of overhead power lines and install new lines underground. All lines are between the existing PG&E Moraga Substation within the City of Orinda and the PG&E Oakland X Substation in the City of Oakland. The Project is analyzed in 3 segments. In the Overhead Power Line Rebuild segment, existing power lines would be upgraded by replacing most of existing towers and poles, replacing all conductors, and installing telecommunication components. Within the Overhead Power Line Removal segment, all overhead equipment would be removed, and it would be installed underground, in the Underground Power Line Rebuild segment. The equipment within the substations where the lines terminate would be upgraded to accommodate the conductor upgrades.

The land uses in the Project area include utility, open space, residential, parks, churches, schools, and some commercial land. Information about hazards, hazardous materials, and public safety for the environmental setting was provided in PG&E's Proponent's Environmental Assessment (PEA, PG&E 2024), and has been reviewed in preparing this section. The PEA is not further cited in this section.

3.9.1.1. Airports

In Contra Costa County, the nearest aviation facility to the Project footprint is Sandhill Heliport (81CL) in Orinda, located approximately 5 miles north of the Project. No airport land use compatibility plan associated with Sandhill Heliport was identified.

The nearest airports to the Project in Alameda County are Oakland International Airport (OAK), approximately 5.5 miles to the south, and Hayward Executive Airport (HWD), approximately 10 miles to the southeast. The Alameda County Community Development Agency (ACCDA) has prepared land use compatibility plans for both OAK and HWD.

OAK, initially constructed in 1927, is a primary commercial service airport owned and operated by the Port of Oakland, providing commercial passenger, general aviation, and cargo services. In 2019, OAK accommodated approximately 13.4 million passengers annually and approximately 242,000 total aircraft

operations (takeoffs and landings) by passenger airlines, cargo airlines, general aviation aircraft, and military. The Project is outside the OAK Airport Influence Area (AIA).

HWD was constructed in 1942 as an army airfield; the City of Hayward assumed operational control in 1947. The airport provides general aviation services. In 2019, the airport had a total of 116,753 aircraft operations. The Project is located outside the Hayward Executive Airport AIA.

3.9.1.2. Metallic Objects

Metallic objects such as ungrounded wire fences, residential rain gutters, or nearby telecommunication lines and pipelines can accumulate electrical charge from a live power line through induced current and have the potential to create a shock hazard for nearby workers or members of the public in proximity to these metallic objects.

3.9.1.3. Schools

Under CEQA, schools are considered sensitive receptors and the potential for Project-related hazardous material impacts regarding schools is analyzed. There are 17 schools within approximately 0.25 miles of the Project: one school in Orinda, 15 in Oakland, and one in Piedmont. Refer to Table 3.13-2 (Schools within 0.25 Miles of the Proposed Project) in Section 3.13.1.2, Public Services.

3.9.1.4. Existing Hazardous Materials and Sites

As noted in the introduction to Section 3.9, an EDR report was included in the PEA for the Project. The EDR report provides information on potential hazardous sites within a 0.25-mile buffer of the Project components; the buffer includes all areas of potential ground disturbance. The EDR report identified multiple sites that are listed in regulatory agency databases for past or current hazardous materials use, hazardous waste generation, spills of hazardous chemicals, or the presence of petroleum hydrocarbon tanks. It includes both current and former hydrocarbon tanks, aboveground and underground tanks, and tanks with and without reported releases to the environment.

No Department of Toxic Substances Control (DTSC)-regulated sites[32] were identified within the 0.25-mile buffer. Four Regional Water Quality Control Board (RWQCB)-regulated sites[33] are listed in the EDR report; the PEA included a review of information contained in the State Water Resources Control Board (SWRCB) GeoTracker database. The review was focused on sites within 500 feet of project locations where planned construction activities include ground excavation, either for the replacement of existing power line structures or the installation of underground power lines, because hazardous sites within this radius are considered to have the most potential for impacting the Project.

The EDR report lists one open RWQCB Leaking Underground Storage Tank (LUST) site[34] that is located within 0.25 mile of Project components; however, this site is not located within 500 feet of locations where excavation would occur. Nine LUST sites that have undergone regulatory closure were identified within the 0.25-mile buffer, four of which are located within 500 feet of project excavation areas.[35]

[32] DTSC regulated sites are locations that are subject to oversight and regulation by the DTSC due to the presence of hazardous materials. These sites are monitored to ensure compliance with environmental laws and to protect public safety.

[33] RWQCB sites are locations that are subject to the jurisdiction of the RWQCB due to their impacts on water quality.

[34] An open RWQCB site is a location where an underground storage tank has leaked hazardous materials and is undergoing investigation, cleanup, or monitoring under the oversight of the RWQCB.

[35] An additional closed Cleanup Program Site (CPS) site mapped within 0.25 mile of the Project in the EDR report (site 1280) was determined to be mis-mapped based on information in the GeoTracker database and is located more than 2 miles from the Project.

The EDR report lists two open RWQCB Cleanup Program Sites (CPS) that are located within 0.25 mile of the Project; neither CPS is located within 500 feet of project excavation areas. One closed CPS[36] is located within 0.25 mile of the Project, but this site is not located within 500 feet of project excavation areas.

The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies, and developers to comply with the CEQA requirements in providing information about the location of hazardous materials release sites (DTSC, 2025). There are eight Cortese List sites located within 0.25 mile of the Project. These sites include J & M Service Station, a Chevron gas station, a City of Oakland Corporation Yard, a Mobil Gas Station, Shell #13-5689, Unocal, a private residence, and Glenview Elementary. All of these sites, except for the Mobil Gas Station, are listed as closed cases. The Mobil gas station is under remediation, however further investigation determined that the address listed for the site is not within 0.25 miles of the proposed Project (PG&E, 2024). These sites also are listed as LUST sites. Four of the LUST sites are located within 500 feet of the project excavation areas, as discussed in greater detail in the following paragraphs.

No Superfund sites are located within 0.25 mile of the Project.

Hazardous Sites Near Project Facilities

Of the sites located within 500 feet of project excavation, those that are both identified as historical RECs[37] and are included within the SWRCB's GeoTracker database are shown on Figure 3.9-1 (Hazardous Materials Sites Located within 500 Feet of Project Evacuation Areas) in Appendix A and described in the following paragraphs. These sites are included on the Cortese List. These are the sites that have the most potential to affect the Project, Project workers, or people in surrounding areas. No RWQCB regulated sites with an active or inactive status are in the direct vicinity of project excavation areas. In addition, no DTSC regulated sites are located within 0.25 miles of the Project.

City of Oakland Corporation Yard. This site is Located at 5921 Shepherd Canyon Road, Oakland (site AR270 on Figure 3.9-1) is located approximately 300 feet from the proposed overhead rebuild segment. This site is located on the north side of Shepherd Canyon Road. A release of petroleum hydrocarbons caused by underground storage tank (UST) overfilling and a dispenser pipe leak was reported. One 2,000-gallon gasoline UST, one 550-gallon diesel UST, and associated pipelines were removed in 1990. Two additional USTs with unknown contents were permitted for removal but were not located. Investigations consisted of a soil investigation in 1990 and a soil and groundwater investigation in 1999. Petroleum hydrocarbons were detected in soil below the former tanks in 1990. Petroleum hydrocarbon constituents sampled in a monitoring well near the former gasoline UST exceeded RWQCB environmental screening levels (ESLs) in 1999 but significantly declined by 2011. Sampling downgradient of the UST pits in 2011 indicated trace or undetectable levels of total petroleum hydrocarbons in soil and no detections in groundwater.

The case was closed in October 2014 under oversight of the Alameda County Department of Environmental Health (ACDEH) consistent with the SWRCB Low-Threat Underground Storage Tank Case Closure Policy. Site management requirements limit future land use to the current commercial land use because of potential vapor intrusion to indoor air in any future residential buildings. The ACDEH will reevaluate the case if any redevelopment occurs. Any excavation or construction activities in areas of residual contamination require appropriate worker health and safety procedures. The site continues to operate as a City of

[36] A closed CPS site is a location where the investigation and cleanup of contamination has been completed to the requirements of the RWQCB.

[37] A historical REC is a previous release of hazardous substances or petroleum products affecting a subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities that meets unrestricted use criteria established by the applicable regulatory authority or authorities without subjecting the subject property to any controls (for example, activity and use limitations or other property use limitations) (PG&E, 2024).

Oakland corporation yard. The area of former USTs and residual contamination is located more than 240 feet southeast of the nearest overhead power line structure that would be replaced.

Chevron #9-3415. This historic gas station is located at 4500 Park Boulevard, Oakland (site O87 on Figure 3.9-1) and is approximately 120 feet from the proposed underground segment of the Project. This site, located on the south side of Park Boulevard to the southeast of the proposed underground power lines, is listed in the GeoTracker database as a LUST site. The site has historically operated as a gasoline station since at least 1933. One 1,000-gallon waste oil UST and product lines from three gasoline USTs were removed in 1994 and 275 cubic yards of soil were removed at an undocumented date and disposed of offsite. Soil investigations were conducted in 1994, 1995, and 2000, and groundwater was not encountered to 30 feet below ground surface (bgs). The case was closed in February 2002 under oversight of the ACDEH. Residual soil contamination measured in 1994 and 1995 included petroleum hydrocarbon constituents, tetrachloroethene (PCE), and 1,1,1-trichloroethane.

The closure document requires a site safety plan for construction workers if excavation or trenching is proposed in the vicinity of residual soil and groundwater contamination at the site. Chevron conducted a subsequent Baseline Site Assessment in 2006 prior to the sale of the property. The investigation findings were consistent with previously reported residual concentrations and were below applicable action levels for petroleum hydrocarbon constituents and PCE. The site continues to operate as a gasoline station and auto repair shop. The area of the former UST and residual contamination is located approximately 100 feet southwest of the nearest planned excavation area along the proposed underground power line route. A site safety plan would not be required for the proposed Project.

Desert Petroleum/J & M Service Station #793. This historic gas station is located at 4035 Park Boulevard, Oakland (site H59 on Figure 3.9-1) is approximately 80 feet from the underground segment of the proposed Project. The area of the former USTs and residual contamination is located approximately 50 feet northeast of the nearest planned excavation area along the underground power line route. This site, located on the north side of Park Boulevard to the northwest of the proposed underground power lines, is listed in the GeoTracker database as a LUST site and Non-Case Information Site. At this former gasoline station, LUSTs impacted soil, groundwater, and soil vapor. One 8,000-gallon gasoline UST, one 10,000-gallon gasoline UST, one 6,000-gallon gasoline UST, one 500-gallon waste oil UST, and one 200-gallon waste oil UST were removed in 1994 and 1995. Site investigations and cleanup were overseen by the San Francisco Bay RWQCB. During site cleanup and remediation, 15 groundwater monitoring wells were installed, and USTs and associated piping, 1,866 cubic yards of impacted soils, and 2.3 million gallons of impacted groundwater were removed and hauled offsite.

The case was closed in January 2015 under the SWRCB Low-Threat Underground Storage Tank Case Closure Policy. Residual contamination is present in soil 14 feet bgs. A subsurface investigation was conducted in 2022 to assess residual contamination prior to residential redevelopment. Volatile fuel constituents were not detected above corresponding SWRCB Low-Threat Underground Storage Tank Case Closure Policy screening levels or San Francisco Bay RWQCB human health risk levels (HHRLs) for residential vapor intrusion. PCE was detected in one soil vapor sample below the corresponding RWQCB HHRL for residential vapor intrusion. Chlorinated solvents were not detected in groundwater, present at approximately 30 feet bgs. The RWQCB has determined that the site is suitable for residential reuse. A site safety plan is not required (GeoTracker, 2023).

Apartment Building. This residential building (formerly a gas station site) is at 3761 Park Boulevard Way, Oakland (site T10000000818 on Figure 3.9-1) and is located approximately 350 feet from the Oakland X Substation. This site, located on the northeast side of Park Boulevard Way to the northeast of the proposed underground power lines, is listed in the GeoTracker database as a LUST site. The site was formerly occupied by a gas station from approximately 1950 to 1970. Records indicate that one unspecified fuel UST of unknown size and associated piping was removed in approximately 1970. A soil and grab

groundwater investigation was conducted in 2008, and a soil, soil vapor, and grab groundwater investigation was conducted in 2009. Groundwater was found at 50 to 60 feet bgs. Soil and groundwater were impacted by residual petroleum hydrocarbons in the vicinity of the former UST, but no volatile organic compounds were detected in soil vapor. The residual contamination was not considered to pose a significant threat to water resources, public health and safety, or the environment, and was expected to decrease over time as a result of biodegradation and natural attenuation processes. The case was closed in August 2009 under oversight of the ACDEH. The site is currently developed as a multi-tenant apartment complex. The area of the former UST and residual contamination is located approximately 100 feet southeast of the nearest planned excavation area along the underground power line route.

Spill Events

The EDR report identified nine spill incidents listed on the California Hazardous Material Incident Reporting System database that were located within 500 feet of project excavation. Seven of these incidents (sites B6, 15, 181, 440, BT471, BT472, and 484 shown on Figure 3.9-1) involved releases of 165 to 3,300 gallons of sewage occurring between 2010 and 2023. Most releases were to storm drains, including several reaching Sausal Creek. All but one were contained, except one that was only partially recovered. Although these incidents occurred near project excavation areas, they are unlikely to impact the Project for several potential reasons: the spills were confined to storm drains and Sausal Creek, the nature of the sewage materials, the containment and recovery actions taken, and the time elapsed since the releases.

Another incident (site Z193 on Figure 3.9-1) involved the release of 200 gallons of mineral oil under a transformer concrete cap at Oakland X Substation in 2008, which was fully contained. This incident is unlikely to impact Project construction because the release was fully contained.

Finally, an unspecified release of an unreported substance in 1989 (site AM237 on Figure 3.9-1) is unlikely to impact the Project because of the time elapsed since the incident and because its location is 200 feet from the proposed underground route of the Project.

Historic Auto Service and Dry Cleaner Sites

In addition to the known historical sites, the EDR report identified six additional potential historical auto service/gasoline station sites and seven current or historical dry cleaner facilities within 500 feet of project excavation areas. Historical auto service/gasoline stations are commonly associated with leaks from fuel or waste oil USTs. Also, historically, dry cleaners are commonly associated with leaks or spills from solvent tanks or associated equipment operations. Therefore, the potential for undocumented hazardous materials releases from these sites cannot be ruled out. Other than closed LUST cases associated with two of the historical auto service/gasoline station sites, there are no documented records of releases of hazardous materials or investigations at these sites. These sites are listed in Table 3.9-1 and shown on Figure 3.9-1 (Hazardous Materials Sites Located within 500 Feet of Project Evacuation Areas). Besides these auto service/gasoline station and dry cleaner facilities, the EDR report identified 11 additional historical auto service/gasoline station sites and nine additional current or historical dry cleaner sites located within 0.25 miles of the Project but greater than 500 feet from excavation areas.

Table 3.9-1. Historic Auto Service and Dry Cleaner Sites with 500 Feet of Project Excavation Areas

Site ID (Owner)	Address	Historic Use (Date)
Site O103 - (Texaco Service Station)[a]	4500 Park Boulevard, Oakland	Gasoline service station (1933, 1943, 1971 to 2014)
Site F116 - (Hanrahan Toms Chevron Service)	4239 Park Boulevard, Oakland	Gasoline service station (1971 to 1976)
Site F23 - (Payless Cleaners)	4236 Park Boulevard, Oakland	Laundry 1967; garment pressing and cleaners' agent (1985 to 1988)

Site ID (Owner)	Address	Historic Use (Date)
Site G25 - (B&G Cleaners)	4209 Park Boulevard, Oakland	Cleaner and dyer (1967)
Site G36 - (Oak Hillside Cleaners)	4208 Park Boulevard, Oakland	Dry cleaning plant, except rugs (1992 to 2014); dry cleaning and laundry service (since at least 2008)
Site H38 - (Arena S Service Station)	4036 Park Boulevard, Oakland	Gasoline and oil service station (1928, 1933)
Site H65 - (J&M Beacon Service Station) [b]	4035 Park Boulevard, Oakland	General automotive repair shop (1983 to 1988), gasoline service station (1986 to 1989)
Site J42 - (Moore, Mrs. Carmen)	3820 Park Boulevard, Oakland	Clothes presser and cleaner (1933)
Site J44 - (Park Jong, Alpine Cleaners)	3800 Park Boulevard, Oakland	Drycleaning plant, except rugs (1992 to 2014); drycleaning and laundry service (since at least 2018)
Site X149 - (Hastings C F, Owensby J W) [c]	3761 Park Boulevard, Oakland	Gasoline and oil service station (1933, 1943)
Site BA409 - (Thirteenth Avenue Cleaners)	3727 13th Avenue, Oakland	Cleaner and dyer (1967), carpet and upholstery cleaning (1982 to 1988)
Site CK559 - (Richards, Frank)	1155 Excelsior Avenue, Oakland	Cleaners, dyer and pressers (1925, 1943)
Site EV967 - (Oekers, Clarence)	1036 Hollywood Lane [Avenue], San Leandro [Oakland]	Gasoline and oil service station (1940)

[a] Also identified as a closed LUST site (Chevron #9-3415).
[b] Also identified as a closed LUST site (Desert Petroleum / J & M Service Station #793).
[c] Also identified as a closed LUST site (Private Residence).

3.9.1.5. Project-Related Hazardous Materials

Hazardous Material Use

Construction of the Project would require the use of hazardous materials, such as fuels, lubricants, and cleaning solvents. The total amounts of these materials expected to be used during the duration of the Project are shown in Table 3.9-2. These would be used to power internal combustion engines, lubricate internal combustion engines and other construction equipment and hardware, and clean vehicles and equipment. It is anticipated that no pesticides or herbicides will be needed during construction. If needed, project related hazardous material (see Table 3.9-2) will be transported in specialty trucks or in approved containers.

Table 3.9-2. Types, Uses, and Volumes of Hazardous Materials Used in Construction

Hazardous Material	Use	Total Approximate Volume (gallons)
Diesel	Engine fuel	309,231
Gasoline	Engine fuel	35,422
Jet fuel	Fuel	38,119
Hydraulic Fluids/Lubricants	Engine and equipment lubrication and powering of hydraulic equipment	19,139
Other Construction Fluids (solvents)	Cleaning, lubricating hardware, etc.	957

Hazardous materials identified would not be stored onsite. All fueling and storage would occur offsite.
Hydraulic fluids and lubricants volumes are anticipated to be 5% of total fuel volumes.
Other construction fluids volumes are anticipated to be 5% of hydraulic fluids and lubricants volumes.

When not in use, hazardous materials would be properly stored to prevent drainage or accidents, per compliance with the California Hazardous Waste Control Law (HWCL) (see Section 3.9.2.2), and as

instructed by Safety Data Sheets that would be provided to onsite personnel in case of emergency. The anticipated volume of hazardous liquid materials such as fuel is calculated based on onboard amounts expected to be used by equipment and vehicles. These hazardous liquid materials would not be stored onsite at the total approximate volume. As fuel for construction equipment is needed, they would be obtained by construction vehicles at a gas station. Other materials such as hydraulic fluids or liquids would be ordered at volumes that are appropriate for storage on a maintenance truck and dispensed at one or more staging areas during limited maintenance activities such as topping of fluids.

Fuel trucks would bring diesel fuel for generators as needed, and diesel fuel would not be stored onsite. Per California's HWCL the threshold quantity for liquids is 550 gallons. Storage of fuel would not occur at or near this quantity. Oil changes and full maintenance activities would occur at a PG&E yard, contractor yard, or licensed mechanics shop outside of the Project footprint. Neither a Spill Prevention, Control, and Countermeasure (SPCC) Plan nor a Hazardous Materials Business Plan (HMBP) is expected to be required (in accordance with 40 Code of Federal Regulation Parts 112.1-112.7 and California Health and Safety Code [CA HSC] Section 25507, respectively). If a contractor elects to have larger volumes on site, plans would be developed as appropriate.

Project operations and maintenance activities would be part of PG&E's routine operations and maintenance, as is currently done for the existing power lines. Operations and maintenance activities would occur for a similar line length and use typical operations and maintenance vehicles and equipment.

Hazardous Waste Generated

Limited hazardous waste would be generated during both Project construction and operations and would be handled and disposed of in accordance with local, state, and federal requirements. Typical hazardous waste derived during construction may include limited quantities of used oil, containers, rags, and other used petroleum products. In addition, waste from existing steel tower components, concrete footings, and treated wood poles would be generated during replacement.

Steel tower components are not expected to have lead paint. If testing, in compliance with California Code of Regulations Title 22, § 66261.20, shows that steel tower components have lead paint, the components would be taped with duct tape at the location where metal pieces are cut before they are cut to avoid paint chipping, and they would be removed and disposed of at a licensed waste facility as required under California's HWCL.

Concrete footings, poles, and towers to be removed would be tested for asbestos and would require notification to the Bay Area Air Quality Management District. Removal of structures containing asbestos could result in an airborne release and inhalation and exposure to workers. If the structures contain asbestos, they would be removed and disposed of at a licensed waste facility consistent with applicable regulations.

Treated wood waste has the potential to be classified as hazardous waste if it contains elevated levels of arsenic, chromium, copper, pentachlorophenol, or creosote. Treated wood waste often can be visually identified by tags or markings on the wood, when cut staining is visible around the perimeter only, or by discoloration or odor. If encountered, treated wood waste would be managed in accordance with applicable California and federal regulations. PG&E would dispose of utility-generated waste, including treated wood waste, under the Hazardous Waste Fee Health and Safety Code (CA HSC Chapter 6.5, Section 25143 et seq.). This law requires that the wood waste be disposed of in a composite-lined portion of a municipal solid waste landfill that meets requirements imposed by the state policy adopted pursuant to Section 13140 of the Water Code and regulations adopted pursuant to Sections 13172 and 13173 of the Water Code. Further, the solid waste landfill used for disposal is authorized to accept the wood waste under waste discharge requirements issued by the RWQCB pursuant to Division 7 (commencing with Section 13000) of the Water Code.

3.9.2. Applicable Regulations, Policies, and Standards

3.9.2.1. Federal

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) grants the EPA the authority to control hazardous waste from "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. Subtitle D of the RCRA is dedicated to non-hazardous solid waste, Subtitle C is dedicated to hazardous solid waste, and Subtitle I is dedicated to underground storage tanks. Solid waste includes solids, liquids, and gases and must be discarded to be considered waste. Under RCRA (42 USC Section 6901 et seq.), individual states may implement their own hazardous waste programs in lieu of RCRA if the state program is at least as stringent as the federal RCRA requirements. The federal government approved California's RCRA program, called the Hazardous Waste Control Law (HWCL), in 1992. In California, the RCRA program is administered by the California Environmental Protection Agency (CalEPA), DTSC.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC Chapter 103) and associated Superfund Amendments provide the EPA with the authority to identify hazardous sites, to require site remediation, and to recover the costs of site remediation from polluters. CERCLA also enabled the revision of the National Oil and Hazardous Substances Pollution Contingency Plan, also known as the National Contingency Plan (NCP). The NCP provides the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants.

Clean Water Act

The CWA gives EPA the authority to regulate the discharge of pollutants and hazardous materials into the waters of the United States. As part of the CWA, EPA oversees and enforces the oil pollution prevention regulation (40 CFR Part 112). The regulations describe the requirements for facilities to prepare, amend, and implement SPCC plans to describe a comprehensive spill prevention program that minimizes the potential for discharges from specific sources, such as oil-containing transformers.

Federal Water Pollution Control Act

The EPA designates hazardous substances under the federal Water Pollution Control Act (40 CFR Chapter I, Subchapter D, Parts 116 and 117) and determines quantities of designated hazardous substances that must be reported (40 CFR Part 116) or that may be discharged into waters of the United States (40 CFR Part 117).

U.S. Department of Transportation Hazardous Materials Regulations

The U.S. Department of Transportation (DOT) Hazardous Materials Regulations (Title 49 CFR Parts 100 185) cover all aspects of hazardous materials packaging, handling, and transportation.

Federal Aviation Administration Regulations

14 CFR Section 77.9 Structure Height. The Federal Aviation Administration (FAA) regulates the safe use and preservation of navigable airspace. The FAA must be notified of any structures located in the airspace of an airport as defined in 14 CFR Section 77.9 (b)(1), (2), and (3), or new structures taller than 200 feet in height, to confirm that the proposed structures would not pose a threat to safety.

14 CFR § 133.33 Operating Rules Regarding Helicopter Use. The holder of a Rotorcraft External-Load Operator Certificate may conduct external-load operations over congested areas if those operations are conducted without hazard to persons or property on the surface and comply with the following:

> (1) The operator must develop a plan for each complete operation, coordinate this plan with the responsible Flight Standards office for the area in which the operation will be conducted, and obtain approval for the operation from that office. The plan must include an agreement with the appropriate political subdivision that local officials will exclude unauthorized persons from the area in which the operation will be conducted, coordination with air traffic control, if necessary, and a detailed chart depicting the flight routes and altitudes.
>
> (2) Each flight must be conducted at an altitude, and on a route, that will allow a jettisonable external load to be released, and the rotorcraft landed, in an emergency without hazard to persons or property on the surface.

3.9.2.2. State

Hazardous Waste Control Law

The Hazardous Waste Control Law (HWCL) (CA HSC Chapter 6.5, Section 25100 et seq.) authorizes CalEPA and the DTSC, a department within CalEPA, to regulate the generation, transport, treatment, storage, and disposal of hazardous wastes. DTSC also can delegate enforcement responsibilities to local jurisdictions that enter into agreements with DTSC for the generation, transport, and disposal of hazardous materials under the authority of HWCL. Businesses that store more than threshold quantities of hazardous materials must prepare an HMBP, which includes spill prevention and response provisions.

Hazardous Air Emissions Near Schools

California Public Resources Code (PRC) § 21151.4 states that an environmental impact report shall not be certified for any project involving the construction or alteration of a facility within one-fourth of a mile of a school that might reasonably be anticipated to emit hazardous air emissions, or that would handle an extremely hazardous substance or a mixture containing extremely hazardous substances in a quantity equal to or greater than the state threshold quantity specified pursuant to subdivision (j) of Section 25532 of the Health and Safety Code, that may pose a health or safety hazard to persons who would attend or would be employed at the school.

Hazardous Substance Account Act

The Hazardous Substance Account Act (HSAA) (CA HSC Chapter 6.8, Section 25300 et seq.) is California's equivalent to CERCLA. It addresses hazardous waste sites and apportions liability for them. The HSAA also provides that owners are responsible for the cleanup of such sites and the removal of toxic substances, where possible.

The two state agencies with primary responsibility for enforcing federal and state regulations related to hazardous material transport and responding to hazardous materials transportation emergencies are the California Highway Patrol and California Department of Transportation, respectively.

Occupational Safety and Health

The California Division of Occupational Safety and Health (CalOSHA) assumes primary responsibility for developing and enforcing workplace safety regulations within the state per California Code of Regulations (CCR) Title 8. CalOSHA standards are more stringent than federal OSHA regulations and take precedence. Section 1518 of the California Public Resources Code requires that suitable protection equipment or devices be provided or used on or near energized equipment for the protection of employees where there is a recognized hazard of electrical shock or burns.

Hazardous Materials Management

The California Office of Emergency Services is the state office responsible for establishing emergency response and spill notification plans related to hazardous materials accidents. Title 26 of the CCR is a compilation of the chapters or titles of the CCR that are applicable to hazardous materials management.

Porter-Cologne Water Quality Control Act

As discussed in more detail in Section 3.11, Hydrology and Water Quality, the Porter-Cologne Water Quality Control Act (California Water Code, Division 7) is the provision of the California Water Code that regulates water quality in California and authorizes the SWRCB and nine RWQCBs to implement and enforce the regulations. The Porter-Cologne Act provides several means of enforcement for unauthorized discharge of pollutants to waters of the state, including cease and desist orders, cleanup and abatement orders, administrative civil liability orders, civil court actions, and criminal prosecution. The Project area is under the jurisdiction of the San Francisco Bay RWQCB (Region 2).

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

The Unified Program (CCR Title 27) was mandated by the state of California in 1993. The Unified Program was created to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities for six hazardous materials programs. The program has six elements, including:

- Hazardous Waste Generators and Hazardous Waste On-site Treatment
- Underground Storage Tanks
- Aboveground Petroleum Storage Act
- Hazardous Materials Release Response Plans and Inventories
- California Accidental Release Prevention
- Uniform Fire Code Hazardous Materials Management Plans and Hazardous Materials Inventory Statements

At the local level, implementation of a Unified Program is accomplished by identifying a Certified Unified Program Agency (CUPA) that coordinates all of these activities to streamline the process for local businesses. The Contra Costa County Environmental Health and the ACDEH are approved by CalEPA as the CUPA for their respective counties.

Hazardous Waste Testing

The California Code of Regulations Title 22, § 66261.20 outlines the requirements for sampling and sample management of hazardous waste. These requirements include that sampling and sample management of wastes and other materials for analysis and testing pursuant to this article shall be in accord with the sampling planning, methodology and equipment, and the sample processing, documentation and custody procedures specified in chapter nine of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, 3rd edition, U.S. Environmental Protection Agency, 1986. In addition to the sampling methods in chapter nine of SW-846, the Department will consider samples obtained using any of the other applicable sampling methods specified in Appendix I of the chapter to be representative samples.

Hazardous Waste Fee Health and Safety Code

The California Hazardous Waste Fee Health and Safety Code (HSC) S, Chapter 6.5, Section 25143 et seq., provides definition and guidance on wood waste and its disposal. Wood waste is defined in part as poles, crossarms, pilings, and fence posts that have been previously treated with a preservative.

Wood waste materials removed from electric, gas, or telephone service are exempt from the requirements for disposal provided certain conditions are met, including:

- If the wood waste is not subject to regulation as a hazardous waste under a federal act and it is disposed of in a composite-lined portion of a municipal solid waste landfill that meets any requirements imposed by the state policy adopted pursuant to Section 13140 of the Water Code and regulations adopted pursuant to Sections 13172 and 13173 of the Water Code.
- If the solid waste landfill used for disposal is authorized to accept the wood waste under waste discharge requirements issued by the RWQCB pursuant to Division 7 (commencing with Section 13000) of the Water Code.

Asbestos Demolition

The Bay Area Air Quality Management District, per Regulation 11 Rule 2, regulates the demolition and renovation of buildings and structures that may contain asbestos, and the manufacture of materials known to contain asbestos. The Air District must be notified at least 10 business days before:

- Any renovation involving the removal of 100 sq. ft. or more, 100 linear ft. or more, or 35 cubic feet or more of asbestos.
- Every demolition regardless of asbestos content.

California Water Code

Section 13140. The state board shall formulate and adopt state policy for water quality control. Such policy shall be adopted in accordance with the provisions of this article and shall be in conformity with the policies set forth in Chapter 1

Section 13172. To ensure adequate protection of water quality and statewide uniformity in the siting, operation, and closure of waste disposal sites, except for sewage treatment plants or those sites which primarily contain fertilizer or radioactive material, the state board shall do all of the following:

> (a) Classify wastes according to the risk of impairment to water quality, taking into account toxicity, persistence, degradability, solubility, and other biological, chemical, and physical properties of the wastes.
>
> (b) Classify the types of disposal sites according to the level of protection provided for water quality, taking into account the geology, hydrology, topography, climatology, and other factors relating to ability of the site to protect water quality.
>
> (c) Adopt standards and regulations to implement Section 13226 and 13227.
>
> (d) Adopt standards and regulations for hazardous waste disposal sites which apply and ensure compliance with all applicable groundwater protection and monitoring requirements of the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. Sec. 6901 et seq.), any federal act, enacted before or after January 1, 1989, which amends or supplements the Resource Conservation and Recovery Act of 1976, any federal regulations adopted before or after January 1, 1989, pursuant to the Resource Conservation and Recovery Act of 1976, as amended, together with any more stringent requirements necessary to implement this division or Article 9.5 (commencing with Section 25208) of Chapter 6.5 of Division 20 of the Health and Safety Code.

Section 13173. Designated waste" means either of the following:

> (a) Hazardous waste that has been granted a variance from hazardous waste management requirements pursuant to Section 25143 of the Health and Safety Code.

(b) Nonhazardous waste that consists of, or contains, pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of the waters of the state as contained in the appropriate state water quality control plan.

Rules for Overhead Electric Line Construction

Under Section 35 of General Order (GO) 95, the California Public Utilities Commission (CPUC) regulates all aspects of design, construction, operation, and maintenance of electrical power lines and fire safety hazards for utilities subject to its jurisdiction, including PG&E.

3.9.2.3. Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E is not subject to local (city and county) discretionary regulations except for CUPAs with respect to hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process. Additional local plans and policies regarding emergency response are presented in Section 3.18, Wildfire.

County and City Adopted Emergency Response Plans and Local Hazard Mitigation Plans

The Contra Costa Operational Area Emergency Operations Plan (EOP) provides effective management of response forces and resources in preparing for and responding to situations associated with natural disasters, technological incidents, intentional acts, and national security emergencies. During a disaster or emergency, the emergency management will coordinate emergency response and recovery operations; coordinate with appropriate federal, state, and other local government agencies; establish priorities and resolve conflicting demands for support; prepare and disseminate emergency public information to alert, warn, and inform the public; and disseminate damage information and other essential data.

The Alameda County EOP is the base plan that governs the roles and responsibilities of Alameda County in times of extraordinary emergency or disaster. It establishes the foundational policies and procedures that define how the County will effectively prepare for, respond to, recover from, and mitigate natural or human-caused disasters. The EOP identifies emergency response policies, describes the emergency response and recovery organization and activation, and assigns specific roles and responsibilities to County departments, agencies, and community partners.

The 2024 Contra Costa County Local Hazard Mitigation Plan (LHMP), which includes an annex for the City of Orinda, focuses on enhancing community resilience to various hazards (Contra Costa County, 2024c). The plan emphasizes the importance of planning and preparation for potential emergencies. The plan guides decision-makers in allocating resources to minimize the effects of hazards and integrates with existing planning mechanisms like building codes and zoning regulations.

The Alameda County LHMP focuses on reducing risks from various natural and human-caused disasters (Alameda County, 2021). The plan emphasizes actions like community preparedness, land use planning, and infrastructure improvements to mitigate the impact of hazards.

The City of Oakland LHMP addresses its overall hazard mitigation strategy (City of Oakland, 2021). The LHMP highlights the importance of identifying and maintaining key evacuation routes, especially in high fire hazard zones. In the Oakland Hills, roads marked with double yellow lines are designated as major egress routes, emphasizing their importance during emergencies.

The City of Piedmont's Annex to the 2010 Association of Bay Area Governments (ABAG) Local Hazard Mitigation Plan addresses various hazards (City of Piedmont, 2010). Specifically, the plan references the city's existing Emergency Operations Plan, which details procedures, duties, and responsibilities for each

department during emergencies. The plan also emphasizes the importance of integrating mitigation efforts with existing planning mechanisms like building and zoning regulations.

County Departments of Environmental Health

Contra Costa County Environmental Health, under the CUPA Program, also enforces state regulations governing hazardous materials storage, hazardous waste generators, and hazardous substance USTs. The ACDEH, under the CUPA Program, enforces state regulations governing hazardous materials storage, hazardous waste generators, aboveground petroleum storage, accidental release prevention, and hazardous substance USTs. Both county departments assist businesses in preparing Hazardous Materials Release Response Plans and Inventories (Business Plans). The departments also perform oversight of investigation and cleanup activities at soil and groundwater contaminated sites, either as lead agencies or under the lead of the SWRCB.

Contra Costa County General Plan – Healthy and Safety Element

The Contra Costa County Health and Safety Element includes goals and policies to protect communities from past and present activities involving the use of hazardous materials and hazardous waste. Goal HS-9, Communities that are protected from hazards associated with use, manufacture, transport, storage, treatment, and disposal of hazardous materials and hazardous waste, including from fossil fuels, chemical refining, and power plants, as well as pipelines, rail lines, and truck transportation includes the following policies:

- **Policy HS-P9.1**. Provide equitable inspection and enforcement of hazardous material and hazardous waste regulations throughout the county.
- **Policy HS-P9.2**. Ensure Contra Costa Hazardous Materials Program staff have an opportunity to review and comment on all entitlement applications for projects involving use of hazardous materials or hazardous waste regardless of whether a land use permit is required pursuant to County Ordinance Code Chapter 84-63 – Land Use Permits for Development Projects Involving Hazardous Waste or Hazardous Material.
- **Policy HS-P9.6**. Require transport of hazardous materials via the safest available method for each material, avoiding Impacted Communities, populated areas, and areas subject to natural hazards whenever possible.
- **Policy HS-P9.8**. Require applicants for projects that involve hazardous materials or hazardous waste to provide clear information in plain language about potential hazards their projects pose to nearby communities at the beginning of the review process. Review and verify this information, make it available to residents, and encourage project applicants to host at least one community meeting to discuss potential hazards.

Goal HS-10, Communities that are protected from the impacts of historical hazardous waste releases, includes the following policies:

- **Policy HS-P10.1**. Coordinate with other agencies in efforts to remediate or treat contaminated surface water, groundwater, and soils in or affecting Impacted Communities.
- **Policy HS-P10**. Require development of contaminated sites to comply with all clean-up plans, land use covenants, and deed restrictions imposed by the DTSC or Regional Water Quality Control Board (RWQCB).

Airport Land Use Plans

The Project is not located within the jurisdiction of any airport land use plans.

City of Orinda General Plan – Safety Element

The City of Orinda adopted a Safety Element in January of 2023. The element identifies potential natural and human-created hazards that could affect the City of Orinda's (City's) residents, businesses, and services. Additionally, the element conveys the City's goals, policies, and actions to minimize the hazards to safety in and around Orinda. Goal S-5, a community with effective citywide management and disposal of hazardous materials and hazardous materials wastes includes the following policies:

- **Policy S-44**. Coordinate with the Contra Costa County Emergency Services Division, Contra Costa County Division of Environmental Health, and MOFD and support efforts to reduce the level of risk from toxic and hazardous materials in Orinda by regulating the transportation and storage of these materials in the community, and through an educational program on the proper disposal methods for hazardous, toxic, and polluting materials.
- **Policy S-45**. Require public disclosure of all companies, facilities, buildings, and properties that use, store, produce, and/or import/export any hazardous materials and wastes in the city. The City will maintain and share its inventory with the Contra Costa County Environmental Health Department.
- **Policy S-46**. Ensure that the use and disposal of hazardous materials in the city complies with local, state, and federal safety standards.
- **Policy S-47**. Encourage use of on-site green infrastructure to protect and enhance community water quality and use of landscape design (e.g., berms, grasslands, plantings) to either contain released hazardous materials or to process and/or absorb pollutants to prevent them from infiltrating the soil or watershed.
- **Policy S-48**. Maintain the organizational framework for implementation of the California Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS).

City of Oakland Safety Element

The City of Oakland adopted the Oakland Safety Element in September of 2023. Chapter 3, Human-Made Hazards includes an overview of existing hazardous sites and clean up sites and goals and policies to address hazardous materials. Goal SAF-5, Minimize Health and Safety Impacts related to the use, storage, manufacture, and transport of hazardous materials includes the following polices:

- **Policy SAF 5.1 Risks from Hazardous Materials Facilities.** Review proposed facilities that would produce or store hazardous materials, gas, natural gas, or other fuels to identify, and require feasible mitigation for, any significant risks. Regulations and enforcement of activities should be disclosed in a set of findings. The review shall consider, at a minimum, the following:
  - Presence of seismic or geologic hazards
  - Presence of other hazardous materials
  - Proximity to residential development and areas in which substantial concentrations of people exist, particularly environmental justice communities already overburdened by pollution, including toxic releases from facilities, cleanup sites, groundwater threats/threats from sea level rise, and other sources; and
  - Nature and level of risk and hazard associated with the proposed project.
- **Policy SAF-5.2 Hazardous Materials.** Through partnerships, programs, and regulations, minimize the potential risks to human and environmental health and safety associated with the past and present use, handling, storage and disposal of hazardous materials. Toxic materials removed as part of cleanup efforts should be disposed of in the least harmful manner so that the impact is not shifted from one vulnerable community to another.

- **Policy SAF-5.3 Site Contamination.** Through enforcement of standard conditions of approval, ensure buildings and sites are or have been investigated for the presence of hazardous materials and/or waste contamination prior to development or if there is reason to believe an existing building or site may contain hazardous materials that pose a threat to possible users. Continue to require remediation and construction techniques for adequate protection of construction workers, future occupants, adjacent residents, and the environment are adequately protected from hazards associated with contamination.
- **Policy SAF-5.4 Hazardous Materials Accidents.** Seek to prevent industrial and transportation accidents involving hazardous materials and enhance the City's capacity to respond to such incidents. Continue to enforce regulations limiting truck travel through certain areas of the city to designated routes and consider updating OMC 10.52.010 to establish time-based restrictions on truck travel on certain routes to reduce the risk and potential impact of accidents during peak traffic hours.
- **Policy SAF-5.5 Study Options to Provide Financing for the Remediation of Environmental Contaminated Sites, with Priority for Affordable Projects.** As grant and loan funding sources are secured, support property owners through technical assistance and financing of characterization and/or remediation of environmentally contaminated sites. Prioritize bioremediation techniques to remove contamination from water sources.

City of Piedmont General Plan – Natural Hazards Element

The City of Piedmont updated the Natural Hazards Element as a part of the City's General Plan as of February 2024. The Element describes known hazardous waste sites within the City's jurisdiction, an overview of common hazardous materials, and goals and policies to address hazardous materials. Goal 20, Minimize the potential for exposure to hazardous materials includes the following policies:

- **Policy 20.1 Hazardous Material Handling, Storage, and Disposal**. Require that the handling, storage, and disposal of hazardous materials complies with all applicable local, county, state, and federal laws. Where appropriate, clearance from the Piedmont Fire Department should be required before businesses licenses are issued.
- **Policy 20.2 Transport of Hazardous Material**. Coordinate and cooperate with nearby cities, regional organizations, and environmental agencies in efforts to control hazardous materials and regulate the transport of hazardous materials on Piedmont streets.
- **Policy 20.3 Hazardous Building Materials**. Work with property owners to remediate hazardous building materials such as asbestos, mercury, and lead. Ensure that any hazardous building materials removed during home renovations are properly handled and disposed.
- **Policy 20.4 Hazardous Material Land Uses**. Maintain planning and zoning procedures which protect the public from possible exposure to hazardous chemicals. New uses which involve storage or handling of hazardous materials should be discouraged.
- **Policy 20.5 Household Hazardous Materials**. Minimize the use of toxic and hazardous household products. As feasible, residents should be encouraged to consider safer alternatives, such as pesticide-free landscaping and non-toxic household cleaners and building materials. Information on proper methods of household hazardous waste disposal should be provided to Piedmont residents.
- **Policy 20.6 Underground Tanks**. Ensure that any underground storage tanks containing hazardous materials are properly installed, used, removed, and monitored.
- **Policy 20.7 Hazardous Waste Sites Cleanup**. Regulate development on sites with known contamination of soil and groundwater, according to maps herein or conclusions of a Phase II environmental report, to ensure that construction workers, future occupants, and the environment, as a whole, are adequately protected from hazards associated with contamination, and encourage cleanup of such sites.

Provide documentation that development sites are not impacted by former/current site uses, including but not limited to, agricultural chemicals, aerially deposited lead, common railroad contaminants, and hazardous material storage and/or use.

3.9.2.4. Federal and State Electrical System Touch Thresholds

Federal Occupational Safety and Health Administration (OSHA) general industry electrical safety standards are published in Title 29 CFR Part 1910.302 through 1910.308, Design Safety Standards for Electrical Systems, and 1910.331 through 1910.335, Electrical Safety-Related Work Practices Standards (National Archives and Records Administration Office of the Federal Register 2021). OSHA's electrical standards are based on the National Fire Protection Association (NFPA) codes and standards: NFPA 70 – National Electrical Code and NFPA 70E – Standard for Electrical Safety in the Workplace.

CalOSHA regulations on electrical safety require California employers to provide workers with a safe and healthful workplace. These regulations are contained in Title 8 of the CCR. Most of the electrical health and safety regulations can be found in Chapter 4, Subchapter 5 in the Electrical Safety Orders, Sections 2299 through 2989. CalOSHA regulations on electrical safety are grouped by electrical voltage units. Regulations for low voltage (0 to 600 volts [V]) are given in Sections 2299 to 2599 and regulations for high voltage (greater than 600 V) are given in Sections 2700 to 2989. Section 1518 addresses the safety requirements for the protection of workers and others from electric shock in construction.

The Project would be designed in accordance with CPUC GO 95 guidelines for safe ground clearances established to protect the public from electric shock. All authorized personnel working onsite, during either construction or operations and maintenance, would be trained according to OSHA, CalOSHA, NFPA, and PG&E standards.

3.9.3. Environmental Impacts

3.9.3.1. Impact Analysis Approach

The principal environmental impact involving hazards and hazardous materials associated with the proposed Project relates to the potential mobilization of contaminants that could result in exposure of workers and the public (e.g., excavation and handling of contaminated soil). Hazardous materials in the construction area may require special handling because toxic substances and hazardous waste can create an exposure risk to workers and the public. Exposure could result from spills or accidents or from excavation and transport. Soil contamination may exist within the proposed Project area due to offsite migration of pollutants, unauthorized dumping, and historic or unreported hazardous materials spills or releases Therefore, this analysis examines the materials to be used, how the Applicant would use the materials, how they would be transported, handled, and disposed of, and how the Applicant plans to store the materials on site.

Applicant Proposed Measures

PG&E has identified five Applicant Proposed Measures (APMs) related to hazards, hazardous materials, and public safety. PG&E also proposed one APM related to air quality that is applicable to hazards, hazardous materials, and public safety. Implementation of APMs is considered part of the proposed Project for the purpose of the evaluation of environmental impacts. Table 3.9-3 presents these APMs related to hazards and hazardous materials.

Table 3.9-3 Applicant Proposed Measures – Hazards, Hazardous Materials, and Public Safety

APM	Description
Hazards and Hazardous Materials	
APM HAZ-1: Development and Implementation of Hazardous Material and Emergency Response Procedures	PG&E will implement construction controls, training, and communication to minimize the potential exposure of the public and site workers to potential hazardous materials during all phases of project construction. Construction procedures that will be implemented include worker training appropriate to the worker's role, and containment and spill control practices in accordance with the Stormwater Pollution Prevention Plan (SWPPP) (APM HYD-1).
APM HAZ-2: Emergency Spill Supplies and Equipment	Materials will be available on the project site during construction to contain, collect, and dispose of any minor spill. Oil-absorbent material, tarps, and storage drums will be available on the project site during construction and will be used to contain and control any minor releases of oil. If excess water and liquid concrete escape during pouring, they will be directed to adjacent lined and bermed areas, where the concrete will dry and then be transported for disposal per applicable regulations.
APM HAZ-3: Shock Hazard Safety Measures	All authorized personnel working on site, during either construction or operations and maintenance, will be trained according to PG&E standards. Training will be implemented prior to construction by PG&E or construction contractor safety managers. A record of when the safety training occurred, the safety manager delivering the training and who attended will be stored by the contractor and available for review by PG&E and the CPUC as requested. Training will include identifying electrical hazards, establishing safe distances from the lines, deenergizing lines where appropriate, and use of personal protective equipment such as arc flash-resistant apparel. The public will be excluded from work areas. When power lines are energized during construction and operation, they are suspended in the air at the requisite ground clearance distance that avoids shock or arc flash hazard to the public.
APM HAZ-4: Worker Environmental Awareness Training Program	A worker environmental awareness training program (WEAP) will be developed and implemented prior to construction. The WEAP program will be established to communicate environmental concerns and appropriate work practices to all construction field personnel. The training program will emphasize site specific physical conditions to improve hazard prevention and will include a review of the SWPPP, which also will address spill response and proper best management practice (BMP) implementation. The WEAP program will be provided separately to CPUC staff prior to construction. If it is necessary to store chemicals, they will be managed in accordance with all applicable regulations. Safety data sheets will be maintained and kept available onsite, as applicable.
APM HAZ-5: Potentially Contaminated Soil or Groundwater	Where there is known potential of contaminated soil in the area based on review of databases of hazardous materials and sites, soil sampling will be conducted in project areas prior to or upon commencement of construction. Soil that is known (based on testing prior to or upon commencement of construction) or suspected of being contaminated (based on visual, olfactory, or other evidence identified during construction) and is removed during trenching or excavation activities will be segregated. These segregated soils will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations before disposal at a non-PG&E facility that is licensed to handle the soil based on contaminants identified from test results. If the soil is taken to a PG&E spoils facilities, the soil will be tested, handled, and disposed of in accordance with applicable state and federal regulations. Appropriate handling, transportation, and disposal locations will be determined based on results of the analyses. If the soil is contaminated above hazardous levels, it will be contained and disposed of offsite at a licensed waste facility. In addition, results will be provided to contractor and construction crews to inform them about soil conditions and potential hazards. The location, distribution, and frequency of the sampling locations where there is a known potential of contaminated soil in the area will be determined during final design with the intent to provide adequate representation of the conditions in the construction area. Groundwater is not expected to be encountered during construction. However, if it is encountered, groundwater will be collected during construction, contained, tested, and disposed of in accordance with all applicable regulations. Containment will be done by pumping the groundwater into holding tanks. Noncontaminated groundwater will be released to the

APM	Description
	stormwater drainage system in the area (with prior approval). If the groundwater is contaminated, it will be disposed of at a facility that accepts liquid hazardous waste, in accordance with applicable regulations.
APM AIR-2: Asbestos Management	If any load-bearing structure (poles, towers, concrete pads) is to be removed, this project will require asbestos testing and notification to BAAQMD. Notify the Environmental Field Specialist (EFS) at least 45 days prior to work commencing. BAAQMD must be notified at least 10 working days prior to work (demolition) commencing. If the construction start date changes, notify the EFS immediately as notification to BAAQMD may need to be resubmitted. EFS is responsible for obtaining any necessary permits from BAAQMD prior to the start of work.

3.9.3.2. Impact Significance Criteria

Project impacts related to hazards, hazardous materials, and public safety are evaluated against CEQA significance criteria in Appendix G of CEQA Guidelines. The impact analysis evaluates potential Project impacts during the construction phase and the operations and maintenance phase based on these criteria.

Significance Criteria

CEQA Guidelines Appendix G presents the following impacts related to hazards, hazardous materials, and public safety. The Guidelines ask whether the proposed Project would:

a) Create a significant risk to the public or the environment from the routine use, transport, storage, and disposal of hazardous materials?

b) Create a significant risk to human health and the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials?

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

d) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5?

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 are?

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

g) Expose people or structures to a significant risk of loss, injury, or death from wildland fires?

In addition to the CEQA impact criteria presented in the CEQA Guidelines, the CPUC's separate PEA Checklist includes the following impact questions that relate to hazards:

- Would the project create a significant hazard to air traffic from the installation of new power lines and structures?
- Would the project create a significant hazard to the public or environment through the transport of heavy materials using helicopters?
- Would the project expose people to a significant risk of injury or death involving unexploded ordnance?
- Would the project expose workers or the public to excessive shock hazards?

The following sections explain which impacts are relevant to the proposed Project and analyzed in this section.

CEQA and CPUC PEA Checklist Items Not Analyzed

The following criteria from Appendix G of the CEQA Guidelines related to hazards, hazardous materials, and public safety impacts do not apply to the proposed Project or are analyzed in other sections of the EIR. These issues are not further analyzed for the reasons explained.

a) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

b) Expose people or structures to a significant risk of loss, injury, or death from wildland fires?

Impacts related to emergency response plans and emergency evacuation plans and wildland fires are addressed in in Section 3.18, Wildfire. Impacts related to emergency access and evacuations related to natural disasters are addressed in Section 3.15, Transportation. These potential impacts are not addressed further in this section.

c) Would the project expose people to a significant risk of injury or death involving unexploded ordnance?

No portion of the proposed Project components overlies a current or former military installation. Therefore, no unexploded ordinance is anticipated to be encountered. This potential impact is not addressed further.

d) 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 are?

The proposed Project is not located within an airport land use plan or within two miles of a public airport or public use airport. This potential impact is not addressed further.

CEQA and CPUC Checklist Items Analyzed

Based on the CEQA and CPUC lists, the following criteria were established to identify potential impacts of the proposed Project. Impacts could occur if the Project would:

- **HH-1:** Create a significant risk to the public or the environment from the routine use, transport, storage, and disposal of hazardous materials
- **HH-2:** Create a significant risk to human health and the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials
- **HH-3:** Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school
- **HH-4:** Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5
- **HH-5:** Create a significant hazard to air traffic from the installation of new power lines and structures
- **HH-6**: Create a significant hazard to the public or environment through the transport of heavy materials using helicopters
- **HH-7:** Expose workers or the public to excessive shock hazards

3.9.3.3. Impacts and Mitigation Measures

Impact HH-1: Create a significant risk to the public or the environment from the routine use, transport, storage, and disposal of hazardous materials.

Construction

The proposed Project is not expected to use or store large quantities of hazardous materials. Refer to Table 3.9-2 for the estimated quantities of these materials that would be required for construction of proposed Project. These materials are not anticipated to be stored at or near applicable threshold quantities under the HWCL because they would be acquired as needed. Contaminated soil, power line structures containing lead, concrete footings containing asbestos, and treated wood waste are also hazardous materials that may be encountered during the construction of the proposed Project (see Section 3.9.1.5).

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT. Construction activities associated with the Overhead Power Line Rebuild segment of the Project would include the use of diesel, gasoline, jet fuel, hydraulic fluids and lubricants, and cleaning solvents. Fueling and storage of these hazardous materials would not occur onsite.

Construction would require the replacement of 45 existing power line structures. Structures to be replaced would be tested for lead paint, per California Code of Regulations Title 22, § 66261.20, and if testing shows components have lead paint, the components would be cut to avoid paint chipping. These components would be removed and disposed of at a licensed waste facility. Concrete footings would be tested for asbestos prior to construction, if the footings contain asbestos, they would be removed and disposed of at a licensed waste facility per applicable regulations. If encountered, PG&E would dispose of utility-generated waste, including treated wood waste, under the Hazardous Waste Fee Health and Safety Code (CA HSC Chapter 6.5, Section 25143 et seq.).

PG&E has committed to implementation of four APMs that would address the routine use, transport, and disposal of hazardous materials during construction: APM HAZ-1; APM HAZ-2; APM HAZ-4; and APM AIR-2. APM HAZ-1 requires implementation of construction controls, training, and communication to minimize the potential exposure of the public and site workers to potential hazardous materials during all phases of construction. APM HAZ-2 requires that materials be available on the project site to contain, collect, and dispose of any minor spill. APM HAZ-4 requires a worker training program that would emphasize site-specific physical conditions to improve hazard prevention and review of the SWPP, which would address spill response and best management practice. APM AIR-2 requires asbestos testing and notification to BAAQMD if any load-bearing structure (poles, towers, concrete pads) is to be removed.

The full text of these APMs is presented in Table 3.9-3. These APMs would implement training, testing of potential hazardous materials, and control measures for any potential spills. The low toxicity of the materials associated with the Project and proper handling, storage, and disposal practices of all hazardous materials in accordance with applicable regulations would reduce impacts from the routine use, transport, storage, and disposal of hazardous materials to less than significant.

Overhead Power Line Removal

LESS THAN SIGNIFICANT. Construction activities in this segment would require the removal of 22 existing structures, conductors, and foundations between the Oakland X Substation and the proposed transition structures at Park Boulevard and Estates Drive. These activities would take place in the Cities of Piedmont and Oakland only. No new structures would be installed in this segment.

Construction activities required for removal of existing structures in this segment of the proposed Project would be similar to the structure and conductor removal required for the Overhead Power Line Rebuild segment discussed above. However, in this segment, no new structures would be erected, so construction activities would be more limited. The same APMs discussed above for the Overhead Power Line Rebuild would apply to this segment. These APMs would provide procedures, training, and control measures for hazardous materials. Impacts would be less than significant.

Underground Power Line

LESS THAN SIGNIFICANT WITH MITIGATION. Construction activities for the Underground Power Line segment would include trenching, duct bank installation, vault installation, and cable installation and splicing along an approximately 1 mile stretch of Park Boulevard and Park Boulevard Way between Estates Drive and the Oakland X Substation. Construction activities associated with the Underground Power Line segment would require the removal of approximately 154,589 cubic yards of soil for disposal at an offsite facility.

Multiple sensitive receptors including schools, daycare facilities, and elderly housing are located within 1,000 feet of the proposed Project (see Table 3.3-3 in Section 3.3, Air Quality). See Section 2.3.6 for a full description of the construction activities that would be required for the Underground Power Line segment.

As discussed in Section 3.9.1, multiple historic auto service and dry cleaner sites have existed within 500 feet of areas where excavation would occur (see Table 3.9-1). Four LUST sites are located within 500 feet of the proposed Project excavation areas, as disused in Section 3.9.1.5. These sites have the potential to have contaminated the soil in areas adjacent to Project excavation areas. Excavation of contaminated soil during construction could pose a risk to workers, the public, and the environment. Contaminated soil that is excavated could become airborne and be inhaled or ingested, make direct contact with the skin, or be transported via runoff.

APM-HAZ 1, APM-HAZ 2, and APM-HAZ-4, discussed above, would also apply to this segment. PG&E has also committed to implementing APM HAZ-5, Potentially Contaminated Soil or Groundwater, which would establish procedures for testing soil in areas where hazardous materials may still exist. In accordance with APM HAZ-5, PG&E would implement soil sampling and testing in Project areas where there is a history of contaminated soil. The Four LUST sites, discussed in Section 3.9.1.5, area areas with known contamination within 500 feet of Project excavation areas. Soil that is known or suspected of contamination would be segregated and require testing procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations before disposal at a non-PG&E facility that is licensed to handle the soil based on contaminants identified from test results. If the soil is taken to a PG&E soils facility, the soil will be tested, handled, and disposed of in accordance with applicable state and federal regulations. As described in Section 2.3.12.3 of the Projection Description, if suspected hazardous substances or waste are unexpectedly encountered during trenching activities (using indicators such as sheen, odor, and/or soil discoloration), work would be stopped until the materials are properly characterized. Waste management would be performed in accordance with applicable regulations.

Groundwater is not expected to be encountered during trenching, and dewatering is not expected to be needed. If dewatering is required, the water would be sampled and characterized prior to removal and discharge. As appropriate, the water may be pumped into containment vessels (such as Baker tanks) and tested for parameters such as turbidity and pH or as otherwise required. As permitted, groundwater or rainwater would be discharged to a local publicly owned treatment facility, an upland location, reused for irrigation if appropriate, trucked to an appropriate treatment and/or disposal facility, or used for dust control after testing for parameters such as turbidity and pH or as otherwise required.

Even with the implementation of APM HAZ-5 and other APMs described above, there still exists potential for unanticipated contamination from historic sites or unknown sites, as well as risks associated with the

handling, transport, and storage of contaminants. These risks are not addressed in APM HAZ-5 and, if they were to occur would result in a significant impact.

Mitigation Measure HH-1a, Prepare and Implement a Soil Management Plan, (see full text in Section 3.9.4) would be required to reduce impacts associated with discovery of unanticipated contaminants to a less than significant level. This mitigation measure supplements APM HAZ-5, both are required for impacts to be less than significant. Mitigation Measure HH-1a includes the procedures PG&E shall undertake in the event unanticipated contaminated soil is encountered. The Soil Management Plan would also include requirements for documenting and reporting incidents of encountered contaminants. Furthermore, Mitigation Measures HH-1a requires PG&E to notify all schools, daycare facilities, elderly housing, and residences within 250 feet of encountered contaminated soil and immediate removal of contaminated soil. Implementation of Mitigation Measure HH-1a would result in less than significant impacts.

Operations and Maintenance

LESS THAN SIGNIFICANT. Because the Overhead Power Line Rebuild segment of the proposed Project would replace similar existing facilities, the operations and maintenance activities for the proposed Project would be similar to those now occurring. However, because the Overhead Power Line Rebuild segment would result in new equipment being installed to replace the existing older equipment, operations and maintenance activities are expected to occur less frequently in the future. The Overhead Power Line Removal segment would result in the removal approximately one mile of existing power lines, which would eliminate operations and maintenance activities for this segment. Impacts would be less than significant.

Operations and maintenance activities for the underground portion of the Project would include regular underground line inspections and repair of any components found to be damaged. Routine inspections would include quarterly visual inspections of all facilities, and detailed inspections, conducted every two years, would include visual inspection of the lines and vaults as well as infrared inspection of the terminations. These inspections would not involve the use, transport, or handling of hazardous materials. Impacts would be less than significant.

Mitigation Measures for Impact HH-1

MM HH-1a **Prepare and Implement a Soil Management Plan**. See full text in Section 3.9.4 (Mitigation Measures).

With implementation of MM HH-1a, impacts associated with the discovery of unanticipated contaminants would be reduced to a less than a significant level. Thus, potential impacts related to creating a significant risk to the public or the environment from the routine use, transport, storage, and disposal of hazardous materials would be less than significant.

Impact HH-2: Create a significant risk to human health and the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials.

Construction

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT. Construction activities required for the proposed Project have the potential to result in leaks and accidental spills of hazardous materials at staging yards and construction sites. Hazardous materials that would be used during construction include diesel, gasoline, jet fuel, hydraulic fluids, and solvents associated with construction equipment and vehicles. As described in Section 2.3.11, all fueling and storage would occur offsite, and all hazardous materials would be used and stored as instructed by Safety Data Sheets that would be provided to onsite personnel in case of emergency. PG&E would be

required to implement APMs that would address the accidental spill or release of hazardous materials. These include APM HAZ-1, APM HAZ-2, and APM HAZ-4.

These APMs would provide PG&E and contractor personnel with training and procedures to reduce the likelihood of and address any accidental spills or release of hazardous materials. As a result, impacts would be less than significant.

Overhead Power Line Removal

LESS THAN SIGNIFICANT. Construction activities required for removal of existing structures in this segment of the proposed Project would be similar to the structure and conductor removal required for the Overhead Power Line Rebuild segment discussed above. However, in this segment, no new structures would be erected, so construction activities would be more limited. The same APMs that apply to the Overhead Power Line Rebuild would apply to this segment. These APMs would provide PG&E and contractor personnel with training and procedures to reduce the likelihood of and address any spills or accidental releases of hazardous materials. Impacts would be less than significant.

Underground Power Line

LESS THAN SIGNIFICANT. Construction activities for this segment would require the use of the hazardous materials described above. The same APMs that apply to both the Overhead Rebuild and Removal segments would apply to this segment. These APMs would provide PG&E and contractor personnel with construction controls, training, and spill containment materials to reduce the likelihood of and address the accidental release of hazardous materials. Impacts would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. Because the Overhead Power Line Rebuild segment of the proposed Project would replace similar existing facilities, the operations and maintenance activities for the proposed Project would be similar to those now occurring. However, because the Overhead Power Line Rebuild segment would result in new equipment being installed to replace the existing older equipment, operations and maintenance activities are expected to occur less frequently in the future. The proposed Project also includes the removal approximately one mile of existing power lines, which would eliminate operations and maintenance activities within that existing overhead segment. Impacts would be less than significant. Operations and maintenance activities for the underground portion of the Project would include regular underground line inspections and repairs made on an as-needed basis. These inspections would not involve the use of hazardous materials. Impacts would be less than significant.

Impact HH-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

Construction

As described in Section 3.13.1.2, there are 17 schools within approximately 0.25 miles of the proposed Project (refer to Table 3.13-2).

Impacts related to hazardous air emissions are addressed in Section 3.3 (Air Quality); this section addresses other hazardous substances or materials and their potential impacts at schools.

The proposed Project would not create hazardous air emissions or handle extremely hazardous substances s within one-fourth mile of a school. Therefore, there would be no impact related to California Public Resources Code (PRC) § 21151.4.

Construction would require the use of diesel, gasoline, hydraulic fluids, and solvents (Table 3.9-2). As described in Section 2.3.11.1, all fueling and storage of these materials would occur offsite. However, in

the event of a spill from a construction vehicle or a piece of construction equipment, these materials could create a hazard within 0.25 miles of one of the 17 schools along the Project route. Hazardous materials sites discussed in Section 3.9.1.4 (Hazardous Sites Near Project Facilities and Spill Events) and shown on Figure 3.9-1 (Hazardous Materials Sites Located within 500 Feet of Project Evacuation Areas, Map 2 of 2) are within 0.25 miles of existing schools. Construction of the Underground Power Line segment along Park Boulevard and Park Boulevard Way has the potential to encounter contaminated soil during excavation, both from historic leaks and from unanticipated soil contamination.

As described in Section 2.3.12.3, structures to be removed would be tested for lead paint and if testing shows components have lead paint, the components would be cut to avoid paint chipping. These components would be removed and disposed of at a licensed waste facility. Concrete footings would be tested for asbestos prior to construction, if the footings contain asbestos, they would be removed and disposed of at a licensed waste facility per applicable regulations.

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT. Schools within 0.25 miles of this segment include Del Rey Elementary, Joaquin Miller Elementary, Montera Middle School, Open Minds Early School and Academia De Mi Abuela, Sequoia Nursey School, Growing Light Montessori, KSS Immersion Preschool, Head Royce, and Ability Now Bay Area. Construction activities would require the use of diesel, gasoline, hydraulic fluids, and solvents for construction vehicles. As described above, fueling and storage of these materials would occur offsite. Structures potentially containing lead paint and concrete footings potentially containing asbestos could also be encountered. These materials would be tested and disposed of, consistent with applicable regulations. PG&E would be required to implement the following APMs that would address the handling of these materials. These include APM HAZ-1, APM HAZ-2, and APM HAZ-4.

Implementation of these APMs would provide best practices, training, and spill control and response measures of hazardous materials. The low toxicity of the materials associated with the Project and proper handling, storage, and disposal practices of all hazardous materials in accordance with applicable regulations would reduce impacts to less than significant.

Overhead Power Line Removal

LESS THAN SIGNIFICANT. Schools within 0.25 miles of this segment include Corpus Christi School and Crocker Highlands Elementary. Construction activities would require similar use of the hazardous materials required for the Overheard Power Line Rebuild. These materials would be handled per all applicable regulations and storage of these materials would occur offsite. Implementation of APM HAZ-1, APM HAZ-2, and APM HAZ-4 would provide best practices, training, and spill control and response measures for hazardous materials. The low toxicity of the materials associated with the Project and proper handling, storage, and disposal practices of all hazardous materials in accordance with applicable regulations would reduce impacts to less than significant.

Underground Power Line

LESS THAN SIGNIFICANT WITH MITIGATION. Schools within 0.25 miles of this segment include Corpus Christi School, Gan Mah Tov Preschool, Duck Pond Preschool, Les Petite Francophones, Glenview Elementary, Edna Brewer Middle School, and Oakland High School. Construction on the underground power line segment could potentially encounter and excavate contaminated soils, which could lead to handling hazardous materials.

As described in Section 2.3.12.3, soils would be characterized and, if deemed hazardous waste, would be placed directly into trucks during excavation and would be removed from the area and disposed of offsite at an appropriate landfill. If pre-characterization of soils has not occurred, the soil would be stockpiled separately onsite to be tested, managed, and transported as appropriate. As described in Section 2.3.9.1

of the Project Description, stockpiled materials would be covered or otherwise stabilized to control fugitive dust. This would include compacting, covering or spraying stockpiled soils with water. In addition, to the APMs described above, PG&E would be required to implement APM HAZ-5, Potentially Contaminated Soil or Groundwater. Under APM HAZ-5, soil that is known or suspected of being contaminated would be segregated and require testing procedures to be supervised by a qualified person, as appropriate, pursuant to state and federal regulations before disposal at a non-PG&E facility that is licensed to handle the soil based on contaminants identified from test results. If the soil is taken to a PG&E soils facility, the soil would be tested, handled, and disposed of in accordance with applicable state and federal regulations. Mitigation Measure HH-1a, discussed in Impact HH-1, would also be implemented to reduce the risk of the accidental spill or release of hazardous materials and include notification to schools within 250 feet of contaminated soils and immediate removal of these soils. With implementation of Mitigation Measure HH-1a, impacts from the underground power line portion of the Project would be less than significant with mitigation.

Operations and Maintenance

LESS THAN SIGNIFICANT. Because the Overhead Power line Rebuild segment of the proposed Project would replace similar existing facilities, the operations and maintenance activities for the proposed Project would be similar to those now occurring. However, because the Overhead Power Line Rebuild segment would result in new equipment being installed to replace the existing older equipment, operations and maintenance activities are expected to occur less frequently in the future. The proposed Project also includes the removal approximately one mile of existing power lines, which would eliminate operations and maintenance activities within that existing overhead segment. Impacts would be less than significant.

Operations and maintenance activities for the underground portion of the Project would include regular underground line inspections and repairs made on an as-needed basis. Routine inspections would include quarterly visual inspections of all facilities, and detailed inspections, conducted every two years, would include visual inspection of the lines and vaults as well as infrared inspection of the terminations. These inspections would not require the handling of hazardous materials. Impacts would be less than significant.

Mitigation Measures for Impact HH-3

MM HH-1a **Prepare and Implement a Soil Management Plan**. See full text, above and in Section 3.9.4 (Mitigation Measures).

With implementation of MM HH-1a, impacts associated with emitting hazardous emissions or handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school would be reduced to a less than a significant level.

Impact HH-4: Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

Construction

Section 3.9.1 presents a review of hazardous material database sites. The EDR report identified 10 Cortese List sites within 0.25 miles of the proposed Project. These sites are also listed as LUST sites. Nine LUST sites have undergone regulatory closure. Four of these sites are located within 500 feet of the Project excavation areas. These sites (described in Section 3.9.1.4) include a City of Oakland Corporation Yard (300 feet from the proposed overhead rebuild segment), Chevron #9-3415 (120 feet from the proposed underground segment), Desert Petroleum (80 feet from the proposed underground segment), and an apartment building (350 feet from the Oakland X Substation). However, none of these sites are located within excavation areas and they would not be disturbed during construction.

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT. Construction activities associated with the Overhead Power Line Rebuild would not be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. One LUST site is located within 500 feet of the proposed Project construction area for the overhead power line rebuild (see Figure 3.9-1, Hazardous Materials Sites Located within 500 Feet of Project Evacuation Areas. However, this LUST site has been closed in accordance with regulatory standards and construction activities would not occur on the site. Thus, construction would not occur on a documented hazardous site and impacts would be less than significant.

Overhead Power Line Removal

LESS THAN SIGNIFICANT. Construction activities associated with the Overhead Power Line Removal would not be located on any site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Impacts would be less than significant.

Underground Power Line

LESS THAN SIGNIFICANT. Construction activities associated with the Overhead Power Line Rebuild would not be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Three LUST sites are located within 500 feet of the proposed Project construction area (see Figure 3.9-1, Hazardous Materials Sites Located within 500 Feet of Project Evacuation Areas). However, these LUST sites have been closed in accordance with regulatory standards and construction activities would not occur on these sites. Thus, construction would not occur on a documented hazardous site and impacts would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. The proposed Project would involve construction on site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Impacts would be less than significant.

Impact HH-5: Create a significant hazard to air traffic from the installation of new power lines and structures.

Construction

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT. Construction of the Overhead Power Line Rebuild segment would require the replacement of 45 existing structures. The height of several new structures would be as much as approximately 62 feet taller than the existing structures. Proposed structure heights range from 77 to 168 feet. As a result, there would be a change in the existing environment with respect to potential aviation hazards, but no structures would exceed 200 feet in height (see Table 2.1-1 in Appendix B).

PG&E has completed notification to the FAA regarding the expected heights of its replacement structures, in compliance with 14 CFR 77.9. The FAA requires lighting or marking of structures located in the airspace of an airport taller than 200 feet in height in order to confirm that the proposed structures would not pose a threat to air traffic safety. Lighting or installation of marker balls would make the structures and conductors more visible to air traffic.

After evaluating the proposed Project structures, the FAA has determined that no lighting or marking would be required (see EIR Appendix D). Thus, while some new structures would be substantially taller than the existing ones, the installation of new structures would not create a significant hazard to air traffic. Impacts would be less than significant.

Overhead Power Line Removal

NO IMPACT. Construction activities associated with the Overhead Power Line Removal segment would result in the removal of 22 existing structures and associated power lines. The removal of existing structures and power lines in this segment would eliminate all potential hazards to air traffic. Because these structures are being removed, there would be no impact related to air traffic hazards.

Underground Power Line

LESS THAN SIGNIFICANT. Construction of the Underground Power Line segment would result in the installation of power lines underground along Park Boulevard and Park Boulevard Way. The Underground Power Line segment would include two transition poles at Park Boulevard and Estates Drive. These transition poles would both be 96 feet tall, less than the 200-foot FAA threshold. Thus, the underground power line would have no impacts on air traffic and potential impacts related to the transition poles would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. Operations and maintenance of the proposed Project would not create a significant hazard to air traffic based on the FAA determination described above. Impacts would be less than significant.

Impact HH-6: Create a significant hazard to the public or environment through the transport of heavy materials using helicopters.

Construction

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT WITH MITIGATION. Construction of the Overhead Power Line segment would require the use of light and medium duty helicopters. PG&E states that helicopter use is anticipated to occur only in the eastern section of the Project, which extends from the Moraga Substation southwest to the crest of the Oakland Hills east of Manzanita Drive (see Section 2.1.5.1). Helicopters would be used for conductor-stringing and to support construction survey staking; lifting or transporting structure components; crew transport to structures; and potentially lifting of equipment for installation of micropile foundations. Helicopter landing zones would be located within staging areas where feasible or would use existing nearby airstrips and commercial airports. Potential landing zones are shown on Figure 2.1-2 (Proposed Project Detail Map) in Appendix A.

Helicopters transporting suspended loads have the potential to drop these loads if an accident occurs. Dropping of any construction materials could cause a serious hazard to people, structures, and vegetation resources in undeveloped areas. As described in Section 2.3.1.3, helicopters carrying suspended loads are not anticipated to be flown over habitable structures. However, PG&E states that, while unlikely, final construction plans may require helicopters to transport suspended loads over residences.

In the event that construction of the proposed Project does require helicopters to transport suspended load over residences, the potential that loads could fall would create a serious hazard to people and structures. Impacts would be significant, and mitigation is required.

Mitigation Measure (MM) HH-6a, Prepare and Implement a Helicopter Safety Plan (see Section 3.9.4 for full text) would address potential impacts associated with helicopters carrying suspended loads over any residential areas. Mitigation Measure HH-6a would require advance notification of all residents in the flight path, as well as temporary relocation outside the flight path of the helicopter operations. The mitigation measure also requires that PG&E document its compliance with FAA regulations. With implementation of Mitigation Measure HH-6a, impacts would be less than significant.

Overhead Power Line Removal

NO IMPACT. PG&E states that construction of the Overhead Power Line Removal segment would not require helicopter use. Therefore, there would be no risk to the public or environment through the transport of materials using helicopters. There would be no significant impact.

Underground Power Line

NO IMPACT. Construction of the Underground Power Line segment would not require the use of helicopters. There would be no impact related to materials transported by helicopter in this segment.

Operations and Maintenance

LESS THAN SIGNIFICANT (OVERHEAD POWER LINE REBUILD), NO IMPACT (OVERHEAD POWER LINE REMOVAL AND UNDERGROUND POWER LINE). The overhead segment of the proposed Project is a rebuild of existing power line facilities. Existing operations and maintenance activities that require helicopter use include aerial and infrared inspections of the facilities. PG&E would be required to continue to comply with all FAA regulations regarding helicopter use. The existing facilities have been undergoing operations and maintenance activities for many decades and helicopter use required during operations and maintenance of the proposed Project are anticipated to be similar to the operations and maintenance activities occurring currently.

The proposed Project would eliminate one mile of overhead facilities (the Overhead Power Line Removal segment), which would eliminate helicopter use in that area. Thus, there would be no impact in this segment.

Operations and maintenance of the Underground Power Line segment would not require helicopter use. There would be no impact related to materials transport by a helicopter in the underground segment.

Mitigation Measure

MM HH-6a **Prepare and Implement a Helicopter Safety Plan.** See full text in Section 3.9.4 (Mitigation Measures).

With implementation of MM HH-6a, potential impacts related to helicopter use during construction under Impact HH-6 would be less than significant.

Impact HH-7: Expose workers or the public to excessive shock hazards.

Construction

Conductive objects, such as ungrounded wire fences, residential rain down spouts, or other metal objects within or adjacent to the alignment, can accumulate electrical charge from an energized power line through induced current. This can be sufficient to cause a nuisance shock. Nuisance shocks are not physically harmful (although they are painful); excessive shock hazards can be extremely painful or fatal.

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT. Construction of the Overhead Power Line Rebuild would require the removal and replacement of conductors. Existing distribution lines would be encountered during project construction. As described in Section 2.4.1, during construction, work planning would include locating and identifying electrical hazards. To avoid electrical hazards, work would be located at a safe distance, in compliance with CPUC GO 95, from energized distribution lines or other power lines, or the electrical power lines would be deenergized.

As described in Section 2.3.6, during final design, PG&E would identify where induced currents from the power lines could charge conductive non-utility facilities. Conductive objects, such as undergrounded wire fences, rain spouts, and other metal objects within or adjacent to the proposed Project alignment, can receive electrical charge through induced current. PG&E would use grounding methodology, such as grounding rods or cathodic protection, in accordance with CPUC GO 95, to manage induced currents associated with Project facilities.

PG&E would comply with CalOSHA regulations contained in Title 8 of the CCR which address safety requirements for the protection of workers and others from electric shock in construction (see Section 3.9.2.4). Furthermore, all electric power lines would be designed in accordance with CPUC GO 95 guidelines for safe ground clearances established to protect the public from electric shock (see Section 3.9.2.4).

Finally, PG&E has committed to implementing APM HAZ-3, Shock Safety Measures. Implementation of this APM would require all authorized PG&E personnel working on site to be trained to identify electric hazards, establish safe distance from the lines, deenergize lines where appropriate, and use personal protective equipment. The public would be excluded from work areas where energized lines could be contacted. Impacts would be less than significant.

Overhead Power Line Removal

LESS THAN SIGNIFICANT. All conductors in this segment would be de-energized prior to the start of any removal construction work. There would be no significant impact associated with shock hazards associated with the removal of this segment, but there is the possibility that energized distribution lines could be encountered by PG&E's contractor personnel. APM HAZ-3 would educate workers about shock hazards and exclude the public from work areas. No mitigation is required; impacts would be less than significant.

Underground Power Line

LESS THAN SIGNIFICANT. Conductive objects, such as undergrounded wire fences, rain spouts, and other metal objects within or adjacent to the proposed Project alignment, can receive electrical charge through induced current. As described in Section 2.3.6, during final design, PG&E would identify locations and facilities where induced currents from the underground cables could charge conductive non-utility facilities and cause shocks. PG&E would also use grounding methodology to manage induced currents associated with Project facilities (see Section 2.3.6). Grounding prevents electric shock by providing a safe path for excess electricity to flow into the grounding to dissipate. Grounding methodology could include attaching a grounding rod to a nearby metallic object. Final design of the proposed Project would also include a cathodic protection system as part of the grounding system. APM HAZ-3 would provide workers with training and use of protective equipment and exclude the public from work areas. Impacts would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. The overhead portion of the proposed Project is a rebuild of existing power line facilities, so the potential for shock hazards during operations and maintenance would be similar to and addressed for ongoing operations. The rebuilt structures of the overhead segment would not change the risk of shock from the existing facilities. The existing protective measures would be updated for PG&E's new facilities. With implementation of grounding methodology, operations and maintenance activities associated with the overhead segment would be less than significant. Similarly, the Underground Power Line segment would be protected from shock hazards at its construction through the installation of grounding measures. Grounding measures would reduce the risk of shock during maintenance activities. APM HAZ-3 would provide operations and maintenance personnel with training and protective equipment and exclude the public from work areas. Impacts would be less than significant.

3.9.4. Mitigation Measures

MM HH-1a **Prepare and Implement a Soil Management Plan.** A Soil Management Plan shall be developed and implemented for construction of the proposed Project. The objective of the Soil Management Plan is to provide procedures PG&E shall undertake in the event unanticipated contaminated soil is encountered.

The Soil Management Plan shall also include requirements for documenting and reporting incidents of encountered contaminants, such as documenting locations of occurrence, sampling results, and reporting actions taken to dispose of contaminated materials.

The Soil Management Plan shall be submitted to the CPUC 30 days prior to the start of construction for review and approval.

The Soil Management Plan shall provide detailed processes for the following:

- Procedures for when unanticipated contaminated soil is encountered.
- Reporting and notification for contaminated soil.
- Description of soil testing, which shall include the collection of shallow soil samples and analyses for contamination to verify presence or absence of unknown soil contamination and the collection of soil samples at locations at and near areas of known contamination.
- Procedures and protocols for safe storage, stockpiling, and disposal of any contaminated soils.
- If contaminants are encountered, PG&E shall notify all schools, daycare facilities, elderly housing, and residences within 250 feet of the contaminated soil within 24 hours of discovery and immediately remove the contaminated soil.

MM HH-6a **Prepare and Implement a Helicopter Safety Plan.** A Helicopter Safety Plan shall be developed and implemented during construction of the Project should PG&E anticipate flying suspended loads into airspace over residential or occupied areas. The Plan shall document PG&E's compliance with FAA regulation 14 CFR § 133.33. The objective of the Helicopter Safety Plan is to define procedures PG&E shall undertake in the event that helicopters carrying suspended loads fly within the airspace over any residential or occupied areas.

The Helicopter Safety Plan shall be submitted to the CPUC for review and approval 90 days prior to helicopters flying suspended loads within airspace over any residential or occupied areas. The Helicopter Safety Plan shall include the following:

- A flight plan for each proposed operation with suspended loads that would occur in airspace over residential or occupied areas and a detailed chart depicting the flight routes and altitudes.
- Evidence that PG&E has coordinated these flight plans with the responsible FAA Flight Standards office and obtained approval for the operation from that office.
- Each flight must be conducted at an altitude, and on a route, that will allow external loads to be released, and the rotorcraft landed, in an emergency without hazard to persons or property on the surface.
- A defined process for PG&E to pay for temporary housing for all residents required to be temporarily relocated due to helicopter operations that require carrying of suspended loads over residences. PG&E must document its coordination with residents, including

providing at least 60 days' notice of the need to relocate, the time period for relocation, and PG&E's commitment to pay for all relocation costs.

3.9.5. References

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3.10. Hydrology and Water Quality

This section describes existing conditions and potential impacts on hydrological resources, water quality, and flood control as a result of construction, operation, and maintenance of the Project. The analysis concludes that these impacts would be less than significant with implementation of APMs as described in Section 3.10.3.1 for all significance criteria, except for two criteria related to water quality (Impacts HW-1 and HW-5). For these significance criteria, impacts would be reduced to less than significant with implementation of Mitigation Measure HH-1a (see Section 3.9, *Hazards, Hazardous Materials, and Public Safety*), which would require the development of a Soil Management Plan that would detail additional procedures for identifying and containing contaminated soil, if encountered during Project construction.

The Project's potential effects on hydrology, water quality, and flood control were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. Project description information and potential impacts are organized and discussed based on the impact questions. A detailed Project description is discussed in Chapter 2, *Project Description*. The conclusions are discussed in detail in Section 3.10.3.3.

The impacts discussed in this section include whether the proposed Project would: violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality; substantially decrease groundwater supplies or interfere with groundwater recharge such that the Project may impede sustainable groundwater management of the basin; 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 result in substantial erosion, flooding, or excessive runoff; risk release of pollutants due to Project inundation in flood hazard, tsunami, or seiche zones; or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. The focus of this analysis is on potential pollutant releases during Project implementation, including hazardous materials and sedimentation result from erosion (i.e., when soil particles transported by water or wind are transported into a waterbody); any changes to groundwater levels or recharge; and flooding (the overflow of water from a body of water) or inundation (a broader term describing any situation when a large amount of water covers an area, such as when heavy rainfall causes water to pool).

Related EIR sections addressing pollutants and erosion include Section 3.9 *Hazards, Hazardous Materials, and Public Safety* and Section 3.7, *Geology and Soils*. In addition, Section 3.3, *Air Quality*, discusses dust control measures during construction, which could reduce the potential for erosion caused by loose soils. Section 3.4, *Biological Resources*, provides more information on riparian habitats and wetlands in proximity to the Project area; these areas are important components of water resources given their water quality, flood control, and groundwater recharge functions. Another related EIR section is Section 3.17, *Utilities and Service Systems*, which discusses whether sufficient water supplies are available to serve the proposed Project.

The scoping effort conducted by CPUC from February 25 through March 27, 2025, resulted in no public comments relating to hydrology and water quality.

3.10.1. Environmental Setting

3.10.1.1. Land Uses

The Project is in both open space and urbanized areas in Contra Costa and Alameda counties, extending from the City of Orinda southwest through unincorporated Contra Costa County and into the cities of Oakland and Piedmont. The existing land uses in the Project area include a utility right-of-way within the City of Orinda; open space and parks within unincorporated Contra Costa County; residential, parks, churches, schools, and commercial land within the City of Oakland; and a church and associated school in

the City of Piedmont. Urban development in some areas has included construction of underground culverts and storm drains to replace creeks.

3.10.1.2. Climate and Topography

The Project area has a semi-arid Mediterranean climate, which is influenced by local topography and air circulation patterns. On the western side of the Oakland Hills, the climate is influenced by the Pacific Ocean, with relatively warm winters, cool summers, small daily and seasonal temperature ranges, and high relative humidity. Maritime influences decrease with increased distance from the coast. More inland portions of the Project area transition to a more continental type of climate, with warmer summers, colder winters, greater daily and seasonal temperature ranges, and generally lower relative humidity. Precipitation in the Project area is highly variable from year to year and is characterized by moderately wet winters and dry summers. Winter rains (December through March) account for approximately 75 percent of the average annual rainfall; approximately 90 percent of the annual total rainfall is received in the November to April period. Average annual precipitation in Alameda and Contra Costa counties from 1895 to 2023 was 18.32 inches and 18.48 inches, respectively (PG&E, 2024).

The local topography is very hilly along the majority of Project alignment from Moraga Substation in Orinda west to Shepherd Canyon in Oakland. Here, elevations range from approximately 650 feet above sea level at Moraga Substation to approximately 1,370 feet above sea level at the Contra Costa-Alameda County line, before descending toward the Bay. The topography is 400 feet above sea level at the Shepherd Canyon rim. The proposed underground line within Park Boulevard slopes more gently from northeast to southwest toward to approximately 140 feet above sea level at Oakland X Substation.

3.10.1.3. Waterbodies

The Project is within the San Francisco Bay Hydrologic Region, which covers approximately 4,500 square miles. This hydrologic region extends from southern Santa Clara County, north to Tomales Bay in Marin County, and inland to the crest of the Coast Ranges. Streams in the region flow into San Francisco Bay or the Pacific Ocean.

The Project passes through, or is bounded by, four watersheds as defined by the Alameda County Flood Control and Water Conservation District (PG&E, 2024) (Figure 3.10-1, Surface Water and Watersheds, in Appendix A). The existing overhead lines pass through the San Leandro Creek, Sausal Creek, and Indian Gulch/Pleasant Valley Creek watersheds while the proposed underground rebuild portion is located within or along the boundary of the Sausal Creek, Indian Gulch/Pleasant Valley Creek, and Oakland Estuary watersheds. A small part of the Project area, three potential staging areas and associated access, are outside these watersheds. All four watersheds crossed by the Project comprise part of the South Bay Basin as defined by the San Francisco Bay Regional Water Quality Control Board (RWQCB) (PG&E, 2024). This basin drains into the Lower Bay, which is defined as the portion of San Francisco Bay south of the San Francisco-Oakland Bay Bridge and north of the Dumbarton Bridge.

The watersheds that are traversed by the Project are discussed in more detail in the following sections and are described from east to west along the alignment.

San Leandro Creek Watershed

The eastern section of the Project begins in the San Leandro Creek watershed in Contra Costa County (Figure 3.10-1, Surface Water and Watersheds, in Appendix A). The San Leandro Creek watershed encompasses 49.4 square miles and extends from the upper tributaries of Moraga, San Leandro, and Redwood creeks in rural parklands and managed watersheds in the hills above Oakland and San Leandro, through San Leandro Reservoir and Lake Chabot, and along lower San Leandro Creek through San Leandro and Oakland toward San Francisco Bay.

Within this watershed, the closest surface waterbodies to the Project include Moraga Creek, San Leandro Creek, and their tributaries. The northern boundary of Moraga Substation is approximately 50 feet south of the mainstem of Moraga Creek (Figure 3.10-1, Surface Water and Watersheds, in Appendix A). The eastern end of the proposed overhead rebuild alignment is approximately 600 feet southwest of this creek mainstem. An underground culvert containing an unnamed tributary of Moraga Creek crosses beneath and across the southern portion of Moraga Substation.

Farther to the southwest, the proposed overhead rebuild alignment crosses an unnamed tributary of Upper San Leandro Creek at milepost 1.2 (Figure 3.10-1, Surface Water and Watersheds, in Appendix A). An existing access road that would be used for the proposed Project runs directly adjacent and parallel to this tributary creek channel and also crosses the tributary channel on a bridge approximately 250 feet northeast of milepost 1.2. A secondary existing access road also crosses the tributary channel approximately 300 feet south of the same milepost.

Continuing southwest, the overhead rebuild alignment crosses the mainstem of Upper San Leandro Creek at milepost 1.36 (Figure 3.10-1, Surface Water and Watersheds, in Appendix A). This creek flows into Upper San Leandro Reservoir approximately 3.2 miles southeast of the overhead rebuild alignment. Upper San Leandro Reservoir is listed as an Integrated Report Category 5 waterbody under Section 303(d) of the Clean Water Act (see Section 3.10.2.1), which is defined as a waterbody whose beneficial uses are impaired by a pollutant for which a total maximum daily load (TMDL) is needed (PG&E, 2024). Mercury is the specific pollutant in the reservoir exceeding a water quality standard. (A TMDL is the calculation of the maximum amount of a pollutant allowed to enter a waterbody so that the waterbody will meet and continue to meet water quality standards for that particular pollutant. A TMDL determines a pollutant reduction target and allocates load reductions necessary to the source[s] of the pollutant.)

Sausal Creek Watershed

At approximately the county line between Alameda and Contra Costa counties, the alignment crosses into the Sausal Creek watershed within the City of Oakland (Figure 3.10-1, Surface Water and Watersheds, in Appendix A). The Sausal Creek watershed encompasses 4.2 square miles, starting in the Oakland Hills with three main tributaries that join as Sausal Creek. Sausal Creek flows in a natural channel through Dimond Canyon and the upper portion of Dimond Park. In the Oakland flatlands, culverted sections of the Sausal Creek channel alternate with open stretches of creek before emerging into the Oakland Estuary.

Development in the urbanized portion of the Project area, beginning in the Sausal Creek watershed, has increased the amount of impervious surface and the rates of runoff. Segments of local creeks have been channelized into culverts, and runoff into these channels is managed aboveground and belowground as part of the stormwater conveyance systems. Sausal Creek is listed as an Integrated Report Category 4b waterbody under Clean Water Act Section 303(d), which is defined as a waterbody whose beneficial use impairments are being addressed by regulatory actions other than a TMDL that are reasonably expected to result in attainment of the water quality standard within a reasonable, specified time frame (PG&E, 2024). This creek is impaired by a single pollutant, trash. Within Sausal Creek watershed, the next nearest waterbody to the Project is Central Reservoir, a covered reservoir owned by the East Bay Municipal Utility District (EBMUD), approximately 2,200 feet southwest of the proposed underground line.

The proposed overhead rebuild alignment would pass over two branches of Shephard Creek, one of three main tributaries of Sausal Creek, that are buried in underground culverts or storm drains at mileposts 1.97 and 2.29. The alignment would then traverse open stretches of the three tributaries of Sausal Creek (Shephard Creek, Cobbledick Creek, and Palo Seco Creek) at mileposts 3.06, 3.16, and 3.42, respectively (Figure 3.10-1, Surface Water and Watersheds, in Appendix A). Two existing access routes that would be used for the proposed Project are located just southwest of Monterey Boulevard and cross Palo Seco Creek; one route crosses a culverted section of the creek directly adjacent to milepost 3.42 and the other,

walk-in access on a hiking trail, crosses approximately 700 feet upstream (southeast) of this milepost. To the southwest, the existing overhead lines that would be rebuilt overhead span Sausal Creek in Dimond Canyon at milepost 3.82.

The transition between the overhead rebuild and the underground portion of the alignment would occur at milepost 3.93. The existing line between this point and Oakland X Substation would be removed and replaced by the underground portion of the alignment. The underground portion would be located within Park Boulevard and would straddle the border between the Sausal Creek and the Indian Gulch/Pleasant Valley Creek watersheds until milepost 4.68 (Figure 3.10-1, Surface Water and Watersheds, in Appendix A). Within the Sausal Creek watershed, the underground line would run parallel to and approximately 300 to 2,300 feet northwest of Sausal Creek.

Indian Gulch/Pleasant Valley Creek Watershed

The Indian Gulch/Pleasant Valley Creek watershed covers 3 square miles and includes Pleasant Valley Creek, Indian Gulch (also known as Trestle Glen Creek), and other small creeks. This watershed drains much of the City of Piedmont into the east arm of Lake Merritt, a tidal lagoon near downtown Oakland that connects to San Francisco Bay. The creeks in this watershed were not identified as having Clean Water Act Section 303(d) status.

The proposed underground line would run in Park Boulevard on the boundary of the Indian Gulch/Pleasant Valley Creek watershed from mileposts 3.93 to 5.04. At milepost 5.04, the underground line would leave Park Boulevard for a short distance to the northwest, within the Indian Gulch/Pleasant Valley Creek watershed, before terminating at Oakland X Substation (Figure 3.10-1, Surface Water and Watersheds, in Appendix A). The portion of the underground line in Park Boulevard would run parallel to and approximately 900 feet southeast of several underground culverted and open creek segments of Indian Gulch. The western terminus of the Project is located approximately 500 feet south of Indian Gulch Creek, 1 mile east of Lake Merritt, and approximately 1.6 miles northeast of the Oakland Estuary. Within the Indian Gulch/Pleasant Valley Creek watershed, other waterbodies near the Project area are Tyson Lake (approximately 3,000 feet northwest of the proposed overhead rebuild alignment) and two covered reservoirs (Reservoir Number One and Reservoir Number Two, approximately 3,400 feet and 1 mile northwest, respectively, of the overhead rebuild alignment).

Oakland Estuary Watershed

The Oakland Estuary watershed covers 5.6 square miles and drains a large area of dense urban land uses in central Oakland into the estuary. The watershed includes Downtown Oakland, Brooklyn Basin, harbor areas, Highland Park, and the shores of Lake Merritt. The estuary was not identified as having Clean Water Act Section 303(d) status.

The proposed underground line would straddle the border of the Oakland Estuary watershed and the Indian Gulch/Pleasant Valley Creek watershed between mileposts 4.68 and 5.04 (Figure 3.10-1, Surface Water and Watersheds, in Appendix A). An underground culvert, located approximately 300 feet southeast of the proposed underground line at milepost 4.95, originates near East 38th Street and ultimately drains into Oakland Estuary to the southwest. The culvert is entirely underground and is not associated with a named creek.

3.10.1.4. Water Quality

The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the RWQCB's master water quality control planning document for the San Francisco Bay Basin (refer to Section 3.10.2.2); this plan includes a list of Clean Water Act Section 303(d) impaired waters. As described previously, Sausal Creek is the only waterbody crossed by the Project that is on the Clean Water Act Section 303(d) impaired waters

list. Waterbodies downstream of the Project that are on the Section 303(d) impaired waters list are shown in Table 3.10-1.

Table 3.10-1. Waterbodies Downstream of the Project Area on the Clean Water Act Section 303(d) Impaired Waters List

Waterbody Name	Integrated Report Category[a]	Pollutants Listed	Applicable TMDLs or Other Actions
Upper San Leandro Reservoir	Category 5	Mercury	-
Lake Chabot	Category 5	Chlordane, DDT, dieldrin, mercury, PCBs	-
Lower San Leandro Creek	Category 4a	Diazinon, trash	Diazinon (2012 TMDL), trash (NPDES MS4 permit)
Lake Merritt	Category 5	Organic enrichment/low dissolved oxygen, trash	-
Central San Francisco Bay	Category 5	Chlordane, DDT, dieldrin, dioxin compounds (including 2,3,7,8-TCDD), furan compounds, invasive species, mercury, PCBs, PCBs (dioxin-like), selenium, trash	Mercury (2008 TMDL), PCBs and PCBs (dioxin-like) (2010 TMDL), selenium (2016 TMDL)

[a] Integrated Report Category (PG&E, 2024)
Category 5 = A waterbody whose beneficial uses are impaired by a pollutant for which a total maximum daily load (TMDL) is needed
Category 4a = Designated uses are impaired or threatened, but a TMDL is not required because other pollution control measures are expected to restore water quality standards within a reasonable timeframe
DDT = dichlorodiphenyltrichloroethane
NPDES MS4 = National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System
PCBs = polychlorinated biphenyls
TMDL = total maximum daily load

3.10.1.5. Groundwater

Groundwater Basins

Most of the Project area is not within an identified groundwater basin. The very westernmost portion of the Project, west of approximately milepost 4.79 along the proposed underground line, is within the East Bay Plain Sub-basin of the Santa Clara Valley Groundwater Basin (PG&E, 2024).

The Santa Clara Groundwater Basin is bounded by the Diablo Range to the east and the Santa Cruz Mountains to the west and consists of four sub-basins: the East Bay Plain, Niles Cone, Santa Clara, and San Mateo Plain sub-basins. The East Bay Plain Sub-basin is a northwest-trending alluvial plain bounded on the north and west by San Francisco Bay, on the east by the contact with Franciscan Basement rock in the East Bay Hills, and on the south by the Niles Cone Sub-basin. The portion of the East Bay Plain Sub-basin within the Project area is entirely urbanized. Numerous creeks, including San Leandro Creek, San Lorenzo Creek, San Pablo Creek, and Wildcat Creek, flow from the western slope of the Coast Ranges westward across the plain and into San Francisco and San Pablo Bays. The East Bay Plain Sub-basin aquifer system consists of unconsolidated sediments of Quaternary age (about 2.6 million years ago to the present). The primary water-bearing strata are three alluvial deposits, the early Pleistocene Santa Clara Formation, the late Pleistocene Alameda Formation, and the early Holocene Temescal Formation, and artificial fill (PG&E, 2024). (The Early Pleistocene is the initial period within the Pleistocene Epoch, spanning roughly from 2.58 million to 0.773 million years ago; the early Holocene roughly spans from 11,700 to 8,200 years ago).

Within the East Bay Plain Sub-basin, depths to groundwater in the Upper Shallow Aquifer Zone are less than 20 feet below ground surface (bgs) in most of the sub-basin (PG&E, 2024). Groundwater flow in the

sub-basin generally is east to west toward San Francisco Bay. Groundwater generally becomes shallower from west to east. Prior soil investigations along Park Boulevard within the East Bay Plain Sub-basin encountered water at or below 30 feet bgs (PG&E, 2024; also refer to Section 3.9 of this EIR, *Hazards, Hazardous Materials, and Public Safety*). Based on the findings of the geotechnical investigation performed for the Project (PG&E, 2024), groundwater during borings taken at Oakland X Substation was encountered at approximately 45 feet bgs.

Groundwater Wells and Springs

No known public or private groundwater supply wells or springs were identified within 150 feet of the Project area (PG&E, 2024).

Groundwater Management

In 2014, the California legislature enacted the Sustainable Groundwater Management Act (SGMA) in response to continued overdraft of California's groundwater resources. The SGMA requires preparation of Groundwater Sustainability Plans (GSPs) to identify measures necessary to attain sustainable conditions in groundwater basins and sub-basins in California, including the East Bay Plain Sub-basin. The EBMUD Groundwater Sustainability Agency (GSA) and City of Hayward GSA were formed in 2016 and 2017, respectively, in response to the SGMA and together developed a GSP for the East Bay Plain Sub-basin (PG&E, 2024). The goals of the East Bay Plain Sub-basin GSP are to achieve and maintain groundwater sustainability in the sub-basin.

Groundwater use is limited in the East Bay Plain Sub-basin by several factors, including readily available high-quality imported surface water, existing high salts in shallow Bay margin groundwater, the potential for saltwater intrusion, and contamination of shallow aquifers (PG&E, 2024). Groundwater in the Project area has also been affected by historical industrial and commercial uses; past contamination in soil and groundwater has been documented at several locations along the Project route (refer to Section 3.9, *Hazards, Hazardous Materials, and Public Safety*).

3.10.1.6. Flooding

The following sections describe flood hazards associated with established Federal Emergency Management Agency (FEMA) flood zones and flooding that could result from dam or reservoir failure, tsunamis, or seiches.

FEMA Flood Zones

FEMA administers the National Flood Insurance Program (NFIP), which subsidizes flood insurance to communities that limit development in floodplains. As part of this program, FEMA maps all United States (U.S.) areas that fall within a 100-year floodplain (that is, areas with a greater-than-1-percent annual probability of flooding). Flood hazard areas identified on the Flood Insurance Rate Map (FIRM) are identified as Special Flood Hazard Areas (SFHAs), which are defined as the area that will be inundated by the flood event having a 1 percent chance of being equaled or exceeded in any given year. The 1 percent annual chance flood is also referred to as the base flood or 100-year flood, and the area is designated as a FEMA Zone A type. Moderate flood hazard areas, designated as Zone B or Zone X (shaded), are also shown on the FIRM and are the areas between the limits of the base flood and the 0.2 percent annual chance flood (or 500-year flood). The FEMA flood zones in the Project area are shown in Figure 3.10-2 (Potential Flood Zones and Inundation Areas) in Appendix A.

No areas along existing overhead lines, proposed overhead rebuild alignment, or proposed underground line are located within an identified SFHA or FEMA flood zone. One existing road for temporary construction access along Wilder Road to the northwest of Moraga Substation crosses an area of 1 percent annual

chance flood along an upper tributary of San Pablo Creek (Figure 3.10-2, Potential Flood Zones and Inundation Areas, in Appendix A).

Dam or Reservoir Failure Inundation

Dams and reservoirs, which hold large volumes of water, represent a potential downstream hazard in the event of containment failure. The California Department of Water Resources (DWR) has identified areas of potential inundation in the event of dam failures throughout California. Projected inundation limits are approximate and assume severe failures; thus, the limits encompass all potential flooded areas in the improbable occurrence of dam failure. According to dam and reservoir failure inundation maps prepared by the DWR and presented in Alameda County and Contra Costa County local hazard mitigation plans (PG&E, 2024), no portions of the Project area are located within identified dam or reservoir failure inundation areas (refer to Figure 3.10-2, Potential Flood Zones and Inundation Areas, in Appendix A).

Tsunamis

Tsunamis are large waves in the ocean or other large waterbodies generated by earthquakes, coastal or submarine landslides, or volcanoes. Most California tsunamis are associated with distant earthquakes, typically in Alaska or South America, and not with local earthquakes. Damaging tsunamis are not common on the California coast. Because of the lack of reliable information regarding tsunami runups that have occurred in the prehistoric past, there is considerable uncertainty over the potential extent of tsunami runup that could occur in the Bay Area, and research is ongoing. According to tsunami inundation zone maps as delineated by the California Department of Conservation and presented in Alameda County and Contra Costa County local hazard mitigation plans (PG&E, 2024), no portions of the Project area are located within identified tsunami inundation zones.

Seiches

A seiche is the resonant oscillation of water generated in an enclosed body of water from seismic activity. Seiches are related to tsunamis for enclosed bays, inlets, and lakes. These tsunami-like waves can be generated by earthquakes, subsidence, or uplift of large blocks of land, submarine and onshore landslides, sediment failures, and volcanic eruptions. The strong currents associated with these events may be more damaging than inundation by waves. The largest seiche wave ever measured in the San Francisco Bay, following the 1906 earthquake, was four inches high. The Bay Area has not been adversely affected by seiches during its history within this seismically active region of California (PG&E, 2024).

3.10.2. Applicable Regulations, Policies, and Standards

3.10.2.1. Federal

Clean Water Act Section 303(d)

Section 303(d) of the Clean Water Act (CWA) (33 U.S. Code [USC] 1251-1376) requires states, territories, and authorized tribes to develop a list of impaired waters within their boundaries that do not meet water quality standards and objectives, even after point sources of pollution have installed the minimum required levels of pollution control technology. The Section 303(d) list is the state's list of impaired and threatened waters (stream/river segments, lakes). States are required to submit their lists for U.S. Environmental Protection Agency (EPA) consideration every 2 years. For each waterbody on the list, the state identifies the pollutant causing the impairment, when known. The law further requires that these jurisdictions establish priority rankings for waters on the list and develop action plans, called TMDLs, to improve water quality. The RWQCBs and the State Water Resources Control Board (SWRCB) implement this federal regulation in California.

Clean Water Act Section 401

Under CWA Section 401, a federal agency may not issue a permit or license to conduct any activity that may result in any discharge into waters of the U.S. unless a Section 401 water quality certification is issued or if certification is waived. States and authorized tribes where the discharge would originate generally are responsible for issuing water quality certifications. Major federal licenses and permits subject to Section 401 include CWA Section 402 and Section 404 permits issued by the EPA or U.S. Army Corps of Engineers (USACE). In making decisions to grant, grant with conditions, or deny certification requests, certifying authorities consider whether the federally licensed or permitted activity will comply with applicable water quality standards, effluent limitations, new source performance standards, toxic pollutant restrictions, and other appropriate water quality requirements of state or tribal law.

Clean Water Act Section 402

Under CWA Section 402 (33 USC 1251 et seq.), the National Pollutant Discharge Elimination System (NPDES) controls water pollution by regulating point sources of pollution to waters of the U.S. The SWRCB administers the NPDES permit program in California. Projects that disturb 1 acre or more of soil are required to obtain coverage under the state NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit [CGP]). A Stormwater Pollution Prevention Plan (SWPPP) must be developed and implemented for each project covered by the CGP. The SWPPP must include best management practices (BMPs) that are designed to reduce potential impacts on surface water quality during project construction and operation.

Clean Water Act Section 404

CWA Section 404 establishes a program to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Activities in waters of the U.S. regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports), and mining projects. Section 404 requires a permit before dredged or fill material may be discharged into waters of the U.S. unless the activity is exempt from Section 404 regulation. No discharge of dredged or fill material may be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded.

National Flood Insurance Program

FEMA is responsible for determining flood elevations and floodplain boundaries based on USACE studies. FEMA is also responsible for distributing the FIRMs used in the NFIP (42 USC 50, Section 4102). These maps identify the locations of SFHAs, including 100-year floodplains. FEMA allows nonresidential development in the floodplain; however, FEMA has criteria to "… constrict the development of land which is exposed to flood damage where appropriate" and to "… guide the development of proposed construction away from locations which are threatened by flood hazards." Federal regulations governing development in a floodplain are set forth in 44 Code of Federal Regulations (CFR) Part 60, enabling FEMA to require municipalities that participate in the NFIP to adopt certain flood hazard reduction standards for construction and development in 100-year floodplains.

Oil Pollution Prevention Regulation

Originally published in 1973 under the authority of Section 311 of the CWA, the Oil Pollution Prevention regulation sets forth requirements for the prevention of, preparedness for, and response to oil discharges at specific nontransportation-related facilities that store oil at certain volume thresholds (total aggregate capacity of aboveground oil storage containers is greater than 1,320 gallons or completely buried storage tanks is greater than 42,000 gallons). The goal of this regulation (40 CFR 112) is to prevent oil from reaching navigable waters and adjoining shorelines and to contain discharges of oil. The regulation requires

these facilities to develop and implement Spill Prevention, Control, and Countermeasure (SPCC) plans and establishes procedures, methods, and equipment requirements.

3.10.2.2. State

Porter-Cologne Water Quality Control Act (California Water Code, Division 7)

Under this state law, the SWRCB has authority over state waters and water quality. "Waters of the state" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code Section 13050). Examples include rivers, streams, lakes, bays, marshes, mudflats, unvegetated and seasonally ponded areas, drainage swales, sloughs, wet meadows, natural ponds, vernal pools, diked baylands, seasonal wetlands, and riparian woodlands. The RWQCBs have local and regional authority. The San Francisco Bay RWQCB has authority in the Project area. The RWQCBs prepare and periodically update Basin Plans (water quality control plans), which establish the following:

- Beneficial uses of water designated for each protected waterbody
- Water quality standards for both surface water and groundwater
- Actions necessary to maintain these water quality standards

Projects that will discharge waste to waters of the state must file a report of waste discharge with the appropriate RWQCB if the discharge could affect the quality of waters of the state (Article 4, Section 13260). The RWQCB will issue waste discharge requirements or a waiver of the waste discharge requirements for the project. The requirements will implement any relevant water quality control plans that have been adopted and must take into consideration the beneficial uses to be protected and the water quality objectives reasonably required for that purpose (Article 4, Section 13263).

Fish and Game Code, Section 5650

This section of California law makes is unlawful to deposit in, to permit to pass into, or to place where it can pass into waters of the state specific pollutants or any substance or material deleterious to fish, plant life, mammals, or bird life.

Fish and Game Code, Section 1602

This section of California law makes it unlawful to substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

San Francisco Bay Basin Water Quality Control Plan (Basin Plan)

The objective of the San Francisco Bay Basin Plan is to guide how the quality of surface and groundwaters in the region should be managed (PG&E, 2024). The Basin Plan identifies various beneficial water uses and the water quality that must be maintained to allow those uses to continue. The Basin Plan also describes an implementation plan necessary to achieve the standards established in the plan and summarizes SWRCB and RWQCB plans and policies to protect water quality. The San Francisco Bay RWQCB implements the plan by issuing and enforcing waste discharge requirements based on either state waste discharge requirements or federally delegated NPDES permits for discharges to surface water.

National Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities

The SWRCB regulates stormwater discharges from construction sites to protect against the mobilization of pollutants into waterbodies or watersheds. Construction activity subject to this permit includes

clearing, grading, and disturbances to the ground such as stockpiling or excavation. Dischargers whose projects disturb 1 or more acres of soil, or whose projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres, are required to obtain coverage under the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit [CGP]).

Urban Water Management Planning Act

California DWR reviews submitted Urban Water Management Plans (UWMPs) that are prepared by urban water suppliers every 5 years. These plans support the suppliers' long-term resource planning to ensure that adequate water supplies are available to meet existing and future water needs. The requirements for UWMPs are found in California Water Code, Section 10608 and Section 10610 through Section 10656. Every urban water supplier that either provides more than 3,000 acre-feet of water annually or serves more than 3,000 urban connections is required to submit a UWMP. Urban water suppliers must meet the following criteria in their UWMPs:

- Assess the reliability of water sources over a 20-year planning time frame.
- Describe demand management measures and water shortage contingency plans.
- Report progress toward meeting a targeted 20 percent statewide reduction in per-capita (per-person) urban water consumption by the year 2020. (EBMUD reported that it achieved its interim 2015 and 2020 water demand targets.)
- Discuss the use and planned use of recycled water.

The information collected from the submitted UWMPs is useful for local, regional, and statewide water planning.

Sustainable Groundwater Management Act

In September 2014, legislation was passed to strengthen local management and monitoring of ground-water basins that are most critical to the state's water needs. The SGMA prioritizes groundwater basins that currently are overdrafted and sets a timeline for implementation:

- By 2017, local groundwater management agencies must be identified.
- By 2020, overdrafted groundwater basins must have sustainability plans.
- By 2022, other high- and medium-priority basins not currently in overdraft must have sustainability plans.
- By 2040, all high- and medium-priority groundwater basins must achieve sustainability.

The SGMA also provides measurable objectives and milestones to reach sustainability and a state role of limited intervention when local agencies are unable or unwilling to adopt sustainable management plans.

3.10.2.3. Local

Because the CPUC has exclusive jurisdiction over Project siting, design, and construction, the Project is not subject to local (city and county) discretionary regulations except for air districts and Certified Unified Program Agencies with respect to air quality and hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process. The following local plans were reviewed for this analysis:

City of Orinda

The Conservation Element (Section 4.2 of the Environmental Resources Section) of the *City of Orinda General Plan* (City of Orinda, 1987) addresses creeks and drainage. Guiding policies related to creeks and drainage presented in this element include:

Guidance Policy E

- Policy: Protect creeks from siltation, pollution, and debris buildup to minimize the danger of flooding in storms, to retain the aesthetic and habitat values of the creeks in their natural state and enhance and restore them where possible. Prohibit major channelization.
- Policy Implementation: Preserve drainage easements along creeks to protect adjacent buildings from flooding, and to preserve valuable riparian vegetation. Where riparian vegetation has to be disturbed for construction, re-vegetation with local riparian species is required. The City shall develop design policies for development near creeks.

Guidance Policy H

- Policy: Protect San Pablo Reservoir and Briones Reservoir from pollution and siltation resulting from development within the Planning Area.
- Policy Implementation: Review development proposals to ensure site design and construction methods that minimize soil erosion and volume and velocity of surface runoff and mitigate impacts on properties below.

The Safety Element of the *City of Orinda General Plan* (City of Orinda, 2023) outlines flood and inundation hazards; Section 3.2 defines goals and policies for those hazards. The following flood and inundation goal and policies are related to construction or development:

- GOAL S-2: A community that seeks to avoid and minimize risk and damage from flood hazards in the city.
- Policy S-17: For new construction and proposals for substantial improvements to residential and nonresidential development within 100-year floodplains, as mapped by FEMA or as determined by site-specific hydrologic studies for areas not mapped by FEMA, the City of Orinda shall apply a minimum level of acceptable risk and disapprove projects that cannot mitigate the hazard to the satisfaction of the Building Official or other responsible agency. Areas outside of the 100-year floodplains should be considered for future risk because climate change may expand areas of the city that are currently considered flood prone.
- Policy S-18: Development on parcels containing or bordering the floodway shall only be allowed if the proposed structures can be adequately floodproofed and will not contribute to property damage or risks to public safety. Such developments shall be required to be capable of withstanding flooding and minimize the use of fill. Compatible uses shall not, however, obstruct flows or adversely affect upstream or downstream properties with increased velocities, erosion backwater effects, or concentrations of flows.
- Policy S-20: Condition new development to maintain or minimize post-development peak runoff rate and average volume similar to predevelopment conditions, to the maximum extent feasible. Consider use of green infrastructure and low impact development that use on-site infiltration to slow runoff during peak periods. Where this is not feasible, the increase shall be mitigated.

Contra Costa County

Chapter 7, the Conservation, Open Space, and Working Lands Element, of the *Contra Costa County General Plan* (Contra Costa County, 2024a) addresses wetlands, natural watercourses, and riparian areas and outlines related goals, policies, and actions. The following goal and policies are related to development:

- Goal COS-5: Protected and restored natural watercourses, riparian corridors, and wetland areas that improve habitat, water quality, wildlife diversity, stormwater flows, and scenic values.
- Policy COS-P5.1: Support protection, restoration, and enhancement of wetlands, marshes, sloughs, tidelands, natural watercourses, and riparian corridors, and emphasize the role of these features in climate change resilience, air and water quality, and wildlife habitat.

- Policy COS-P5.2: Require public infrastructure and private development projects to preserve, and whenever possible restore and enhance, natural watercourses, floodplains, and riparian habitat.
- Policy COS-P5.11: Prohibit direct runoff of pollutants and siltation into marsh, creek, and wetland areas from outfalls serving urban development.

Chapter 9, the Health and Safety Element, of the *Contra Costa County General Plan* (Contra Costa County, 2024b) identifies flood hazards and outlines goals, policies, and actions related to those hazards. The following flood hazard goal and policies are related to construction or development:

- Goal HS-5: Minimized risk of loss of life, injury, damage to property, and economic or social dislocations resulting from flood hazards.
- Policy HS-P5.1: Prohibit urban development in areas designated 100- or 200- year (or 500-year when used as a proxy for the 200-year) floodplain, as shown on Figure HS-2, or in areas subject to increased flood hazards due to subsidence or other changes, unless appropriate mitigations to reduce flood risk to the standards of the Flood Disaster Protection Act of 1973 or above are implemented.
- Policy HS-P5.5: Prohibit permanent buildings and structures in designated floodways where such impediments could increase risks to human life or restrict the floodway's carrying capacity.
- Policy HS-P5.6: Prohibit construction of critical infrastructure in areas subject to flooding or sea level rise unless no feasible alternative exists.

City of Oakland

The Safety Element of the *City of Oakland General Plan* (City of Oakland, 2023) outlines hydrology and flooding hazards and defines the following goal and policies related to minimizing flooding hazards:

- GOAL SAF-3: Protect people and property from flooding.
- Policy SAF-3.1: Minimize Storm Induced Flooding. Continue or strengthen city programs that seek to minimize the storm-induced flooding hazard.
- Policy SAF-3.2: Storm-Induced Flooding Structural Risk. Enforce and update local ordinances, and comply with regional orders, that would reduce the risk of storm-induced flooding.

City of Piedmont

Section 6, the Environmental Hazards Element, of the *City of Piedmont General Plan* (City of Piedmont, 2024) includes the following policies on flooding risk and hazardous materials:

- Policy 19.34: Keeping Flood Hazards Low. Maintain Piedmont's low potential for flooding through storm drain maintenance, preservation of creeks and drainage courses in their natural state, and periodic clearing of debris from storm drains and catchment basins. Ensure that new development does not increase the risk of off-site flooding, either in Piedmont or downstream in Oakland.
- Policy 19.35: Managing Runoff. Ensure that runoff from individual properties is directed in a way that does not threaten adjacent properties. Runoff should be directed to places where it can be absorbed into the ground, detained in rain barrels or cisterns, or directed toward storm drains.
- Policy 20.1: Hazardous Material Handling, Storage, and Disposal. Require that the handling, storage, and disposal of hazardous materials complies with all applicable local, county, state, and federal laws. Where appropriate, clearance from the Piedmont Fire Department should be required before businesses licenses are issued.

3.10.3. Environmental Impacts

3.10.3.1. Impact Analysis Approach

Potential impacts on hydrology and water quality are assessed by describing Project activities that could affect surface or ground water quality; groundwater supplies or recharge; drainage patterns causing erosion, flooding, or runoff; the release of pollutants in flood hazard, tsunami, or seiche zones; or implementation of a water quality control plan or groundwater management plan.

The Applicant Proposed Measures (APMs) listed in Table 3.10-2 would be implemented as part of the proposed Project. With implementation of these APMs, hydrology and water quality impacts that could result from Project activities would be substantially reduced.

Table 3.10-2. Applicant Proposed Measures – Hydrology and Water Quality

APM	Description
Hydrology and Water Quality	
APM HYD-1: Prepare and Implement a SWPPP	Stormwater discharges associated with project construction activities are regulated under the CGP. Cases in which construction will disturb more than 1 acre of soil require submittal of a Notice of Intent, development of an SWPPP (both certified by the Legally Responsible Person), periodic monitoring and inspections, retention of monitoring records, reporting of incidences of noncompliance, and submittal of annual compliance reports. PG&E will comply with all CGP requirements for construction of project components. Following project approval, PG&E will prepare and implement an SWPPP, which will address erosion and sediment control concerns to minimize construction impacts on surface water quality, as well as reduce the potential for stormwater runoff to impact adjacent properties. The SWPPP will be designed specifically for the hydrologic setting of the proposed project (surface topography, storm drain configuration, and other factors). Implementation of the SWPPP will help stabilize graded areas and reduce erosion and sedimentation. The SWPPP will propose BMPs that will be implemented during construction activities. Erosion and sediment control BMPs – such as straw wattles, erosion control blankets, and silt fences – will be installed in compliance with the SWPPP. Suitable soil stabilization BMPs will be used to protect exposed areas during construction activities, as specified in the SWPPP. During construction activities, BMPs will be implemented to reduce exposure of construction materials and wastes to stormwater. BMPs will be installed following manufacturer's specifications and according to standard industry practice. ■ Erosion and sediment control measures may include the following: ■ Straw wattle, silt fence, or gravel bag berms ■ Trackout control at all entrances and exits ■ Stockpile management ■ Effective dust control measures ■ Good housekeeping measures ■ Stabilization measures, which may include wood mulch, gravel, and seeding Identified erosion and sediment control measures will be installed prior to the start of construction activities and will be inspected and improved as required by the CGP. Temporary sediment control measures intended to minimize sediment transport from temporarily disturbed areas such as silt fences or wattles will remain in place until disturbed areas are stabilized. In areas where soil is to be temporarily stockpiled, soil will be placed in a controlled area and will be managed using industry-standard stockpile management techniques. Where construction activities occur near a surface waterbody or drainage channel, the staging of construction materials and equipment and excavation spoil stockpiles will be placed and managed in a manner to minimize the risk of sediment transport to the drainage. Any surplus soil will be transported from the site and disposed of in accordance with federal, state, and local regulations.

APM	Description
	The SWPPP will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials will be permitted, if necessary. A copy of the SWPPP will be provided to CPUC for recordkeeping. The plan will be maintained and updated during construction as required by the CGP.
APM HYD-2: Worker Environmental Awareness Program	The worker environmental awareness program will be developed and provided separately to CPUC staff prior to construction. The worker environmental awareness program will communicate environmental issues and appropriate work practices specific to project components to all field personnel. These will include spill prevention and response measures and proper BMP implementation. A copy of the worker environmental awareness program record will be provided to CPUC for recordkeeping at the completion of the project. An environmental monitoring program also will be implemented to ensure that the plans are followed throughout the construction period for project components.
APM HYD-3: Project Site Restoration	As part of the final construction activities, PG&E will restore all removed curbs and gutters, repave, and restore landscaping or vegetation, as necessary.
APM HAZ-1: Development and Implementation of Hazardous Material and Emergency Response Procedures	PG&E will implement construction controls, training, and communication to minimize the potential exposure of the public and site workers to potential hazardous materials during all phases of project construction. Construction procedures that will be implemented include worker training appropriate to the worker's role, and containment and spill control practices in accordance with the Stormwater Pollution Prevention Plan (SWPPP) (APM HYD-1).
APM HAZ-2: Emergency Spill Supplies and Equipment	Materials will be available on the project site during construction to contain, collect, and dispose of any minor spill. Oil-absorbent material, tarps, and storage drums will be available on the project site during construction and will be used to contain and control any minor releases of oil. If excess water and liquid concrete escape during pouring, they will be directed to adjacent lined and bermed areas, where the concrete will dry and then be transported for disposal per applicable regulations.
APM HAZ-4: Worker Environmental Awareness Training Program	A worker environmental awareness training program (WEAP) will be developed and implemented prior to construction. The WEAP program will be established to communicate environmental concerns and appropriate work practices to all construction field personnel. The training program will emphasize site specific physical conditions to improve hazard prevention and will include a review of the SWPPP, which also will address spill response and proper best management practice (BMP) implementation. The WEAP program will be provided separately to CPUC staff prior to construction. If it is necessary to store chemicals, they will be managed in accordance with all applicable regulations. Safety data sheets will be maintained and kept available onsite, as applicable.
APM HAZ-5: Potentially Contaminated Soil or Groundwater	Where there is known potential of contaminated soil in the area based on review of databases of hazardous materials and sites, soil sampling will be conducted in project areas prior to or upon commencement of construction. Soil that is known (based on testing prior to or upon commencement of construction) or suspected of being contaminated (based on visual, olfactory, or other evidence identified during construction) and is removed during trenching or excavation activities will be segregated. These segregated soils will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations before disposal at a non-PG&E facility that is licensed to handle the soil based on contaminants identified from test results. If the soil is taken to a PG&E spoils facilities, the soil will be tested, handled, and disposed of in accordance with applicable state and federal regulations. Appropriate handling, transportation, and disposal locations will be determined based on results of the analyses. If the soil is contaminated above hazardous levels, it will be contained and disposed of offsite at a licensed waste facility. In addition, results will be provided to contractor and construction crews to inform them about soil conditions and potential hazards. The location, distribution, and frequency

APM	Description
	of the sampling locations where there is a known potential of contaminated soil in the area will be determined during final design with the intent to provide adequate representation of the conditions in the construction area. Groundwater is not expected to be encountered during construction. However, if it is encountered, groundwater will be collected during construction, contained, tested, and disposed of in accordance with all applicable regulations. Containment will be done by pumping the groundwater into holding tanks. Noncontaminated groundwater will be released to the stormwater drainage system in the area (with prior approval). If the groundwater is contaminated, it will be disposed of at a facility that accepts liquid hazardous waste, in accordance with applicable regulations.
APM AIR-1: Dust Control During Construction	PG&E will implement measures to control fugitive dust consistent with BAAQMD's Basic Best Management Practices (BAAQMD, 2023) as follows: ■ All exposed surfaces within the active construction area (for example, parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day as necessary to contain dust. ■ All haul trucks transporting soil, sand, or other loose material offsite will be covered. ■ All visible mud or dirt trackout onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. ■ All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph). ■ All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. ■ All grading activities shall be suspended when average wind speeds exceed 20 mph. If excavating soils when average wind speeds exceed 20 mph, soil piles will be lightly sprayed with water to contain dust to the work area. ■ Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations. Where project activities are within 1,000 feet of residential areas, PG&E will also implement the following additional BMPs, consistent with BAAQMD's Enhanced BMPs (BAAQMD 2023): ■ Limit the simultaneous occurrence of excavation, grading, and ground-disturbing construction activities. ■ Minimize the amount of excavated material or waste materials stored at the site. ■ Stabilize soil where project grading occurred and the area is inactive for at least 14 calendar days. Soil stabilization measures may include wood mulch, gravel, seeding or application of other non-toxic soil stabilizer consistent with APM HYD-1.
Field Protocol FP-12	Stockpile soil within established work area boundaries and locate stockpiles so as not to enter water bodies, stormwater inlets, other standing bodies of water. Cover stockpiled soil prior to precipitation events.
Field Protocol FP-15	Prohibit vehicular and equipment refueling 250 feet from the edge of vernal pools and 100 feet from the edge of other wetlands, streams, or waterways. If refueling must be conducted closer to wetlands, construct a secondary containment area subject to review by an environmental field specialist and/or biologist. Maintain spill prevention and cleanup equipment in refueling areas.
AMM Plant-01	No herbicides will be used for vegetation management, pole clearing, or any other purpose within 100 feet of an MBZ (except vegetation management's direct application to cut stumps when greater than 25 feet from an MBZ and in conformance with applicable pesticide regulations).

MBZ = Map Book Zone, defined as an area of occupied or potentially occupied plant habitat as determined by previous PG&E botanical surveys.

3.10.3.2. Impact Significance Criteria

The significance criteria below are adapted from Appendix G of the CEQA Guidelines and address potential impacts related to water quality, groundwater supplies, changes to drainage patterns, pollutant releases, and conflicts with or obstruction of water quality control or sustainable groundwater management plans.

The criteria are whether the proposed Project would:

- **HW-1:** Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?
- **HW-2:** Substantially decrease groundwater supplies or interfere with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?
- **HW-3:** Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion, flooding, or excessive runoff?
- **HW-4:** Risk release of pollutants due to Project inundation in flood hazard, tsunami, or seiche zones?
- **HW-5:** Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Significance criterion HW-3 includes several related terms (erosion, flooding, excessive runoff) that are addressed in the analysis of Impact HW-3 below. Erosion is the breakdown and transportation of soil and rock materials by natural forces like wind and water, which can then result in siltation when sediment is deposited into a new location. As discussed below, BMPs would be implemented to control erosion from within the Project site so that sediment would not be transported to off-site locations, which would then reduce the likelihood of siltation. Similarly, flooding can be caused by runoff, and therefore, BMPs to control runoff would therefore reduce the potential for flooding on- or off-site, as well as excessive runoff. Excessive runoff as listed under significance criterion HW-3 includes runoff that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; therefore, these issues are also addressed under Impact HW-3. Finally, the analysis of flooding also incorporates the potential for impeding or redirecting flood flows.

3.10.3.3. Impacts and Mitigation Measures

The impact assessment considers impacts occurring during construction and those occurring during ongoing operation and maintenance of Project facilities subsequent to construction.

Impact HW-1: Violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.

Construction

As described in EIR Chapter 2, Project Description, the proposed Project includes rebuilding four existing PG&E 115 kV lines and structures, and minor modifications to Moraga and Oakland X substations. Approximately 4 miles of the existing 5 miles of existing overhead lines would be rebuilt overhead, and approximately 1 mile would be rebuilt underground in City streets. The rebuilt underground segment would replace an approximately 1-mile portion of existing overhead lines, which would be removed.

Potential impacts on water quality during Project construction include (1) erosion and increased runoff and sedimentation, and (2) the accidental release of hazardous materials from construction equipment, vehicles, and work areas, as discussed in each of the following sections that address these two issues. The

issues are divided into these two categories because they generally pertain to separate topics, although there is some overlap between them as follows:

- Erosion, increased runoff, and sedimentation are interconnected issues, with erosion often leading to increased runoff and sedimentation. Erosion, the process of soil and rock being detached and transported by natural forces, directly contributes to the amount of sediment available for runoff. When runoff water from rainfall flows over eroded land, the runoff carries the detached soil particles (sediment) downstream. This process increases the volume of sediment being transported, which then leads to sedimentation, the deposition of these sediment particles in water bodies, rivers, or other areas. Stormwater runoff can also carry pollutants from hazardous materials releases, which is a topic that overlaps between the two categories, although the focus of this category is related to controlling runoff.
- The accidental release of hazardous materials from construction equipment, vehicles, and work areas is a separate topic that focuses on the use of chemicals, including fuel, grease, hydraulic fluids, lubricants, solvents, concrete, sealants, etc. during construction, as well as the generation of any waste materials from construction or structure and conductor removal. The focus of this category is related to preventing and responding to accidental releases of hazardous materials.

Erosion and Increased Runoff and Sedimentation. The Project crosses over or is in proximity to several waterbodies, as discussed in Section 3.10.1.3. The overhead power line rebuild alignment would traverse three tributaries of Sausal Creek, which is the only waterbody crossed by the Project that is listed on the CWA Section 303(d) impaired waters list. Several waterbodies are also located downstream of the Project alignment; however, these waterbodies are greater than 1 mile from the Project area. As discussed in Section 3.4, *Biological Resources*, the proposed Project would have no direct impacts on riparian habitats or wetlands. Construction areas and access routes would avoid watercourses. No vehicles or equipment would be required to cross any watercourses other than where the watercourse is already bridged or culverted. As needed, to prevent damage, culverts would be plated to cross. No bridge or culvert replacements are expected to be needed.

Construction activities during the rainy season have the potential to cause erosion and increased runoff and sediment transport into nearby waterbodies, which could degrade surface water quality. Limited soil disturbance would result from vehicle movement, minimal grading, vegetation clearing, and similar activities at pull and tension sites, structure work areas, staging areas, and along temporary access routes. Staging areas, work areas, and existing unpaved access roads would be graded as needed, including minor improvements such as blading or scraping the surface of the area, compacting soil, and applying gravel. Most soil disturbance that could potentially result in erosion and sedimentation would occur during excavation and trenching for installation of the underground portion of the Project, including vaults and conduits. Construction of the overhead power line rebuild and removal would require limited soil disturbance.

Project construction would result in a negligible increase in impervious surfaces, as existing paved and unpaved surfaces would not be substantially modified from existing conditions. In the overhead power line rebuild and removal areas, existing structure foundations would either be left in place or would be removed to approximately 3 feet bgs, backfilled, and compacted; therefore, no increase in impervious surfaces would result in these areas. The underground portion of the rebuilt power lines would be in an existing paved street that would be repaved following construction. All work within Moraga and Oakland X substations would occur within existing buildings and structures.

The only areas that could have an increase in impervious surfaces would be areas with new foundations, which would be limited in size (approximately 8 feet in diameter); as well as staging areas and existing unpaved access roads, which may require minor improvements such as blading the surface of the area, compacting soil, and applying gravel. Therefore, construction activities would have the potential to minimally increase runoff of stormwater contaminated with sediments or other pollutants during construction. Stormwater could be contaminated if it comes into contact with materials onsite and discharges

the contaminants into storm drains. Potential sources of pollution include oil leaked from equipment and vehicles, lubricating grease, hydraulic fluid, antifreeze, transmission fluid, fuel such as gasoline and diesel, construction materials and products, waste materials, and erosion of disturbed soil.

As identified in EIR Chapter 2, Project Description, Section 2.9 (APMs), under Biological Resources, the Bay Area Habitat Conservation Plan (BAHCP) includes Field Protocol (FP)-11, requiring PG&E to use erosion and sediment control BMPs pursuant to PG&E's Stormwater Field Manual for Construction Best Management Practices. These BMPs may include structural features such as water bars and rolling dips, which would be installed within the unpaved road prism as needed to ensure proper drainage off the road. Construction staging areas would include berms and other methods to contain excess water applied for dust control, concrete wash water, and similar liquid construction wastes. Concrete washout stations would be established within staging and laydown areas to contain the washout. Wastewater generated during construction would be contained within portable restrooms and disposed of by a licensed contractor. No wastewater would be discharged from the Project work areas. Water would be used conservatively during construction and would be limited to the minimum needed for dust control such that runoff into offsite locations would not be expected.

PG&E would also develop a SWPPP, as described in APM HYD-1. The SWPPP would specify measures for activities with the potential to degrade water quality through erosion and runoff. Fiber rolls would be placed on downslopes of all work areas and when in proximity to creeks/channels. APM HYD-2 would require the training of construction workers on the proper implementation of water quality BMPs; APM HYD-3 would require the restoration of disturbed areas, so that soils are stabilized following construction; APM AIR-1 would require measures to control dust and loose soils; and FP-12 (from the Bay Area Habitat Conservation Plan) would require that stockpiled soils be located so as not to enter waterbodies, and that soil stockpiles are covered prior to precipitation events.

Accidental Release of Hazardous Materials. Project construction is not anticipated to require the use or storage of large quantities of hazardous materials. These materials would be typical of standard construction activities, and include fuel, grease, hydraulic fluids, lubricants, solvents, concrete, sealants, etc., as well as any waste materials generated during construction or from structure or conductor removal. Staging areas would typically be used for office trailers, portable sanitary facilities, crew and equipment assembly areas, safety and tailboard training areas, equipment and materials storage, minor vehicle and equipment maintenance, equipment refueling, and vehicle parking. Helicopters would be staged and fueled at existing local airports, such as Oakland International Airport, Hayward Executive Airport, Livermore Municipal Airport, or Buchanan Field Airport. However, a fuel truck may be available at Project staging areas to support helicopter refueling if needed.

FP-15 prohibits refueling of vehicle sand equipment within 100 feet from the edge of waterways. In addition, under APM HYD-2, a Woker Environmental Awareness Program would be implemented to ensure that construction workers are trained in the implementation of spill prevention and response measures. These measures would ensure that any hazardous materials are used safely and stored in a secure manner to prevent spills, and that any accidental spills are contained and cleaned up immediately. APMs HAZ-1, HAZ-2, and HAZ-4 also address spill response training and procedures.

As discussed in Section 3.9, Hazards, Hazardous Materials, and Public Safety, while known contaminated sites are located near the Project alignment, none of these sites are located within the alignment, and therefore, these sites would not be disturbed by Project activities. However, the potential exists for unknown sites with contaminated soil to be disturbed during excavation. Under APM HAZ-5 any potentially contaminated soils encountered during construction would be segregated, tested for contaminants, and handled and disposed of in accordance with applicable state and federal regulations. Additional procedures to identify and contain contaminated soil will be detailed in a Soil Management Plan, as required under Mitigation Measure HH-1a.

As discussed in Section 3.10.5, groundwater within the East Bay Plain Sub-basin, located in the western portion of the Project area within the underground power line area, is anticipated at a depth of less than 20 feet bgs; prior investigations along Park Boulevard within the East Bay Plain Sub-basin encountered groundwater at or below 30 feet bgs. Excavation could extend down to 10 feet deep for trenching and 13 feet deep for vaults within the underground power line alignment; therefore, groundwater is not expected to be encountered during construction of the underground power line. Based on the findings of the geotechnical investigation performed for the Project (PG&E, 2024), groundwater during borings taken at Oakland X Substation was encountered at a depth of approximately 45 feet. Within the overhead power line rebuild area, excavation could extend down to 30 feet deep for towers and poles, and 8 feet deep for guard structures. Based on an anticipated groundwater depth of 45 feet within this area, groundwater is also not expected to be encountered during construction of the overhead power line rebuild, and therefore, dewatering is not expected to be required. However, in the event that groundwater is encountered, water quality could be affected if contaminated groundwater is exposed and comes into contact with uncontaminated soil and groundwater during construction, or if contaminant mobility is enhanced as a result of the construction process (cross-contaminating soil during excavation, breaching of a confining layer, or transporting contaminated spoils).

APM HAZ-5 would also require that groundwater be collected during construction, contained, tested, and disposed of in compliance with all applicable regulations. Containment would be achieved by pumping the groundwater into holding tanks. Noncontaminated groundwater would be released to the stormwater drainage system in the area (with prior approval). If the groundwater is contaminated, it would be disposed of at a facility that accepts liquid hazardous waste, in accordance with applicable regulations.

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT WITH MITIGATION. The overhead power line rebuild alignment would traverse three tributaries of Sausal Creek, specifically Shephard Creek, Cobbledick Creek, and Palo Seco Creek at mileposts 3.06, 3.16, and 3.42, respectively. As described previously, Sausal Creek is the only waterbody crossed by the Project that is listed on the CWA Section 303(d) impaired waters list, with a pollutant category of trash (see Section 3.10.1.4).

No trash generated by Project construction would be discharged from Project work areas into the creeks; solid waste generated during construction would be securely contained in dumpsters, or other containers and hauled to appropriate landfills. In addition, under APM HYD-1, BMPs would be implemented during construction, including good housekeeping measures. Typical good housekeeping measures may include, but not be limited to, maintaining a clean, organized and safe environment by cleaning debris regularly and properly storing materials. Scrap, waste, and surplus materials would be removed promptly and disposed of appropriately. Specific areas with appropriate containers for rubbish and waste collection would be established, and loose or light materials would be secured. These measures would minimize the potential for any trash to enter Sausal Creek during construction of the overhead power line rebuild.

Limited soil disturbance would occur during the replacement of the overhead structure foundations where micropiles or drilled-shaft reinforced concrete piers would be installed; these foundations have a small footprint, up to approximately 8 feet in diameter. For guard structures, holes would be augured for wooden poles. In addition, Project construction would result in a negligible increase in impervious surfaces, as existing paved and unpaved surfaces would not be substantially modified from existing conditions. Because of the minimal size of disturbed areas, substantial erosion or increased runoff and sedimentation are not anticipated to result from these activities.

Ten lattice steel towers (LSTs) would also be replaced along the Project alignment. LSTs would have four concrete pier-type foundations, each requiring excavations that would range from 3 to 8 feet in diameter with a total disturbance area of approximately 16 to 28 feet in width. Because of the limited number of

LSTs, construction of these components would result in localized areas of potential erosion and sedimentation.

Implementation of the SWPPP and proper handling, disposal, and spill prevention and response procedures under APMs HYD-1, HYD-2, HYD-3, HAZ-1, HAZ-2, HAZ-4, and HAZ-5 would substantially reduce the risk of potential releases of pollutants into waterbodies. APM HYD-3 would also require the restoration of disturbed areas, so that soils are stabilized following construction; and FP-15 prohibits vehicle and equipment refueling within 100 feet from the edge of waterways. There is still a risk of water quality impacts, which would be a significant impact absent mitigation.

Mitigation Measure HH-1a, Prepare a Soil Management Plan, would minimize the potential for water quality impacts from unexpected contaminated soils that could be disturbed during Project construction. Implementing Mitigation Measure HH-1a would ensure construction of the overhead power line rebuild would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. Therefore, impacts would be less than significant with mitigation.

Overhead Power Line Removal

LESS THAN SIGNIFICANT WITH MITIGATION. Limited soil disturbance would be required during the removal of existing structures. Typically, the same access and staging for replacement structure installation would be used for removal of the corresponding existing structures. Existing structures would be disassembled, and sections would be lifted out by helicopter or crane to the ground to be cut into smaller sections for transport, or structures would be cut and removed piece by piece by hand and carried out by hand. Existing foundations would be left in place or removed, including all concrete and steel typically to 3 feet below ground surface, backfilled, and compacted, unless cutting them off below the ground surface would increase environmental impacts or a landowner prefers to keep the foundation in place on the property. Foundations for replacement structures would be limited in size. Therefore, Project construction would result in a negligible increase in impervious surfaces, as existing paved and unpaved surfaces would not be substantially modified from existing conditions. Because of the minimal size of disturbed areas, substantial erosion or increased runoff and sedimentation are not anticipated to result from these activities.

During the overhead power line removal, the accidental spillage of hazardous materials from waste generated during structure removal could result from inadequate storage, improper handling, or faulty equipment, leading to contamination of soil and water. Accidental releases could result if waste containers leak, spills are not contained quickly, or waste is not properly segregated and disposed of according to regulations. Implementation of the SWPPP and proper handling, disposal, and spill prevention and response procedures under APMs HYD-1, HYD-2, HYD-3, HAZ-1, HAZ-2, HAZ-4, and HAZ-5 would substantially reduce the risk of potential releases of pollutants into waterbodies. APM HYD-3 would also require the restoration of disturbed areas, so that soils are stabilized following construction; and FP-15 prohibits vehicle and equipment refueling within 100 feet from the edge of waterways. Although these APMs would reduce several water quality impacts, potentially significant impacts specifically related to unexpected contaminated soils that could be disturbed during Project construction would still remain. Mitigation Measure HH-1a would be required to minimize potential impacts, ensuring that construction during removal of the overhead power line would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. Therefore, impacts would be less than significant with mitigation.

Underground Power Line

LESS THAN SIGNIFICANT WITH MITIGATION. Most soil disturbance that could potentially result in erosion and sedimentation would be required during excavation and trenching for installation of the underground portion of the Project. Small, temporary stockpiles of excavated soil may be located near an excavation to be used for backfill. FP-12 would require that stockpiled soils be located so as not to enter waterbodies,

and that soil stockpiles are covered prior to precipitation events. APM HYD-3 would also require the restoration of disturbed areas, so that soils are stabilized following construction. Mitigation Measure HH-1a would minimize the potential for water quality impacts from unexpected contaminated soils that could be disturbed during Project construction.

Where the lines are being installed underground, access would be exclusively provided from paved roads, and the use of unpaved roads is not expected. In addition, Project construction would result in a negligible increase in impervious surfaces, as existing paved and unpaved surfaces would not be substantially modified from existing conditions. The underground portion of the rebuilt power lines would be in an existing paved street that would be repaved following construction. Nearby stormwater catch basins within paved roadways would be protected with implementation of the SWPPP developed under APM HYD-1.

Implementation of the SWPPP and proper handling, disposal, and spill prevention and response procedures under APMs HYD-1, HYD-2, HYD-3, HAZ-1, HAZ-2, HAZ-4, and HAZ-5 would substantially reduce the risk of potential releases of pollutants into waterbodies. FP-15 also prohibits vehicle and equipment refueling within 100 feet from the edge of waterways. There is still a risk of water quality impacts, which would be a significant impact absent mitigation.

With implementation of Mitigation Measure HH-1a, Prepare a Soil Management Plan, construction of the underground power line would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. Therefore, impacts would be less than significant with mitigation.

Operations and Maintenance

LESS THAN SIGNIFICANT. O&M activities would consist of routine inspection, repair, and maintenance activities. Inspections and routine patrols would be performed in accordance with the latest version of PG&E's Transmission Owner Maintenance Practices for Electrical Overhead Power Lines, as filed with the California Independent System Operator (CAISO). PG&E inspections would typically be performed annually, by either vehicle or helicopter. Routine maintenance would be performed to correct conditions identified during inspections.

O&M activities could require a major repair to an underground vault; however, minimal ground disturbance is anticipated to complete these types of repairs. No changes in impervious surfaces would result from these activities. O&M activities may also require the use of small amounts of hazardous materials. O&M activities after construction would be similar in nature to current O&M. PG&E's standard protocols for handling these materials would continue to be followed during Project O&M. AMM Plant-01 (see Table 3.10-2) would be implemented as part of the BAHCP; it which prohibits herbicide use for vegetation management within 100 feet of a Map Book Zone (MBZ, defined as an area of occupied or potentially occupied plant habitat as determined by PG&E botanical surveys). O&M activities would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. Therefore, impacts would be less than significant.

Mitigation Measures for Impact HW-1

MM HH-1a **Prepare and Implement a Soil Management Plan.** See full text in Section 3.9 (Hazards, Hazardous Materials, and Public Safety).

With implementation of MM HH-1a, Project construction would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. Therefore, Impact HW-1 would be less than significant with mitigation.

Impact HW-2: Substantially decrease groundwater supplies or interfere with groundwater recharge such that the Project may impede sustainable groundwater management of the basin.

Construction

A maximum of approximately 8,000 gallons of water would be needed daily for dust suppression during construction. Water is anticipated to be obtained from local municipal water sources close to the Project area, which generally do not include groundwater. EBMUD supplies water to communities in Alameda and Contra Costa counties, primarily from surface water within the Mokelumne River watershed in the Sierra Nevada. Depending on availability and distance to active construction, PG&E may also supplement the Project's water needs using recycled water available from EBMUD's main wastewater treatment plant in West Oakland, which may only be used in EBMUD's service area.

As noted under Impact HW-1, groundwater is not expected to be encountered during construction, and dewatering is not expected to be required. However, in the event that groundwater is encountered, dewatering activities would be temporary and would have very localized effects on groundwater levels. In addition, Project construction would result in a negligible increase in impervious surfaces, resulting in minimal impacts on groundwater recharge. Grading, blading, or scraping staging areas, work areas, and existing unpaved access roads may disturb the soil surface, which would result in a temporary reduction in the infiltration and absorption capacity of the affected area. Localized compaction of soil from construction activities, including the use of heavy equipment, could also diminish the stormwater infiltration capacity. These effects would be localized and would create a minor reduction in groundwater recharge potential because of the limited areas of the soil surface where the infiltration and absorption capacity would be affected by the Project. Existing unpaved areas surrounding the Project site would continue to have groundwater recharge capabilities.

LESS THAN SIGNIFICANT. The proposed Project's water needs would not be supplied by groundwater. Because of the localized effects on groundwater resulting from the low potential for dewatering, negligible increase in impervious surfaces, and relatively limited surface disturbance and compaction, groundwater levels and recharge would not be substantially affected. Construction of the overhead power line rebuild, overhead power line removal, and underground power line would not substantially decrease groundwater supplies or interfere with groundwater recharge such that the Project may impede sustainable groundwater management of the basin. Therefore, impacts would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. No groundwater would be used or encountered during O&M activities, and no substantial changes to the ground surface would be required that could affect groundwater levels or recharge. O&M activities would not substantially decrease groundwater supplies or interfere with groundwater recharge such that the Project may impede sustainable groundwater management of the basin. Therefore, impacts would be less than significant.

Impact HW-3: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion, flooding, or excessive runoff.

Construction

As discussed under Impact HW-1, Project construction would result in a negligible increase in impervious surfaces. Staging areas, work areas, and existing unpaved access roads would be graded as needed, including minor improvements such as blading or scraping the surface of the area, compacting soil over a

limited area, and applying gravel. These activities would not substantially alter the existing drainage pattern of the area.

BMPs include structural features such as water bars and rolling dips, which would be installed within the unpaved road prism as needed to ensure proper drainage off the road. Construction staging areas would include berms and other methods to contain excess water applied for dust control, concrete wash water, and similar liquid construction wastes. Concrete washout stations would be established within staging and laydown areas to contain the washout. Wastewater generated during construction would be contained within portable restrooms and disposed of by a licensed contractor. No wastewater would be discharged from the Project work areas. Water would be used conservatively during construction and would be limited to the minimum needed for dust control such that runoff into offsite locations would not be expected. Therefore, the proposed Project would not exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

To reduce the potential for erosion and runoff, PG&E would develop a SWPPP, as described in APM HYD-1. The SWPPP would specify measures for activities with the potential to degrade water quality through erosion and runoff. Fiber rolls would be placed on downslopes of all work areas and when in proximity to creeks/channels. APM HYD-2 would require the training of construction workers on the proper implementation of water quality BMPs; APM HYD-3 would require the restoration of disturbed areas, so that soils are stabilized following construction; APM AIR-1 would require measures to control dust and loose soils; and FP-12 would require that stockpiled soils be located so as not to enter waterbodies, and that soil stockpiles are covered prior to precipitation events.

One existing road for temporary construction access along Wilder Road to the northwest of Moraga Substation crosses an area of 1 percent annual chance flood along an upper tributary of San Pablo Creek (Figure 3.10-2, Potential Flood Zones and Inundation Areas, in Appendix A). No other portions of the Project area are located within an identified Special Flood Hazard Area (SFHA) or FEMA flood zone.

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT. A temporary construction access road, Wilder Road, within the overhead power line rebuild area crosses an area of 1 percent annual chance flood along an upper tributary of San Pablo Creek. However, the proposed Project would not alter the drainage pattern within the roadway or any portion of the overhead power line rebuild area. The existing road would be used for temporary access during construction, and nothing would be stored or placed on the road. The transport of workers and equipment along this existing road would not result in impediments or redirections of floodwaters. In addition, implementation of APMs HYD-1, HYD-2, HYD-3, and AIR-1, as well as FP-12, would reduce the potential for erosion and runoff. With implementation of these measures, construction of the overhead power line rebuild would not 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 result in substantial erosion, flooding, or excessive runoff. Therefore, impacts would be less than significant.

Overhead Power Line Removal

LESS THAN SIGNIFICANT. The proposed Project would not alter the drainage pattern of the overhead power line removal area. Implementation of APMs HYD-1, HYD-2, HYD-3, and AIR-1, as well as FP-12, would reduce the potential for erosion and runoff. With implementation of these measures, the overhead power line removal would not substantially alter existing drainage patterns, in a manner which would result in substantial erosion, flooding, or excessive runoff. Therefore, impacts would be less than significant.

Underground Power Line

LESS THAN SIGNIFICANT. The underground power line would be installed in existing paved streets. Project activities would not redirect or impede flood flows. The proposed Project would not alter the drainage pattern of the underground power line area. Implementation of APMs HYD-1, HYD-2, HYD-3, and AIR-1, as well as FP-12, would reduce the potential for erosion and runoff. With implementation of these measures, construction of the underground power line would not substantially alter the existing drainage patterns in a manner which would result in substantial erosion, flooding, or excessive runoff. Therefore, impacts would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. O&M activities would not alter the drainage pattern of the area, cause any flooding within an identified SFHA or FEMA flood zone, or redirect or impede flood flows. Minimal ground disturbance is anticipated during O&M activities. O&M activities would not substantially alter the existing drainage pattern of the site or area. Therefore, impacts would be less than significant.

Impact HW-4: Risk release of pollutants due to Project inundation in flood hazard, tsunami, or seiche zones.

Construction

The Project area is not located in a tsunami or seiche zone. One existing road for temporary construction access along Wilder Road to the northwest of Moraga Substation crosses an area of 1 percent annual chance flood along an upper tributary of San Pablo Creek (Figure 3.10-2, Potential Flood Zones and Inundation Areas, in Appendix A). No other portions of the Project area are located within an identified SFHA or FEMA flood zone.

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT. A temporary construction access road, Wilder Road, crosses an area of 1 percent annual chance flood along an upper tributary of San Pablo Creek (Figure 3.10-2, Potential Flood Zones and Inundation Areas, in Appendix A). The existing road would be used for temporary access during overhead power line construction, and nothing would be stored or placed on the road that could cause a release of pollutants. However, potential sources of pollution that could be released include dust from ground disturbance and oil leaked from equipment and vehicles traveling along the roadway. PG&E would develop a SWPPP to reduce the risk of pollutant releases, as described in APM HYD-1. With implementation of APM HYD-1, construction of the overhead power line rebuild would not risk release of pollutants due to Project inundation. Therefore, impacts would be less than significant.

Overhead Power Line Removal

LESS THAN SIGNIFICANT. Although the overhead power line removal area is not located in flood hazard, tsunami, or seiche zones, inundation during heavy rainfall could release pollutants during power line removal construction. With implementation of APM HYD-1, which would require a SWPPP to prevent pollutant releases, construction of the overhead power line removal would not risk release of pollutants due to Project inundation. Therefore, impacts would be less than significant.

Underground Power Line

LESS THAN SIGNIFICANT. Although the underground power line area is not located in flood hazard, tsunami, or seiche zones, inundation during heavy rainfall could release pollutants during construction. With implementation of APM HYD-1, which would require a SWPPP to prevent pollutant releases, construction

of the underground power line would not risk release of pollutants due to Project inundation. Therefore, impacts would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. O&M activities would be short duration and periodic within the Project area, and the potential for pollutant releases would be minimal. In addition, these activities would not be completed within flood hazard, tsunami, or seiche zones. O&M activities would not risk release of pollutants due to Project inundation in flood hazard, tsunami, or seiche zones. Therefore, impacts would be less than significant.

Impact HW-5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Construction

The San Francisco Bay Basin Plan is applicable to the Project area; this plan includes a list of Clean Water Act Section 303(d) impaired waters. The overhead power line rebuild alignment would traverse three tributaries of Sausal Creek, which is the only waterbody crossed by the Project that is listed on the CWA Section 303(d) impaired waters list.

The East Bay Plain Sub-basin GSP is also applicable to the Project area. As discussed under Impact HW-2, the proposed Project's water needs would not be supplied by groundwater. Because of the localized effects on groundwater resulting from the low potential for dewatering, negligible increase in impervious surfaces, and relatively limited soil disturbance and compaction, groundwater levels and recharge would not be substantially affected.

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT WITH MITIGATION. Construction of the overhead powerline rebuild would not conflict with the East Bay Plain Sub-basin Groundwater Sustainability Plan because water needs for the Project would not be supplied by groundwater, and because any effects on groundwater would be localized and would not substantially change existing groundwater levels or recharge.

The overhead power line rebuild alignment would traverse three tributaries of Sausal Creek, specifically Shephard Creek, Cobbledick Creek, and Palo Seco Creek at mileposts 3.06, 3.16, and 3.42, respectively (see Figure 3.10-1, Surface Water and Watersheds, in Appendix A). Sausal Creek is the only waterbody crossed by the Project that is listed on the CWA Section 303(d) impaired waters list, with a pollutant category of trash (see Section 3.10.1.4). No trash generated by Project construction would be discharged from Project work areas into the creek. In addition, under APM HYD-1, BMPs would be implemented during construction. Typical good housekeeping measures may include, but not be limited to, maintaining a clean, organized and safe environment by cleaning up debris regularly and properly storing materials. Scrap, waste, and surplus materials would be removed promptly and disposed of appropriately. Specific locations for rubbish and waste collection in appropriate containers would be established, and loose or light materials would be secured. These measures would minimize the potential for any trash to enter Sausal Creek during construction of the overhead power line rebuild.

Implementation of the SWPPP and proper handling, disposal, and spill prevention and response procedures under APMs HYD-1, HYD-2, HYD-3, HAZ-1, HAZ-2, HAZ-4, and HAZ-5 would substantially reduce the risk of potential releases of pollutants into waterbodies. APM HYD-3 would also require the restoration of disturbed areas, so that soils are stabilized following construction; and FP-15 prohibits vehicle and equipment refueling within 100 feet from the edge of waterways. A risk remains for potential impacts to a groundwater management plan, which would be a significant impact absent mitigation.

Mitigation Measure (MM) HH-1a, Prepare and Implement a Soil Management Plan, would minimize the potential for water quality impacts from unexpected contaminated soils that could be disturbed during Project construction. MM H-1a would supplement the APMs previously described, all are required for impacts to be less than significant. With implementation of Mitigation Measure HH-1a, construction of the overhead power line rebuild would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Therefore, impacts would be less than significant with mitigation.

Overhead Power Line Removal

LESS THAN SIGNIFICANT WITH MITIGATION. Impacts of power line removal would be similar to the overhead power line rebuild, except no waterbodies listed on the CWA Section 303(d) impaired waters list are located in this area. The implementation of previously listed APMs would reduce several potential impacts, although potentially significant water quality impacts from unexpected contaminated soils that could be disturbed during Project construction would still remain. With implementation of Mitigation Measure HH-1a requiring a Soil Management Plan, construction of the overhead power line removal would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. MM H-1a would supplement the APMs previously described, all are required for impacts to be less than significant. Therefore, impacts would be less than significant with mitigation).

Underground Power Line

LESS THAN SIGNIFICANT WITH MITIGATION. Impacts of underground power line construction would be similar to the overhead power line rebuild, except no waterbodies listed on the CWA Section 303(d) impaired waters list are located in this Project segment. The implementation of previously listed APMs would reduce several potential impacts, although potentially significant water quality impacts from unexpected, contaminated soils that could be disturbed during Project construction would remain. With implementation of Mitigation Measure HH-1a requiring a Soil Management Plan, construction of the underground power line would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. MM H-1a would supplement the APMs previously described, all are required for impacts to be less than significant. Therefore, impacts would be less than significant with mitigation.

Operations and Maintenance

LESS THAN SIGNIFICANT. No groundwater would be used or encountered during O&M activities, and no substantial changes to the ground surface would be required that could affect groundwater levels or recharge. O&M activities may require the use of small amounts of hazardous materials. O&M activities after construction would be similar in nature to current O&M. PG&E's standard protocols for handling these materials would continue to be followed during Project O&M. AMM Plant-01 (see Table 3.10-2) would be implemented as part of the BAHCP, which prohibits herbicide use for vegetation management within 100 feet of a Map Book Zone. O&M activities would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. In addition, AMM Plant-01 would be implemented, which prohibits herbicide use for vegetation management within 100 feet of a MBZ. O&M activities would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Therefore, impacts would be less than significant.

Mitigation Measures for Impact HW-5

MM HH-1a **Prepare and Implement a Soil Management Plan.** See full text in Section 3.9 (Hazards, Hazardous Materials, and Public Safety).

With implementation of MM HH-1a, impacts associated with the accidental release of pollutants into water bodies would be reduced to a less than a significant level.

3.10.4. Mitigation Measures

MM HH-1a **Prepare and Implement a Soil Management Plan.** The full text of this mitigation measure is included in Section 3.9 (Hazards, Hazardous Materials, and Public Safety).

3.10.5. References

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PG&E (Pacific Gas and Electric Company), 2024. Proponent's Environmental Assessment for Pacific Gas and Electric Company's Moraga–Oakland X 115 kV Rebuild Project. November 15. https://ia.cpuc.ca.gov/environment/info/aspen/moraga-oakland/moraga-oakland.htm.

Piedmont, City of, 2024. *City of Piedmont General Plan. Environmental Hazards Element*. Adopted April 6, 2009, and Updated 2/20/2024. https://cdnsm5-hosted.civiclive.com/UserFiles/Servers/Server_13659739/File/Government/Departments/Planning%20Division/General%20Plan/2024%20General%20Plan/Final%20Piedmont%20Chapter%206%20Environmental%20Hazards%20Element%20Update%202%2020%202024.pdf?v=jVkdzczr3&v=jVkdzczr3. Accessed May 6, 2025.

3.11. Noise

This section describes existing conditions and potential noise impacts associated with construction, operation, and maintenance of the Project. This section addresses noise concepts, existing noise levels, applicable regulations, environmental impacts, and measures to reduce or avoid significant effects. This section also includes analysis of ground vibration that may damage nearby structures or cause annoyance. The analysis concludes that impacts from construction would be less than significant with mitigation, and impacts during operation and maintenance would be less than significant. The applicant proposed measures (APMs) described in Section 3.11.3.1 would reduce potential temporary construction impacts. The project's potential noise-related effects were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are discussed in Section 3.11.3.3.

The scoping effort conducted by CPUC from February 25 through March 27, 2025, resulted in several public comments and concerns relating to Noise. Concerns communicated in the scoping process that are related to noise were considered in the analysis and include:

- Concern that construction noise could disturb the residents who live near the Moraga Substation.
- Outline noise mitigation strategies the Project would employ to ensure Orinda residents would not be adversely impacted.
- Analyze the proposed use of helicopters and their potential to generate noise at a greater distance, and identify measures to reduce this impact.
- Confirm that the Project would comply with the City of Orinda Noise Control Ordinance Chapter 17.39, which states that construction of this magnitude should be limited to 8 a.m. to 6 p.m. on weekdays and from 10 a.m. to 5 p.m. on Saturday, not occur on Sunday, and not utilize heavy construction equipment on weekends.
- Concern that noise from the helicopter landing zones, particularly the one near Wilder Ranch, and from construction would impact the residents along Dolores Way south of the Moraga Substation; City of Orinda requested notification to the city and residents and requested a PG&E or CPUC hotline regarding construction noise and scheduling.

3.11.1. Environmental Setting

The activities associated with the proposed Project would occur in the City of Orinda, unincorporated areas of western Contra Costa County, the City of Piedmont, and the City of Oakland. Land uses of the Project area include noise sensitive receptors near proposed Project activities.

The Project starts in the City of Orinda at Moraga Substation, located approximately 2.5 miles southeast of SR-24. The power lines progress generally southwest and cross through hilly open space and park land in unincorporated Contra Costa County, through an area mainly owned by EBRPD and East Bay Municipal Utility District, to the top of the Oakland Hills; this section is referred to as the eastern section of the Project. At this point, the power lines enter the City of Oakland, where the land use is predominantly residential with some recreational areas. The lines continue southwest down the western side of the Oakland Hills, crossing Skyline Boulevard and paralleling the general alignment of Shepherd Canyon Road to SR-13; this section is referred to as the central section of the Project. From SR-13, the lines parallel the general alignments of Sausal Creek within Dimond Canyon Park and Park Boulevard to Oakland X Substation; this section is referred to as the western section of the Project. Oakland X Substation is approximately 0.10 miles east of Interstate 580 (I 580) near its intersection with Park Boulevard. The existing ROW between Park Boulevard and Oakland X Substation has residential structures directly under the power lines. These were built after the line was in service and include approximately 0.25 miles of ROW within the City of Piedmont.

Major land uses within 1,000 feet of the Project boundary are summarized as follows:

- City of Orinda: Gateway Valley Planning Area (56 percent of land within 1,000 feet of Project boundary); residential (22 percent); and utilities (22 percent) (City of Orinda, 2005)
- Contra Costa County: parks and recreation (83 percent); agricultural lands (7 percent); watershed (7 percent); and public and semi-public (3 percent) (Contra Costa County, 2024)
- City of Oakland: residential (82 percent); resource conservation, parks, and open space (13 percent); institutional, including schools (4 percent); and neighborhood mixed use (1 percent) (City of Oakland, 2023a)
- City of Piedmont: residential (97 percent) and schools/churches (3 percent) (note that 100 percent of area is designated residential land use in the General Plan) (City of Piedmont, 2024)

Within the City of Orinda, land use along the power lines is designated as utility at and near Moraga Substation and Gateway Valley Planning Area along the alignment within the city boundaries (Orinda, 1987). The Gateway Valley Planning Area subsequently designated the area as open space (Orinda, Gateway L.L.C., 2005). Existing land uses that intersect the Project footprint consist of utility (Moraga, Substation and power lines) and open space with recreation trails and dirt access roads.

Within Contra Costa County, land use along the power lines is designated as watershed and parks and recreation (Contra Costa County, 2024). Existing land uses that intersect the project footprint consist of open space with recreational trails, parking areas, and dirt and paved roads.

Within the City of Oakland, land use along the power lines is designated as mixed housing type residential, neighborhood center mixed use, hillside residential, institutional, resource conservation, and urban park and open space (Oakland, 2023a). Existing land uses that intersect the Project footprint consist of residential (primarily single-family with a small number of multi-family units); parks and open space, including Shepherd Canyon Park, Dimond Park, and a golf facility; utilities, including PG&E Oakland X Substation; churches and schools; and a small amount of commercial land.

Within the City of Piedmont, land use along the power lines is designated as low-density residential (City of Piedmont, 2024). Existing land uses that intersect the project footprint consist of single-family residential, a church, and an associated school.

3.11.1.1. Fundamentals of Noise

Noise generally is defined as loud, unpleasant, unexpected, or undesired sound that typically is associated with human activity and that interferes with or disrupts normal activities. Although prolonged exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise, the perceived importance of the noise and its appropriateness in the setting, the time of day and the type of activity during which the noise occurs, and the sensitivity of the individual. Airborne sound is the fluctuation of air pressure above and below atmospheric pressure. Several ways exist to measure sound, depending on the source, receiver, and reason for the measurement.

A measurement scale that simulates human perception is used to describe environmental noise and to assess project impacts on areas that are sensitive to community noise. The A-weighted scale of frequency sensitivity accounts for the sensitivity of the human ear, which is less sensitive to low frequencies, and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria. Decibels (dB) are logarithmic units that can be used to conveniently compare wide ranges of sound intensities. Table 3.11-1 shows typical noise levels in the environment.

Table 3.11-1. Typical Noise Levels in the Environment

Noise Source and Distance	A-Weighted Sound Level (dBA)	Subjective Impression
Civil defense siren (100 ft)	130	Pain threshold
Jet takeoff (200 ft)	120	
Rock music concert (50 ft)	110	
Pile driver (50 ft)	100	Very loud
Ambulance siren (100 ft)	90	
Diesel locomotive (25 ft)	85	Loud
Pneumatic drill (50 ft)	80	
Freeway (100 ft)	70	Moderately loud
Vacuum cleaner (10 ft)	60	
Light traffic (100 ft)	50	
Large transformer (200 ft)	40	Quiet
Soft whisper (5 ft)	30	Threshold of hearing

Source: USEPA, 1974

Another metric used in determining the impact of environmental noise is people's responses to differences in daytime and nighttime noise levels. During the evening and at night, exterior background noises generally are lower than daytime levels. However, most household noise also decreases at night, and exterior noise becomes more noticeable. Furthermore, most people sleep at night and are sensitive to intrusive noises. To account for human sensitivity to evening and nighttime noise levels, the day-night sound level (L_{dn}) (also referred to as DNL) and the community noise equivalent level (CNEL) were developed. The L_{dn} is a noise metric that accounts for the greater annoyance of noise during the nighttime hours (10:00 p.m. to 7:00 a.m.). The CNEL is a noise index that accounts for the greater annoyance of noise during both the evening hours (7:00 p.m. to 10:00 p.m.) and nighttime hours.

For environmental noise over a continuous 24-hour period, the L_{dn} values are calculated by averaging hourly L_{eq} sound levels, applying a weighting factor to the nighttime values of an additional 10 dB. CNEL values are calculated similarly, except that a 5-dB weighting factor also is added to evening L_{eq} values. The applicable adjustments, which reflect people's increased sensitivity to noise during evening and nighttime hours, are applied to each hourly L_{eq} sound level for the calculation of L_{dn} and CNEL. For these adjustments, the 24-hour day is divided into three time periods, as follows:

- Daytime hours: 7:00 a.m. to 7:00 p.m. (12 hours)—adjustment of 0 dBA
- Evening hours (for CNEL only): 7:00 p.m. to 10:00 p.m. (3 hours)—adjustment of +5 dBA
- Nighttime hours (both CNEL and L_{dn}): 10:00 p.m. to 7:00 a.m. (9 hours)—adjustment of +10 dBA (PG&E, 2024)

The hourly adjusted time-period noise levels then are averaged (on an energy basis) to compute the overall L_{dn} or CNEL value. For a continuous noise source, such as a transformer, the L_{dn} value can be computed by adding 6.4 dBA to the overall 24-hour noise level (L_{eq}). For example, if the expected continuous noise level from a noise source is 60.0 dBA, the resulting L_{dn} from the source will be 66.4 dBA. Similarly, the CNEL for a continuous noise source is computed by adding 6.7 dBA to the overall 24 hour L_{eq}.

The general human response to changes in noise levels that are similar in frequency content (such as comparing increases in continuous [L_{eq}] traffic noise levels) are summarized as follows:

- A 3-dB change in sound level is considered a barely noticeable difference,
- A 5-dB change in sound level typically is noticeable,
- A 10-dB increase is considered a doubling in loudness (PG&E, 2024).

Geometric spreading of noise from a source ensures that sound attenuates with distance. The farther one is from the source, the lower the sound level will be. For sources of noise that may be represented by a point source, such as a piece of construction equipment, the sound generally will decrease at a rate of 6 decibels per doubling of distance. For line sources (such as continuous traffic on a roadway), the sound level generally will decrease at a rate of 3 decibels per doubling of distance. At longer distances, atmospheric absorption and other factors may provide additional reductions beyond those provided by distance alone.

3.11.1.2. Human Reaction to Community Noise

Community noise levels usually are closely related to the intensity of human activity. Noise levels generally are considered low when below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA. In wilderness areas, the L_{dn} noise levels can be below 35 dBA. In small towns or wooded and lightly used residential areas, the L_{dn} is more likely to be around 50 or 60 dBA. Levels around 75 dBA are more common in busy urban areas, and levels up to 85 dBA occur near major freeways and airports. Although people often accept the higher levels associated with very noisy urban residential and mixed residential-commercial zones, elevated community noise levels can be adverse to public health.

The most obvious negative effects of excessive noise are physical damage to hearing. Activities most affected by noise include rest, relaxation, recreation, study, and communications. Around 60 dBA, interference of noise with certain activities, such as sleeping and conversation, is relatively well-established. Less obvious are the stress effects of noise (Caltrans, 2013). Areas with full-time human occupation and residency are often considered incompatible with substantial nighttime noise because of the likelihood of disrupting sleep. Nighttime noise levels above 45 dBA can result in the onset of sleep interference. At 70 dBA, sleep interference effects become considerable (U.S. EPA, 1974).

Corona Noise

Corona noise in power lines results from discharge which occurs when the electric field around high-voltage conductors ionizes the surrounding air. This ionization process creates a region of plasma, leading to audible hissing or crackling sounds. Factors such as surface irregularities on new conductors, environmental conditions, and increased moisture during rain can amplify corona noise. For this reason, during wet weather conditions such as rain or fog, corona noise is amplified. However, during heavy rain, the noise generated by the raindrops themselves will typically be greater than the corona noise.

Vibration

Vibration is energy transmitted in waves through the ground, often referred to as groundborne vibration. Groundborne vibration consists of oscillatory waves that propagate from the source through the ground to adjacent structures. The frequency of a vibrating object describes how rapidly it is oscillating. The number of cycles per second of oscillation is the vibration frequency, which is described in terms of Hertz (Hz). The normal frequency range of most groundborne vibration that can be felt generally starts from a low frequency of less than 1 Hz to a high of about 200 Hz. Energy is lost during the transfer of energy from one particle to another, and therefore the vibratory energy is reduced with increasing distance from the source of the vibration.

There are several different methods which are typically used to quantify vibration amplitude. One is the Peak Particle Velocity (PPV), and another is the root-mean-square (RMS) velocity, both measured in inches per second. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV is often used in monitoring construction and other peak events since it is related to the stresses that are experienced by buildings.

Human response to vibration can range from annoyance at lower levels to difficulties concentrating or reading at higher levels. Measuring annoyance often uses the ground vibration velocity level in decibel scale, referenced to 10^{-6} inches per second, or vibration decibels (VdB). The background vibration velocity level in residential areas is usually 50 VdB or lower, and buses and trucks rarely create vibration that exceeds 70 VdB unless there are bumps or potholes in the road.

For most projects, the highest levels of vibration occur during construction and assessment is conducted to evaluate the potential damage to nearby buildings. The Federal Transit Administration (FTA) manual establishes construction damage criteria in terms of PPV (FTA, 2018). Although the guidance is not enforceable, it provides a basis for evaluating potential vibration from the proposed Project because the construction equipment and activities associated with transportation projects are similar to those used to construct electrical transmission projects.

3.11.1.3. Noise Sensitive Receptors

Noise sensitive receptors generally are defined as locations where people reside or where the presence of unwanted sound may adversely affect the existing land use. Typically, noise-sensitive land uses include residences, hospitals, places of worship, libraries, performance spaces, offices, and schools, as well as nature and wildlife preserves, recreational areas, and parks. Sensitive receptors within 1,000 feet of the Project boundary were identified using publicly available mapping tools. About two-thirds of the Project is in relatively dense urban residential areas. Therefore, nearly all the identified sensitive receptors are residences.

Residential areas containing noise sensitive receptors within 1,000 feet of the Project are shown on Figure 3.11-1. Table 3.3-3 in Section 3.3, Air Quality, lists 6 daycare facilities, 10 schools, 2 elderly housing facilities, and 10 parks and open spaces within 1,000 feet of the project. No hospitals or libraries are within 1,000 feet of the Project. Office buildings were not identified in these residential areas. Most of the construction equipment would be used at the work areas shown on **Error! Reference source not found.**Figure 3.11-1, Residential Receptors Near Project Features, in Appendix A. Sensitive receptors are described in the following sections by alignment section.

Modify Moraga Substation

Moraga Substation is located within the City of Orinda on Lost Valley Drive. There are approximately 115 sensitive receptors located within 1,000 feet of Moraga Substation. The closest receptors to the substation work area are approximately 575 feet to the southeast of the substation. A staging area is located adjacent to the substation work area. The closest receptors to the staging area are approximately 100 feet to the south.

Rebuild Overhead Lines – Eastern Section

Between Moraga Substation and the top of the Oakland Hills there are approximately 71 residences within 1,000 feet of the eastern section of the 115 kV power lines and associated work areas. The sensitive receptors closest to work areas are near Moraga Substation. Sensitive receptors are approximately 520 feet from the tension pull site adjacent to Moraga Substation. Six potential landing zones are identified in the eastern section of the project. Five of the potential landing zones are more than 2,000 feet from the closest residence in the City of Orinda, in the City of Oakland or in the community of Canyon. In addition, a helicopter landing zone is collocated with a staging area to the northwest of Moraga Substation near the community of Wilder in the City of Orinda. The closest receptor to this staging area is approximately 225 feet. The alignment in the eastern section also passes through Sibley Volcanic Regional Preserve and Huckleberry Regional Botanic Preserve and users of recreational trails in the preserves may be within 1,000 feet of the Project. However, trail users are transient and can choose to avoid trails when construction is occurring nearby, and as such are not being treated as noise sensitive receptors. Impacts related to recreation are discussed in EIR Section 3.14 (Recreation).

Rebuild Overhead Lines – Central Section

Between the top of the Oakland Hills and SR-13 there are approximately 1,362 sensitive receptors within 1,000 feet of the central section of the 115 kV power lines. Of these, 129 sensitive receptors are within 100 feet of the lines to be rebuilt or near work areas, and 30 sensitive receptors are within 50 feet. In addition, a staging area is located south of the power lines along Monterey Boulevard at Lincoln Avenue. There are approximately 239 sensitive receptors within 1,000 feet of the staging area.

Rebuild Western Portion Underground – Western Section

The western section of the Project, most of which would be constructed as part of the rebuild western portion underground work stream, is between SR-13 and Oakland X Substation. The lines transition between overhead and underground on four transition structures. The rebuilt Circuits 1 and 2 on the northern line would transition to underground northwest of the intersection of Estates Drive and Park Boulevard and then follow in Park Boulevard. The rebuilt Circuits 3 and 4 on the southern line also would transition to underground from transition structures along Park Boulevard south of its intersection with Estates Drive. The existing overhead structures and lines would be removed between the transition point at the northwest corner of Park Boulevard and Estates Drive to Oakland X Substation. There are approximately 2,980 sensitive receptors within 1,000 feet of the western section of the project alignment west of SR-13. Of these, 380 sensitive receptors fall within 100 feet of the lines to be rebuilt or work areas, and 119 sensitive receptors are within 50 feet.

Modify Oakland X Substation

Oakland X Substation is located within the City of Oakland on Park Boulevard near I-580. There are approximately 445 sensitive receptors located within 1,000 feet of Oakland X Substation. Sensitive receptors surround the substation, with the closest receptor located approximately 30 feet to the north.

3.11.1.4. Existing Ambient Noise Levels Setting

Existing ambient sound levels may vary both temporally and spatially for several reasons. That is, there is no single answer for what the existing sound level is at any location —ambient sound levels vary. For example, wind may result in rustling vegetation noise on one day, whereas calm conditions on another day will result in different sound levels, even at the same location. Changes in traffic patterns and volumes over the course of a day, periodic landscaping and maintenance activities, and building construction in an urban environment can result in different levels of sound.

Existing day and night sound levels can be estimated based on land use category. In lieu of a baseline ambient noise level survey, PG&E uses a methodology from the American National Standards Institute (ANSI) to divide land uses into six distinct categories (PG&E, 2024). Descriptions of these land use categories, along with the typical day and nighttime levels, are provided in Table 3.11-2.

Table 3.11-2. Sound Levels Corresponding to Land Use and Population Density

Category	Land Use	Description	People per Square Mile	L_{eq}, Day (dBA)	L_{eq} Night (dBA)
1.	Noisy Commercial and Industrial Areas and Very Noisy Residential Areas	Very heavy traffic conditions, such as in busy "downtown" commercial areas; at intersections for mass transportation or for other vehicles, including elevated trains, heavy motor trucks, and other heavy traffic; and at street corners where many motor buses and heavy trucks accelerate.	63,840	66	58

Category	Land Use	Description	People per Square Mile	L_{eq}, Day (dBA)	L_{eq} Night (dBA)
2.	Moderate Commercial and Industrial Areas and Noisy Residential Areas	Heavy traffic areas with conditions similar to Category 1 but with somewhat less traffic; routes of relatively heavy or fast automobile traffic, but where heavy truck traffic is not extremely dense.	20,000	61	54
3.	Quiet Commercial, Industrial Areas, and Normal Urban and Noisy Suburban Residential Areas	Light traffic conditions where no mass transportation vehicles and relatively few automobiles and trucks pass, and where these vehicles generally travel at moderate speeds. Residential areas and commercial streets and intersections with little traffic comprise this category.	6,384	55	49
4.	Quiet Urban and Normal Suburban Residential Areas	These areas are similar to Category 3, but for this group the background is either distant traffic or is unidentifiable. Typically, the population density is one-third the density of Category 3.	2,000	50	44
5.	Quiet Residential Areas	These areas are isolated, far from significant sources of sound, and may be situated in shielded areas such as a small, wooded valley.	638	45	39
6.	Very Quiet, Sparse Suburban, or Rural Residential Areas	These areas are similar to Category 4, but are usually in sparse suburban or rural areas, and for this group there are few if any near sources of sound.	200	40	34

Source: PG&E, 2024. Based on Annex C of the American National Standards Institute (ANSI) Standard S12.9, *Quantities and Procedures for Description and Measurement of Environmental Sound—Part 3: Short-term Measurements with an Observer Present* (Annex C ANSI Standard S12.9, 2023).

The residential areas in the vicinity of the Project alignment range between “noisy residential” (Category 2) to “quiet residential” (Category 5). Because the Project alignment spans a wide range of land use types, existing sound levels for the noise sensitive residential areas are expected to range widely, between 39 dBA at night to 61 dBA during the day.

For sensitive receptors that are in the City of Oakland, the existing noise levels are taken from a 2004 citywide noise monitoring survey (Oakland, 2004). Three long-term and four short-term monitoring locations from the study were located within approximately 1 mile of the Project alignment (see Figure 3.11-2 **Error! Reference source not found.** EIR Appendix A).

Measurements conducted at the long-term and short-term measurement locations are presented in Table 3.11-3 and Table 3.11-4, respectively. Noise levels in the project area, as measured in this study, ranged from a nighttime low L_{eq} of 32 dBA near Skyline Boulevard to a high of 73 dBA near I-580. The variation in sound levels corresponds with population densities and proximity to major transportation corridors. For example, the lowest sound levels were measured at LT-2, a location in a less densely populated area, further from major roads. Short-term, daytime, measurements had a range in L_{eq} from 59 to 67 dBA. The range in daytime sound levels measured in the study generally is consistent with the ranges presented in Table 3.11-2 for ”noisy commercial” to “quiet commercial” areas, while the nighttime sound levels were more closely aligned with ”noisy commercial” areas.

Table 3.11-3. City of Oakland, Long-Term (LT) Noise Measurements

Site	Location (Distance, in feet, from Centerline of Road)	Date	Noise Levels (dBA)		L_{dn}
			Daytime (L_{eq})	Nighttime (L_{eq})	
LT-2	Skyline Boulevard (approximately 20 ft), at 7293 Skyline Boulevard	8/17 to 8/19/2004	55 to 68	32 to 58	61 to 63
LT-3	SR-13 (approximately 90 ft), at Monterey Boulevard and Maiden Lane	8/17 to 8/19/2004	67 to 72	57 to 69	72
LT-7	I-580 (approximately 186 ft), at Wesley Street	8/17/2004	72 to 73	—	—

Source: City of Oakland, 2004; PG&E, 2024

Table 3.11-4. City of Oakland, Short-Term (ST) Noise Measurements

Site	Location (Distance, in feet, from Centerline of Road)	Date; Time	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{eq}
ST-4	Moraga Avenue (approximately 54 ft), at Harbor Drive	8/18/2004; 12:15 a.m.	74	45	72	70	63	55	65
ST-6	Shepard Canyon Road (approximately 63 ft), at Paso Robles Drive	8/18/2004; 2:00 a.m.	77	41	70	63	52	44	59
ST-7	Park Boulevard (approximately 63 ft), at Everett Avenue	8/23/2004; 2:00 a.m.	78	46	76	71	64	53	67
ST-8	Lincoln Avenue (approximately 42 ft), at Burlington Street	8/23/2004; 2:20 a.m.	83	42	77	67	56	46	65

Source: City of Oakland, 2004; PG&E, 2024

3.11.2. Applicable Regulations, Policies, and Standards

3.11.2.1. Federal

No federal regulations that limit overall environmental noise levels are applicable to the project.

The federal Occupational Safety and Health Administration (OSHA) establishes regulations to safeguard the hearing of workers exposed to occupational noise or equipment noise (29 CFR Section 1910.95, Code of Federal Regulations), and these safeguards help to avoid excessive noise at construction sites. The permissible occupational noise exposure during an 8-hour period is a level of 90 dBA.

Guidance

Federal Transit Administration Transit Noise and Vibration Impact Assessment Manual (FTA, 2018)

The Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual is the second edition of the guidance manual that was originally released in 1995 that presents guidance and procedures to assess noise and vibration impacts particularly those associated with proposed mass transit projects. The update contains noise and vibration impact criteria to assess the magnitude of predicted impact and contains a range of mitigation measures to deal with adverse noise and vibration impacts.

FHWA Roadway Construction Noise Model User's Guide (User's Guide) (FHWA, 2006)

The Federal Highway Administration (FHWA) developed the Roadway Construction Noise Model to predict noise levels from various construction activities, and the User Guide explains how to input data and interpret results to estimate construction noise impacts. It also provides the most recent comprehensive assessment of noise levels from construction equipment.

3.11.2.2. State

The State of California, through the Governor's Office of Land Use and Climate Innovation, provides guidance for local jurisdictions in the preparation of General Plans and how the local plans address community noise (LCI, 2023). Local governments have discretion to adopt the state-wide recommendations as necessary for each local setting.

CalTrans Vibration Guidance

The CalTrans Vibration Guidance Manual provides guidelines for determining and managing vibration impacts associated with transportation projects. It outlines methods for assessing and mitigating noise and vibration to minimize adverse effects on surrounding communities (CalTrans, 2020).

3.11.2.3. Local

Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the Project, the MOX Project is not subject to local (city and county) discretionary regulations except for air districts and Certified Unified Program Agencies with respect to air quality and hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

The proposed Project would be located within the City of Orinda, unincorporated areas of Contra Costa County, and the cities of Oakland and Piedmont. This section considers policies and regulations of these jurisdictions as they relate to noise in the project area.

A summary of the local noise regulations by the jurisdiction is presented in Table 3.11-5.

Table 3.11-5. Summary of Local Noise Regulations for Construction Activities

Jurisdiction (Project Component)	Local Noise Regulations Information
City of Orinda (Moraga Substation)	Construction Noise – exempt from noise limit Construction is limited to 8:00 a.m. to 6:00 p.m. Monday through Friday and 10:00 a.m. to 5:00 p.m. on Saturday. No construction is to be conducted on Sundays or major holidays. No heavy construction equipment is to be used Saturdays or Sundays.
Unincorporated Contra Costa County (eastern section of project alignment)	No established noise ordinance.
City of Oakland (central section and most of western section of project alignment, and Oakland X Substation)	Construction Noise – noise limits are established for short-term (less than 10 days) and long-term (more than 10 days) construction duration. <u>Daytime Construction Noise at Residential Receiving property</u> ■ 80 dBA (short term) and 65 dBA (long term) from 7:00 a.m. to 7:00 p.m. Monday through Friday ■ 65 dBA (short term) and 55 dBA (long term) from 9:00 a.m. to 8:00 p.m. Saturday and Sunday <u>Daytime Construction Noise at Commercial or Industrial Receiving property</u> ■ 85 dBA (short term) and 70 dBA (long term) from 7:00 a.m. to 7:00 p.m. Monday through Friday ■ 70 dBA (short term) and 60 dBA (long term) at property from 9:00 a.m. to 8:00 p.m. Saturday and Sunday <u>Nighttime Construction Noise</u> ■ Nighttime noise limit for construction between 7:00 p.m. and 7:00 a.m. Monday through Friday or between 8:00 p.m. and 9:00 a.m. on Saturdays and Sundays and federal holiday shall not exceed the applicable nighttime noise level standards in Section 17.120.050 of the Oakland Municipal Code.
City of Piedmont (portion of western section of alignment)	No established limits on daytime construction noise. No construction may be conducted between 6:00 p.m. and 8:00 a.m. Monday through Friday, or from 6:00 p.m. to 9:00 a.m. Saturday through Sunday.

Source: City of Orinda, 2024; Contra Costa County, 2025; City of Piedmont, 2025; City of Oakland, 2024; PG&E, 2024

City of Orinda

Noise-controlling criteria are presented in the City's General Plan and Municipal Code as detailed in the following subsections.

City of Orinda General Plan

The *City of Orinda General Plan* (Orinda, 1987) includes a Noise Element containing setting information, a brief discussion of issues, and guiding and implementing policies. Traffic is the primary source of continuous noise in the city and noise contour maps that are included in the Noise Element.

The City of Orinda Noise Element guiding policies and implementing policies include the following:

- Guiding Policies

  B. Prevent unnecessary noise from all sources.

- Implementing Policies

  C. Develop ordinance to limit noise created by temporary activities such as building construction to the shortest duration possible, and to daytime hours wherever possible. All reasonable noise mitigation measures would be used.

  F. Adopt a comprehensive noise ordinance.

Orinda Municipal Code

The City of Orinda regulates noise by Chapter 17.39 of the Orinda Municipal Code (City of Orinda, 2024). Orinda has established a limit of 60 dBA not to be exceeded on any other property from the source of the noise. Construction is specifically exempted from this limit by Section 17.39.A.

Construction is addressed in Section 17.39.3:

A. Intent. The purpose of this section is to regulate hours of construction in order to balance the desire of Orinda residents for a reasonably quiet home environment with the desire of their neighbors, also Orinda residents, to improve their properties efficiently and economically. The City Council recognizes the cost to individual homeowners of requiring rented equipment to lie idle and the fact that unanticipated weather conditions may affect home construction project timing. On the other hand, the City Council expects that residents will carefully plan home construction projects to avoid typical adverse weather conditions, to finish as quickly as possible and to impact fellow neighbors as little as possible. Although exceptions to the limitations of this section may be granted, the council intends that such exceptions be granted only when the Zoning Administrator determines them to be reasonable and necessary, balancing the rights of all interested persons.

B. General. It is unlawful to conduct or maintain construction activities in the City of Orinda during times other than those set forth in this subsection.

1. Weekdays. Monday through Friday, construction activities may occur between the hours of eight a.m. and six p.m.

2. Saturdays. On Saturdays, construction activities may occur between the hours of ten a.m. and five p.m.

3. Sundays. On Sundays, construction activities are prohibited except for minor maintenance and improvement projects conducted by no more than two persons, one of whom resides on the property full-time, between the hours of ten a.m. and five p.m. and not involving the use of heavy construction equipment.

4. Holidays. On the following holidays, construction activities are prohibited: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. This rule supersedes the restrictions in subsections (B)(1), (B)(2) and (B)(3) of this section. No exceptions from this holiday prohibition may be granted.

C. Notice. An applicant for a building permit or grading permit shall post a sign describing the permitted hours of construction and permitted hours for use of heavy equipment in a conspicuous location near the property entrance legible from the edge of the roadway. The exact wording of the sign shall be prescribed by the Planning Department. In addition, an applicant for a building permit or grading permit shall provide written notice to each residence within three hundred (300) feet of any portion of the subject property in the form and manner prescribed by the Planning Department.

D. Heavy Construction Equipment. It is unlawful to use heavy construction equipment for residential construction on Saturdays and Sundays except as otherwise provided in this chapter. The Zoning Administrator shall have the discretion to determine if a particular machine is considered "heavy construction equipment" for purposes of Section 17.39.2.

Contra Costa County General Plan

The following paragraph summarizes the guidelines established in Contra Costa County's General Plan for operational and temporary construction activities.

The project traverses a generally uninhabited area of unincorporated Contra Costa County.[38] The Health and Safety Element of the *Contra Costa County General Plan* 2045 provides goals, policies, and implementation programs to minimize exposure to excessive noise sources that may cause undue stress or annoyance. It includes an analysis of major noise sources in the County and noise contours along major traffic corridors (Contra Costa County, 2024). It also sets noise standards to prevent new noise conflicts by addressing the needs of noise-sensitive land uses, establishing noise-reducing project design features, and establishing appropriate noise emission standards.

Relevant Contra Costa County Health and Safety Element Noise and Vibration goals and policies include the following:

- Goal

  HS-14. An acceptable noise environment in all areas of the county.

- Policies

  HS-P14.3. Require new nonresidential uses exposed to a DNL of 65 dB or greater to provide a detailed acoustical analysis describing how the project will provide an interior sound level of 50 Leq (1-hr).

  HS-P14.5. Protect noise-sensitive land uses listed in Table HS-3 from adverse noise impacts by requiring mitigation to the degree feasible for projects that would increase long-term noise in excess of the following thresholds, when measured at the sensitive use's property line:

  (a) Greater than 1.5 dBA DNL increase for ambient noise environments of 65 dBA DNL and higher.
  (b) Greater than 3 dBA DNL increase for ambient noise environments of 60 to 64 DNL.
  (c) Greater than 5 dBA DNL increase for ambient noise environments of less than 60 dBA DNL.

  HS-P14.7. Condition entitlements to limit noise-generating construction activities to the following:

  (a) Weekdays and non-holidays unless site-specific conditions warrant exceptions.
  (b) Within 1,000 feet of noise-sensitive uses: 7:30 a.m. to 5:00 p.m.
  (c) Over 1,000 feet from noise-sensitive uses: 7:00 a.m. to 6:00 p.m.

  HS-P14.8. Require a traffic noise analysis for development projects where the project would generate more than 40 percent of daily trips over existing average daily traffic (ADT) on impacted roadway

[38] There are no sensitive receptors in unincorporated Contra Costa County within 1,000 feet of the project. The noise receptors adjacent to the work within unincorporated Contra Costa County are located within the city limits of Orinda and Oakland. The noise regulations for Contra Costa County, City of Orinda, and City of Oakland are summarized for completeness.

segments. Projects below this threshold are assumed to have no significant traffic noise impact because they would increase noise levels by less than 1.5 dBA DNL, which is the most restrictive threshold for determining a significant traffic noise impact. This screening policy does not apply to projects involving a substantial number of new operational truck trips (e.g., warehouses).

HS-P14.9. Require effective measures along major transportation facilities/corridors to reduce impacts on adjacent noise sensitive land uses.

HS-P14.10. Require new development to evaluate noise impacts on the natural environment, including impacts on wildlife, whenever appropriate.

- Action HS-A14.1. Study the feasibility of adopting a noise ordinance establishing maximum exterior noise levels at sensitive receptors for noise generated by permanent and temporary stationary, non-transportation sources and construction sources.

Contra Costa County has not established a noise ordinance in the County Code (Contra Costa County, 2025).

City of Oakland

Noise-controlling criteria are presented in the City's General Plan and Municipal Code as detailed in the following subsections.

City of Oakland General Plan

The *City of Oakland General Plan* (Oakland, 2005) includes a Noise Element containing goals, objectives, and policy actions designed to provide direction for the city to guide development-related decision-making to protect residents' exposure to excessive noise. The major noise sources in Oakland are transportation related, including major thoroughfares, the rapid transit rail system, and international airport. A citywide noise study was performed in 2004, and noise contours are presented in the General Plan. The noise contour maps provide a basis for establishing acceptability of proposed land uses by location. The General Plan also includes the noise-land use compatibility matrix by noise exposure levels.

Goals and policy statements established in the General Plan regarding noise are as follows:

- **Goals**

  To protect Oakland's quality of life and the physical and mental well-being of residents and others in the City by reducing the community's exposure to noise; and

  To safeguard Oakland's economic welfare by mitigating noise incompatibilities among commercial, industrial, and residential land uses.

- **Policy 1** – Ensure the compatibility of existing and, especially, of proposed development projects not only with neighboring land uses but also with their surrounding noise environment.
  - **Action 1.1**: Use the noise-land use compatibility matrix (Figure 6) in conjunction with the noise contour maps (especially for roadway traffic) to evaluate the acceptability of residential and other proposed land uses and also the need for any mitigation or abatement measures to achieve the desired degree of acceptability.
  - **Action 1.2**: Continue using the City's zoning regulations and permit processes to limit the hours of operation of noise-producing activities which create conflicts with residential uses and to attach noise-abatement requirements to such activities.

- **Policy 2** – Protect the noise environment by controlling the generation of noise by both stationary and mobile noise sources.
  - **Action 2.1:** Review the various noise prohibitions and restrictions under the City's nuisance noise ordinance and revise the ordinance if necessary.
  - **Action 2.2:** As resources permit, increase enforcement of noise-related complaints and also of vehicle speed limits and of operational noise from cars, trucks and motorcycles.
- **Policy 3** – Reduce the community's exposure to noise by minimizing the noise levels that are received by Oakland residents and others in the City. (This policy addresses the reception of noise whereas Policy 2 addresses the generation of noise.)
  - **Action 3.2:** Review the City's noise performance standards and revise them as appropriate to be consistent with City Council policy.

Some noise-related policies are also included in other elements of the General Plan. The following policy statements are from the Land Use and Transportation Element:

- **Policy T1.6:** Designating truck routes. An adequate system of roads connecting port terminals, warehouses, freeways and regional arterials, and other important truck destinations should be designated. This system should rely upon arterial streets away from residential neighborhoods.
- **Policy T1.8:** Re-routing and enforcing truck routes. The City should make efforts to re-route traffic away from neighborhoods, wherever possible, and enforce truck route controls.

Oakland Municipal Code

Chapter 17 of the Oakland Municipal Code contains noise performance standards and a nuisance noise ordinance. The noise performance standards establish maximum noise levels across real property lines at residential, commercial, manufacturing, and other specified land uses. Maximum noise levels for both short- and long-term construction and demolition activities are also established in the Code. The nuisance noise ordinance generally prohibits "excessive or annoying" noise.

Section 17.120.050 of the Oakland Municipal Code states the following.

- All activities shall be so operated that the noise level inherently and regularly generated by these activities across real property lines shall not exceed the applicable values indicated in Subsection A., B., or C. as modified where applicable by the adjustments indicated in Subsection D. or E. Further noise restrictions are outlined in Section 8.18.010 of the Oakland Municipal Code.

  A. Residential Zone Noise Level Standards. The maximum allowable noise levels received by any Residential Zone are described in Table 17.120.01 [reproduced as Table 3.11-6].

Table 3.11-6. Maximum Allowable Receiving Noise Level Standards, Residential and Civic

Cumulative Number of Minutes in Either the Daytime or Nighttime One Hour Time Period	Daytime 7:00 a.m. to 10:00 p.m.	Nighttime 10:00 p.m. to 7:00 a.m.
20	60	45
10	65	50
5	70	55
1	75	60
0	80	65

Source: City of Oakland, 2024; PG&E, 2024

B. Commercial Noise Level Standards. The maximum allowable noise levels received by any land use activity within any Commercial Zone (including the Housing and Business Mix HBX Zones, and the Central Estuary District D-CE-3 and D-CE-4 Zones) are described in Table 17.120.02 [reproduced as Table 3.11-7].

Table 3.11-7. Maximum Allowable Receiving Noise Level Standards, Commercial

Cumulative Number of Minutes in Either the Daytime or Nighttime One Hour Time Period	Anytime
20	65
10	70
5	75
1	80
0	85

Source: City of Oakland, 2024; PG&E, 2024

C. Industrial, Agricultural and Extractive Noise Level Standards. The maximum allowable noise levels received by any land use activity within any Industrial Zone are described in Table 17.120.03 [reproduced as Table 3.11-8].

Table 3.11-8. Maximum Allowable Receiving Noise Level Standards, Industrial, Agricultural, and Extractive

Cumulative Number of Minutes in Either the Daytime or Nighttime One Hour Time Period	Anytime
20	70
10	75
5	80
1	85
0	90

Source: City of Oakland, 2024; PG&E, 2024

D. In the event the measured ambient noise level exceeds the applicable noise level standard in any category above, the stated applicable noise level shall be adjusted so as to equal the ambient noise level.

E. Each of the noise level standards specified in Subsections A., B., and C. shall be reduced by five (5) dBA for a simple tone noise such as a whine, screech, or hum, noise consisting primarily of speech or music, or for recurring impulse noise such as hammering or riveting.

G. Temporary Construction or Demolition Which Exceed the Following Noise Level Standards.

1. The daytime noise level received by any Residential, Commercial, or Industrial land use which is produced by any nonscheduled, intermittent, short-term construction or demolition operation (less than ten (10) days) or by any repetitively scheduled and relatively long-term construction or demolition operation (ten (10) days or more) shall not exceed the maximum allowable receiving noise levels described in Table 17.120.04 [reproduced as Table 3.11-9].

2. The nighttime noise level received by any land use and produced by any construction or demolition activity between weekday hours of seven (7) p.m. and seven (7) a.m. or between eight (8) p.m. and nine (9) a.m. on weekends and federal holidays shall not exceed the applicable nighttime noise level standards outlined in this Section.

Table 3.11-9. Maximum Allowable Receiving Noise Level Standards, dBA

Land Use	Daily 7:00 a.m. to 7:00 p.m.	Weekends 9:00 a.m. to 8:00 p.m.
Short-Term Operation of Construction Equipment (less than 10 days)		
Residential	80	65
Commercial, Industrial	85	70
Long-Term Operation of Construction Equipment (10 days or more)		
Residential	65	55
Commercial, Industrial	70	60

Source: City of Oakland, 2024; PG&E, 2024

Excessive and annoying noises are prohibited in Section 8.18 of the City of Oakland Municipal Code. An "annoying noise" is defined as a noise with a repetitive pattern, shrill frequencies, and/or static-like sounds, including loud music. Noise from leaf blowers, alarms, engines, barking dogs, and other animals is included in the definition of “annoying noises.” "Excessive noise" is defined as any unnecessary noise which persists for ten minutes or more. Section 8.18.010 includes the following prohibitions on excessive and annoying noises.

A. It is unlawful for any person to create or allow to be created any excessive or annoying noise as defined herein. Any violation of the regulations specified herein shall be punishable as an infraction.

C. Excessive and Annoying Noises a Nuisance. The following acts, and the causing or permitting thereof, shall be considered disturbing the peace and shall constitute an infraction.

1. Mechanical or Electronic Devices. Using any mechanical or electronic device for the intensification of any sound or noise into the public streets which produces excessive or annoying noise;

6. Stationary Nonemergency Signaling Devices. Sounding of any electronically amplified signal from any stationary bell, chime, siren, whistle, or similar device, intended primarily for nonemergency purposes, from any place, for more than ten seconds in an hourly period. Churches, schools, and bell towers shall be exempt from the operation of this provision;

8. Loading and Unloading. Loading, unloading, opening, closing, or other handling of boxes, crates, containers, building materials, refuse, or similar objects between the hours of nine p.m. and six a.m. in such a manner as to cause a noise disturbance across a residential property line or at any time to violate the applicable noise provisions of the Oakland Planning Code;

9. Domestic Power Tools, Machinery. Operating or permitting the operation of any mechanically powered saw, sander, drill, grinder, lawn or garden tool, or similar tool between nine p.m. and six a.m. so as to create a noise disturbance across a real property line or at any time to violate the applicable noise provisions of the Oakland Planning Code;

10. Sensitive Uses. Creation of any noise within or adjacent to a hospital or medical care facility, nursing home, school, court, day care, church, or similar facility, so as to interfere with the functions of such activity;

11. Noise resulting from construction and demolition activities, the operation of commercial refrigeration units, air conditioning systems, compressors, commercial exhaust systems, ventilation units, and other commercial or industrial noises associated with land use activities, shall be regulated pursuant to standards contained within the noise regulations of the Oakland Planning Code.

Section 8.18.020 includes the following statements on persistent noises that are a nuisance.

- The persistent maintenance or emission of any noise or sound produced by human, animal, or mechanical means, between the hours of nine p.m. and seven a.m. next ensuing, which, by reason of its raucous or nerve-racking nature, shall disturb the peace or comfort, or be injurious to the health of any person shall constitute a nuisance.
- Failure to comply with the following provisions shall constitute a nuisance.

  A. All construction equipment powered by internal combustion engines shall be properly muffled and maintained.

  B. Unnecessary idling of internal combustion engines is prohibited.

  C. All stationery noise-generating construction equipment such as tree grinders and air compressors are to be located as far as is practical from existing residences.

  D. Quiet construction equipment, particularly air compressors, are to be selected whenever possible.

  E. Use of pile drivers and jack hammers shall be prohibited on Sundays and holidays, except for emergencies and as approved in advance by the Building Official.
- Whenever the existence of any such nuisance shall come to the attention of the Health Officer, it shall be his or her duty to notify in writing the occupant of the premises upon which such nuisance exists, specifying the measures necessary to abate such nuisance, and unless the same is abated within forty-eight (48) hours thereafter, the occupant so notified shall be guilty of an infraction, and the Health Officer shall summarily abate such nuisance.

Vibration is addressed in Section 17.120.060 of the City of Oakland Municipal Code:

- All activities, except those located within the M-40 Zone, the D-CE-1, D-CE-2, D-CE-5, or D-CE-6 Zones, or in the D-CO, IG, M-30, or CIX Zones more than four hundred (400) feet from any Residential Zone boundary, shall be so operated as not to create a vibration which is perceptible without instruments by the average person at or beyond any lot line of the lot containing such activities. Ground vibration caused by motor vehicles, trains, and temporary construction or demolition work is exempted from this standard.

City of Oakland CEQA Thresholds of Significance Guidelines

To help clarify and standardize analysis and decision-making in the CEQA process, the City of Oakland has established guidelines for agencies preparing environmental review documents (Oakland, 2023b).

City of Oakland provides analytical guidelines on permanent increases of noise and vibration, land use compatibility, and construction effects. For construction impacts, the City of Oakland recommends finding that a project would have a significant impact on the environment if it would:

- Generate noise in violation of the City of Oakland Noise Ordinance (Oakland Planning Code section 17.120.050) regarding construction noise, except if an acoustical analysis is performed that identifies recommend measures to reduce potential impacts. The acoustical analysis must identify, at a minimum, (a) the types of construction equipment expected to be used and the noise levels typically associated with the construction equipment and (b) the surrounding land uses including any sensitive land uses (e.g., schools and childcare facilities, health care and nursing homes, public open space). If sensitive land uses are present, the acoustical analysis must recommend measures to reduce potential impacts.
- Generate noise in violation of the City of Oakland nuisance standards (Oakland Municipal Code section 8.18.020) regarding persistent construction-related noise.

- Expose persons to or generate groundborne vibration that exceeds the criteria established by the Federal Transit Administration: 80 VdB for infrequent events that impact residential land use receivers.

City of Piedmont

Noise-controlling criteria are presented in the City's General Plan and Municipal Code as detailed in the following subsections.

City of Piedmont General Plan

The *City of Piedmont General Plan* (Piedmont, 2024) includes an Environmental Hazards Element that addresses noise. The City of Piedmont is described as a relatively quiet residential city. As such, domestic noise sources are a greater concern. Noise sources are regulated by the Piedmont Municipal Code and the Building Code. The Environmental Hazards Element includes short-term and long-term noise measurements conducted in 2007. The resulting ambient noise levels range from 65 dBA near major thoroughfares to generally below 60 dBA and in most cases below 50 dBA. As noted in the General Plan, the hilly terrain and wooded character of the city provide additional noise shielding.

Noise compatibility standards for different land uses are presented in Table 3.11-10.

Table 3.11-10. Recommended Maximum Allowable Receiving Noise Level Standards, dBA (L_{dn})

		Exterior		
Land Use	**Interior**	**Normally Acceptable**	**Conditionally Acceptable**	**Normally Unacceptable**
Low-density Residential	45	<60	60-70	>70
Medium-density Residential	45	<65	65-70	>70
Office	55	<65	65-75	>75
Retail	60	<65	65-75	>75
Schools/Churches	45	<60	60-70	>70
Parks and Playgrounds	—	-<67	67-75	>75

Source: City of Piedmont, 2024; PG&E, 2024

Goals, policies, and actions contained in the Environmental Hazards Element of the General Plan include the following:

Goal 22: Noise

- Maintain the peace and quiet of Piedmont neighborhoods.

Policies and Actions

- **Policy 22.2**: Noise Reduction Measures: Require new development with the potential to create long-term increases in noise volumes to mitigate potential impacts. Noise reduction techniques, such as sound muffling devices, building orientation, buffers, landscaping, and acoustical barriers, should be used as appropriate.
- **Policy 22.3**: Transportation Noise: Support efforts to mitigate the sources of transportation noise in the city, especially AC Transit buses and other motor vehicles.
- **Policy 22.6**: Non-Piedmont Noise Sources: Seek to reduce noise emanating from outside the city limits when it detrimentally affects Piedmont residents. This policy applies to such sources as the Oakland Rose Garden, I-580, and Oakland and San Francisco International Airports.
- **Policy 22.7**: Construction Noise Reduction: For projects within 500 feet of a noise sensitive land use and that involve subterranean parking, large excavation, construction over 18 months in duration,

and/or the use of heavy-duty equipment, a Construction Noise Study prepared by a qualified noise expert shall be required. The Construction Noise Study shall characterize sources of construction noise, quantify noise levels at noise-sensitive uses, and identify feasible measures to reduce noise exposure. The project shall incorporate the feasible measures identified in the study. Noise reduction techniques may include, but are not limited to, shielding and silencing construction equipment, enclosing and screening outdoor fixed equipment, placing construction staging areas away from noise-sensitive uses, using smart adjusting back-up alarms for mobile construction equipment, controlling worker radio noise, installing temporary sound barriers, designating a noise complaint response protocol, shall be used as appropriate.

- **Policy 22.8**: Vibration Control Plan: For construction activities involving vibratory rollers and sonic pile drivers within 40 feet of a historic structure or impact pile drivers within 115 feet of a historic structure, or if an impact pile driver is used within 60 feet of an occupied structure, the applicant shall prepare a Vibration Control Plan prior to the commencement of construction activities. The Vibration Control Plan shall be prepared by a licensed structural engineer and shall include methods required to minimize vibration such as alternative installation methods for pile driving or vibration monitoring. The Vibration Control Plan shall also establish baseline conditions at potentially affected structures, provide shoring design to protect buildings and structures from damage, document damage at the conclusion of vibration generating activities, and include recommendations for repair if necessary.
- **Action 22.A**: Noise Compatibility Guidelines: Follow the noise compatibility guidelines in Table 6.4 (Table 3.11-10) for future development. The table specifies the maximum noise levels that are normally acceptable, conditionally acceptable, and normally unacceptable for new development. If a project is in a "normally acceptable" noise contour, an increase in noise up to the maximum should not necessarily be allowed. The impact of a proposed project on existing land uses should be evaluated in terms of the potential for adverse community impacts, regardless. The noise compatibility guidelines are intended to apply to post-construction conditions and exclude construction-related noise.
- **Action 22.D**: Enforcement of Noise Regulations: Enforce rules and regulations pertaining to noise, including the California Motor Vehicle Code and Chapter 12 of the Piedmont Municipal Code. Continue to implement the Title 24 noise standard of 45 dBA Ldn in all habitable rooms.

Piedmont City Code

Section 12.8 of the Piedmont City Code (Piedmont, 2025) identifies nuisance noise as loud, unnecessary, and unusual noise. To evaluate whether a noise is a nuisance, the ambient noise level, the sound level of the objectionable noise, the intensity of the noise, whether the noise is continuous or intermittent, the duration and tonal content of the noise, the proximity of the noise to sleeping facilities, the zoning of the area, and the nature of the source all are considered.

- Notwithstanding any other provision of this Code, and in addition thereto, it is unlawful for any person to willfully make or continue or cause to be made or continued or to allow any animal to make or continue to make any loud, unnecessary, or unusual noise which disturbs the peace and quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitivity residing in the area. Such noise is declared to be a nuisance.
- 12.8.1 Standards to Be Considered. The standards which shall be considered in determining whether a violation of the provisions of this section exists shall include, but not be limited to, the following:

  (a) The sound level of the objectionable noise;
  (b) The sound level of the ambient noise;
  (c) The proximity of the noise to residential sleeping facilities;
  (d) The nature and zoning of the area from which the noise emanates;
  (e) The density of the inhabitation of the area from which the noise emanates;

(f) The time day or night the noise occurs;
(g) The duration of the noise and its tonal content;
(h) Whether the noise is continuous, recurrent or intermittent;
(i) Whether the noise is produced by a commercial or non-commercial activity;
(j) The intensity of the noise;
(k) Whether the noise is natural or unnatural;
(l) Whether the noise is usual or unusual.

- 12.8.2 Prohibited Noise. In addition to the prohibition described in paragraph 12.8.1, the following noise is specifically prohibited:

  (a) Construction and Demolition. Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition activities between the hours of 6:00 p.m. and 8:00 a.m. each day, Sunday evening through Saturday morning, and between the hours of 6:00 p.m. and 9:00 a.m. Saturday evening through Sunday morning.

- 12.8.3 Exceptions

  (a) Emergency Repairs. Emergency work conducted by public service utilities or governmental agencies shall be exempt from the provisions of this ordinance; provided that in the case of such emergency work, the public service utilities or government agencies involved shall promptly contact the Piedmont Police Department prior to or within 30 minutes after commencing such emergency Offenses-Miscellaneous 12-5 work, providing the Police Department with the exact location of the work, the time anticipated to complete the work, the nature of the work to be performed, and whether any assistance from the Police Department or other City services are anticipated in connection with such emergency work.

  (b) Other. The City Administrator may grant temporary written exceptions to the Noise Ordinance upon the showing of good cause by the Applicant.

3.11.3. Environmental Impacts

3.11.3.1. Impact Analysis Approach

This impact analysis considers whether implementation of the proposed Project would result in significant noise impacts as compared with applicable local noise standards and baseline conditions. The analysis uses significance criteria based on the CEQA Appendix G Guidelines. The potential direct and indirect effects of the proposed Project are addressed. Effects that would result from operation and maintenance of the proposed Project are also addressed.

Applicant Proposed Measures (APMs) listed in Table 3.11-11 would be implemented as part of the proposed Project. APM NOI-1 is superseded by Mitigation Measure N-1a and Mitigation Measure N-1b, and APM NOI-8 is superseded by Mitigation Measure N-2a (see Section 3.11.4, Mitigation Measures).

Table 3.11-11. Applicant Proposed Measures – Noise

APM	Description
Noise	
APM NOI-1	**General Construction Noise Management**. PG&E will employ standard noise-reducing construction practices such as the following: ■ Comply with manufacturer's muffler requirements on all construction equipment engines and ensure exhaust mufflers are in good condition. ■ Turn off construction equipment when not in use, where applicable. ■ Locate stationary equipment, construction staging areas, helicopter landing zones, and construction material areas as far as practical from sensitive receptors.

APM	Description
	■ Include noise control requirements for construction equipment and tools in specifications provided to construction contractors to the maximum extent practicable, including performing all work in a manner that minimizes noise. ■ PG&E will provide written notice at least 1 week prior to planned construction activities to all sensitive receptors and residences within approximately 500 feet of construction sites, staging yards, access roads, and areas of drone use, and within approximately 1,000 feet of helicopter landing zones. PG&E also will post notices in public areas, including recreational use areas, within approximately 500 feet of the project alignment and construction work areas. The announcement will state approximately where and when construction will occur in the area, including areas of helicopter construction. Notices will provide tips on reducing noise intrusion – for example, by closing windows facing the planned construction. PG&E will identify a public liaison to respond to concerns of neighboring receptors during construction, including residents, about construction noise disturbance. PG&E also will establish a toll-free telephone number for receiving questions or concerns during construction and develop procedures for responding to callers. Contact information for reaching the PG&E public liaison officer by telephone or in person will be included in the notices and also posted conspicuously at the construction sites. PG&E will respond to questions or concerns received.
APM NOI-2	**Noise Minimization with Portable Barriers**. Compressors and other small stationary equipment used during construction of PG&E project components will be shielded with portable barriers if appropriate and if located within approximately 200 feet of a residence.
APM NOI-3	**Noise Minimization with Quiet Equipment.** Quiet equipment will be used during construction of PG&E project components whenever possible (for example, equipment that incorporates noise control elements into the design, such as quiet model compressors or generators, can be specified).
APM NOI-4	**Noise Minimization through Direction of Exhaust.** When in proximity to noise-sensitive uses, equipment exhaust stacks and vents will be directed away from those noise-sensitive uses where feasible.
APM NOI-5	**Nighttime Noise Disruption Minimization through Residential Notification.** In the event that nighttime construction is necessary for PG&E project components– for instance, if certain activities such as underground line splicing need to continue to completion – affected residents will be notified in advance by mail, personal visit, or door-hanger, and will be informed of the expected work schedule.
APM NOI-6	**Helicopter Noise Minimization Measures.** PG&E will select helicopter landing zones that are located at least 500 feet from occupied residences where feasible. Nearby residences will be notified at least 1 week ahead of helicopter operations to minimize concerns regarding helicopter noise.
APM NOI-7	**Noise Minimization Equipment Specification.** PG&E will specify general construction noise reduction measures that require the contractor to ensure that all equipment is in good working order, adequately muffled, and maintained in accordance with the manufacturers' recommendations.
APM NOI-8	**Incorporate Vibration Assessment into Project Construction.** Where pile driving may be required adjacent to residential or commercial uses, final design efforts and construction methods will consider soils and hammer type and use when assessing potential for vibration. Vibration monitoring will be conducted during pile driving activities, or in response to a complaint, to confirm that vibration levels are within acceptable guidelines. Site-specific minimization measures such as modifying the type of hammer, reducing hammer energy, modifying hammer frequency, or using vibratory pile driving will be implemented as necessary to reduce the potential effects of off-site vibration. Monitoring may be reduced or eliminated when it has been established that these measures, if required, are effective for the site conditions.

3.11.3.2. Impact Significance Criteria

Project impacts related to noise were evaluated against the CEQA significance criteria and are discussed in the following sections. This section evaluates potential project impacts during the construction phase and the operation and maintenance phase.

Significance Criteria

Would the proposed Project:

- **N-1:** Expose persons to or generate a substantial temporary or permanent increase in noise levels in excess of established standards?
- **N-2:** Expose persons to or generate excessive groundborne vibration?
- **N-3:** For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.

  Construction, operation, and maintenance of proposed Project components would occur at a distance greater than 2 miles from a public airport; therefore, there would be no impact and N-3 is not discussed further.

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts related to noise were evaluated for each of the criteria listed above.

Given that environmental noise levels vary widely over time, a three dBA change is the minimum change in environmental noise that is perceptible and recognizable by the human ear. Permanent increases in day-night environmental noise levels of more than five dBA (L_{dn} or CNEL) are considered to be substantial. Intermittent noise sources, such as those typical during construction, are temporary or periodic and normally cease after a short duration. Factors to be considered in determining the significance of an adverse impact caused by an intermittent source include: (1) the resulting noise level, (2) the duration and frequency of the noise, (3) the number of people affected, and (4) the land use designation of the affected receptor sites.

3.11.3.3. Impacts and Mitigation Measures

Impact N-1: Expose persons to or generate a substantial temporary or permanent increase in noise levels in excess of established standards.

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. Construction of the proposed Project would require the use of heavy equipment that has the potential to generate excessive noise in the Project vicinity. Table 3.11-12 lists typical equipment used in power line construction and the associated noise levels at a reference distance of 50 feet from the noise source. The construction of the proposed Project would last for approximately 35 months with concurrent construction of multiple proposed Project components throughout the construction period. Construction at any one location is expected to be two weeks or less. Noise associated with construction of the proposed Project would temporarily increase ambient noise levels in the Project vicinity. The magnitude of the increase would vary depending on the activity and distance to noise-sensitive receptors.

Typical noise levels generated by the construction equipment listed in Chapter 2, Project Description, have been calculated previously and published in various reference documents. The expected equipment noise levels listed in the FHWA *Roadway Construction Noise Model User's Guide* (User's Guide) (FHWA, 2006) were used for this evaluation. The User's Guide provides the most recent comprehensive assessment of noise levels from construction equipment.

Table 3.11-12 provides typical noise levels and usage factors for general construction equipment and activities consistent with the FHWA Roadway Construction Noise Model. The acoustical usage factor does not equate to the percentage of time the equipment is in use, but rather the percentage of time that it is operated at its maximum sound emission level (PG&E, 2024).

Table 3.11-12. Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor (%)	Specified L_{max} at 50 feet (dBA)	Calculated L_{eq} at Specified Distance (dBA)			
			100 feet	200 feet	500 feet	1,000 feet
Auger Drill Rig	20	85	72	66	58	52
Backhoe	40	80	70	64	56	50
Bar Bender	20	80	67	61	53	47
Boring Jack Power Unit	50	80	71	65	57	51
Chain Saw	20	85	72	66	58	52
Clam Shovel (dropping)	20	93	80	74	66	60
Compactor (ground)	20	80	67	61	53	47
Compressor (air)	40	80	70	64	56	50
Concrete Batch Plant	15	83	69	63	55	49
Concrete Mixer Truck	40	85	75	69	61	55
Concrete Pump Truck	20	82	69	63	55	49
Concrete Saw	20	90	77	71	63	57
Crane	16	85	71	65	57	51
Dozer	40	85	75	69	61	55
Drill Rig Truck	20	84	71	65	57	51
Drum Mixer	50	80	71	65	57	51
Dump Truck	40	84	74	68	60	54
Excavator	40	85	75	69	61	55
Flat Bed Truck	40	84	74	68	60	54
Front End Loader	40	80	70	64	56	50
Generator	50	82	73	67	59	53
Generator (less than 25 kVa)	50	70	61	55	47	41
Gradall	40	85	75	69	61	55
Grader	40	85	75	69	61	55
Grapple (on backhoe)	40	85	75	69	61	55
Horizontal Boring Hydraulic Jack	25	80	68	62	54	48
Hydra Break Ram	10	90	74	68	60	54
Impact Pile Driver	20	95	82	76	68	62
Jackhammer	20	85	72	66	58	52
Man Lift	20	85	72	66	58	52
Mounted Impact Hammer (hoe ram)	20	90	77	71	63	57
Pavement Scarifier	20	85	72	66	58	52
Paver	50	85	76	70	62	56
Pickup Truck	40	55	45	39	31	25
Pneumatic Tools	50	85	76	70	62	56
Pumps	50	77	68	62	54	48
Refrigerator Unit	100	82	76	70	62	56
Rivet Buster/Chipping Gun	20	85	72	66	58	52
Rock Drill	20	85	72	66	58	52
Roller	20	85	72	66	58	52
Sand Blasting (single nozzle)	20	85	72	66	58	52
Scraper	40	85	75	69	61	55

Equipment Description	Acoustical Usage Factor (%)	Specified L_{max} at 50 feet (dBA)	Calculated L_{eq} at Specified Distance (dBA)			
			100 feet	200 feet	500 feet	1,000 feet
Shears (on backhoe)	40	85	75	69	61	55
Slurry Plant	100	78	72	66	58	52
Slurry Trenching Machine	50	82	73	67	59	53
Soil Mix Drill Rig	50	80	71	65	57	51
Tractor	40	84	74	68	60	54
Vacuum Excavator (vac-truck)	40	85	75	69	61	55
Vacuum Street Sweeper	10	80	64	58	50	44
Ventilation Fan	100	85	79	73	65	59
Vibrating Hopper	50	85	76	70	62	56
Vibratory Concrete Mixer	20	80	67	61	53	47
Vibratory Pile Driver	20	95	82	76	68	62
Warning Horn	5	85	66	60	52	46
Welder/Torch	40	73	63	57	49	43
All Other Equipment Greater than 5 Horsepower	50	85	76	70	62	56

Source: PG&E, 2024
kVa = kilovolt-ampere(s)
L_{eq} = time-averaged sound level
L_{max} = highest sound level measured during a single noise event

As shown in Table 3.11-12, the loudest typical construction equipment generally emits noise in the range of 80 to 90 dBA at 50 feet. This assessment focuses on a typical level of 85 dBA at 50 feet with a usage factor of 40 percent. Noise at any specific receptor is normally dominated by the closest and most persistent source of noise. The types and numbers of construction equipment near any specific receptor location would vary over time. Because the exact equipment used at any specific location and time varies, impacts assume the noise levels from five pieces of the noisiest equipment could be in use in the same work area simultaneously (PG&E, 2024).

The following assumptions were used for modeling construction noise:

- One piece of equipment generating a reference noise level of 85 dBA (at 50 feet distance with a 40 percent usage factor) located on the power line route
- Two pieces of equipment generating reference noise levels of 85 dBA located 50 feet farther away on the power line route (100 feet distance with a 40 percent usage factor)
- Two additional pieces of equipment generating reference noise levels of 85 dBA located 100 feet farther away on the power line route (200 feet distance with a 40 percent usage factor) (PG&E, 2024).

Table 3.11-13 presents the predicted construction equipment noise levels at various distances based on these assumptions.

Table 3.11-13. Construction Equipment Noise Levels Versus Distance

Distance from Construction Activity (feet)	L_{eq} Noise Level (dBA)	Distance from Construction Activity (feet)	L_{eq} Noise Level (dBA)
50	83	800	63
100	79	1,600	58
200	74	3,200	52
400	69	6,400	46

Source: PG&E, 2024
Refer to text narrative preceding this table for the assumptions of this noise modeling scenario.

Table 3.11-14. Construction Equipment Noise Relative to Surrounding Land Uses

Distance from Construction Activity (feet)	Construction L_{eq} Noise Level (dBA)	Commercial 66 dBA	Noisy Residential 61 dBA	Noisy Suburban 55 dBA	Normal Suburban 50 dBA	Quiet Residential 45 dBA
		Magnitude of Change (dBA)				
50	83	17	22	28	33	38
100	79	13	18	24	29	34
200	74	8	13	19	24	29
400	69	3	8	14	19	24
800	63	NPD	2	8	13	18
1,600	58	NPD	NPD	3	8	13
3,200	52	NPD	NPD	NPD	2	7
6,400	46	NPD	NPD	NPD	NPD	1

Source: Comparison of modeled construction noise with daytime L_{eq} within corresponding land use types.
Note: NPD=No Perceptible Difference.

Humans perceive a 10 dBA magnitude change in noise level as a doubling (or halving) of loudness. Table 3.11-14 shows the magnitude of change in L_{eq} that could intermittently occur when construction is active within each type of land use of the setting (Table 3.11-2).

Overhead Power Line Rebuild

Eastern Section

LESS THAN SIGNIFICANT WITH MITIGATION. Construction activities in the Eastern Section of the Overhead Rebuild would involve rebuilding power lines overhead, including installation of new support structures, and removing existing lines east of Estates Drive. Construction activities would occur near sensitive receptors, and intermittent elevated noise levels would occur in the vicinity of existing structure locations along the current alignment. Construction throughout the entire Project would last approximately 35 months, though rebuilding of lines overhead is anticipated to occur over 18 months, with work at any particular location being periodic.

The Eastern section of the power line is in unincorporated Contra Costa County, other than four eastern-most towers which are in City of Orinda. No noise ordinance has been established for unincorporated Contra Costa County and no sensitive receptors are located within this jurisdiction. The City of Orinda exempts construction from the noise ordinance maximum noise level at receiving properties but establishes limits to the time of day when construction can be performed. Construction is limited by city ordinance to 8:00 a.m. to 6:00 p.m., Mondays through Fridays, and 10:00 a.m. to 5:00 p.m. on Saturdays. No construction is to be performed on Sundays or major holidays. No heavy construction equipment is to be used on Saturdays or Sundays, but an exemption to allow use may be granted.

Within the eastern section of the project, helicopter use is anticipated as a part of the conductor stringing operation, and in support of construction survey staking; lifting and transporting of structure components; transporting crew to towers; and lifting equipment for tower installation. It is estimated that approximately 30 days of helicopter use with an average of 5-6 hours per day would be necessary during construction. Generally, helicopters would be staged and fueled at existing local airports, such as Oakland International Airport, Hayward Executive Airport, Livermore Municipal Airport, or Buchanan Field Airport. However, a fuel truck may be available at project staging areas to support refueling if needed. Helicopter temporary landing zones would use existing nearby airstrips and commercial airports, or where feasible they would be co-located with pull and tension sites or staging areas. There would be a designated area for helicopter takeoff and landing in each temporary landing zone or staging area.

Helicopter flights would generally follow the proposed Project alignment and would avoid flying directly over residences, though PG&E states that, while unlikely, final construction plans may require helicopters to transport suspended loads over residences. Helicopter use within 500 feet of residences would be limited to daylight hours. Approximately 10 to 15 minutes of hover time at each structure would be required, and the remaining flight time would be between the structure sites and pulling and tensioning areas. The helicopter type would depend on availability at the time of construction; however, a light-duty helicopter (e.g., Hughes MD 500 or equivalent) with a load capacity of approximately 1,200 pounds, or a medium-duty helicopter (e.g., Bell 407 LongRanger, Sikorsky UH-60 Black Hawk, or equivalent) with a load capacity of approximately 6,000 to 9,000 pounds are expected to be used. Light- and medium-duty helicopters have a level-flight noise level of approximately 79 dBA at 250 feet from the helicopter, which drops to 73 dBA at 500 feet (PG&E, 2024) Potential helicopter landing zones are shown on Figure 2.1-2 (Proposed Project Detail Map), or helicopters would use existing nearby airstrips and commercial airports.

Table 3.11-15 presents the maximum sound levels at various distances for helicopter use.

Table 3.11-15. Maximum Helicopter Noise Levels

Equipment Description	Activity	L_{max} at 100 feet (dBA)	L_{max} at 250 feet (dBA)	L_{max} at 500 feet (dBA)	L_{max} at 1,000 feet (dBA)	L_{max} at 2,000 feet (dBA)
Light Helicopter	Takeoff	88	80	74	68	62
	Landing	91	83	77	71	65
	Level Flight	87	79	73	67	61
	Hover	85	77	71	65	59
Medium Helicopter	Takeoff	87	79	73	67	61
	Landing	92	84	78	72	66
	Level Flight	87	79	73	67	61
	Hover	85	77	71	65	59

Source: PG&E, 2024.

This assessment concludes that a limited number of residences could experience temporary, but potentially substantial, annoyance caused by intermittent helicopter activity. Additionally, battery-operated drones may be used in the central and western sections of the proposed Project to remove existing overhead line where it would not be replaced, and to string the new static ground wire (SW) and an optical ground wire (OPGW) in the rebuilt overhead alignment. It is anticipated that the drone would be used for approximately 2 calendar weeks up to 8 hours per day, and would have a flight time of up to approximately 40 minutes at which point the battery would need to be charged to resume operation. Use of a drone avoids use of a helicopter or extensive labor, which would involve multiple days walking the alignment, crossing through yards, dragging rope, and throwing rope over obstacles. Noise from drones would be anticipated to approximately 60 dBA or less at 50 feet, which would be less than light-duty helicopters.

Helicopters would be used to support reconductoring, lift structures, and install OPGW in the eastern section of the proposed Project. Six potential helicopter landing zones that may be used were identified in the eastern section of the project. One of six potential landing zones would be located near the southern extent of the Wilder community in the City of Orinda, approximately 225 feet from the closest residence. At this distance, a light helicopter is expected to produce an L_{max} of 80 dBA for takeoff and 83 dBA for landing (PG&E, 2024). The other five potential landing zones are more than 2,000 feet from the closest residence in the City of Orinda, City of Oakland, or the community of Canyon.

There are approximately 71 sensitive receptors within 1,000 feet of the eastern section. The City of Oakland, in Section 17.120.050 of the Oakland Municipal Code, has established noise limits based on the duration of construction, such as "nonscheduled" short-term activity lasting less than 10 days or "any repetitively scheduled" long-term activity lasting more than 10 days. The closest residence to an eastern section work area in the City of Oakland is approximately 130 feet. The estimated noise level at this receptor during construction would be approximately 77 dBA which would exceed the long-term (65 dBA) daytime, weekday noise limit for construction at residential receiving properties.

The closest residence to a work area associated with the Eastern Section in the City of Orinda is approximately 620 feet, with an estimated noise level from typical construction of approximately 65 dBA, this would not be in exceedance of any noise limits, as daytime, weekday construction is exempt from the City of Orinda 60 dBA noise limit. Construction in the Eastern Section of the Overhead Rebuild Segment would result in an exceedance of the City of Oakland long-term (65 dBA) daytime, weekday noise limit, but does not exceed the exceed the short-term (80 dBA) limit within the City of Oakland or any other noise limits in the City of Orinda.

The residential areas in the vicinity of the Project alignment range between "noisy residential" to "quiet residential" with existing noise levels that are expected to range between 45 to 61 dBA during the day. For the receptors that would experience intermittently increased noise levels during construction of approximately 77 dBA in Oakland, this temporary impact would be approximately 16 dBA louder than existing conditions. This resulting difference in noise level is substantial, and receptors would perceive the noise as three times louder than baseline levels. For comparison, 77 dBA would be similar to loud traffic noise.

For the receptors in the City of Orinda, baseline sound levels would be expected to be within the 50 to 55 dBA range. These receptors would be exposed to intermittently increased noise levels during construction of approximately 65 dBA, which would be 10 to 15 dBA louder than baseline levels. This difference in noise level is substantial, and a receptor would perceive the noise around two to three times louder than baseline levels.

To reduce construction noise, Mitigation Measures MM N-1a and MM N-1b, which specify source-specific noise control techniques and require providing written advance notification to potentially impacted agencies and land uses, are recommended. These controls would ensure that feasible noise reduction strategies are implemented. Impacts would be less than significant with mitigation.

Central Section

LESS THAN SIGNIFICANT WITH MITIGATION. Construction throughout the entire project would last approximately 35 months, though rebuilding of lines overhead is anticipated to occur over 18 months. The Central Section of the Overhead Rebuild is within the City of Oakland. At each structure location, construction activities would be short term (typically several days) and would take place between 7:00 a.m. and 7:00 p.m., construction hours in the central section may differ from the eastern section, as the noise ordinance in the City of Orinda in the eastern section has more stringent restrictions on construction hours. There are approximately 1,362 sensitive receptors within 1,000 feet of the central section, of which there are 129 sensitive receptors within 100 feet, and 30 sensitive receptors within 50 feet of work areas. At 100 feet, the estimated noise level from construction would be approximately 79 dBA and at 50 feet, it would be approximately 84 dBA. These estimated levels would exceed both the short-term (80 dBA) and long-term (65 dBA) daytime, and weekday noise limits established by the City of Oakland for construction at residential receiving properties.

Construction in the central section of the Overhead Power Line Rebuild would result in an exceedance of the City of Oakland short-term (80 dBA) and long-term (65 dBA) daytime, weekday noise limits. For the receptors that would experience intermittently increased noise levels during construction of approximately 84 dBA in Oakland, this temporary impact would be approximately 23 dBA louder than existing

conditions. This resulting difference in noise level is substantial, and receptors would perceive the noise as over four times louder than baseline levels.

To reduce construction noise, Mitigation Measures MM N-1a and MM N-1b, which specify source-specific noise control techniques and require providing written advance notification to potentially impacted agencies and land uses, are recommended. These controls would ensure that feasible noise reduction strategies are implemented. Impacts would be less than significant with mitigation.

Underground Power Line

Western Section

LESS THAN SIGNIFICANT WITH MITIGATION. Rebuilding of lines underground is anticipated to occur over 19 months. The Western Section work would be located primarily in the City of Oakland, with a portion within the City of Piedmont. There are approximately 2,980 sensitive receptors within 1,000 feet of the underground section work area, of which there are 380 sensitive receptors within 100 feet, and 119 sensitive receptors within 50 feet of the work areas. At 100 feet, the estimated noise level from construction would be approximately 79 dBA and at 50 feet, it would be approximately 84 dBA.

Pile Driving Noise

Temporary driven sheet piles may be required during construction of the underground portion of the Project. This may involve use of temporary excavation shoring walls during underground vault installation. Equipment used for installing sheet piles would result in noise levels higher than those for typical equipment for the overhead portions of construction work.

Sheet pile driving may cause a maximum noise level of 101 dBA at 50 feet from the equipment, and a usage factor of 20 percent is assumed. With a 20 percent usage factor, the L_{eq} average noise level would be 94 dBA at 50 feet. Pile driving noise levels will be expected to decrease at a rate of 6 dBA per doubling of distance. Pile driving is typically a limited-duration activity during construction and would be scheduled to occur during daytime hours.

Table 3.11-16 presents the predicted noise level from impact pile driving at various distances.

Table 3.11-16. Average Predicted Pile Driving Noise Levels

Distance from Pile Driver (feet)	L_{eq} Noise Level (dBA)	Distance from Pile Driver (feet)	L_{eq} Noise Level (dBA)
50	94	400	76
100	88	800	70
200	82		

Source PG&E, 2024

At 100 feet, the estimated noise level from pile driving would be approximately 88 dBA and at 50 feet, it would be approximately 94 dBA. Pile driving at any one area along the Underground Segment would be a limited-duration activity. These estimated levels would exceed both the short-term (80 dBA) and long-term (65 dBA) daytime, and weekday noise limits established by the City of Oakland for construction at residential receiving properties. The City of Piedmont has not established maximum noise limits, but restricts construction to daytime only from 8:00 a.m. to 6:00 p.m., Monday through Friday.

Construction in the Underground Segment would result in an exceedance of the City of Oakland short-term (80 dBA), and long-term (65 dBA) daytime, weekday noise limit. Construction would not exceed any noise limits within the City of Piedmont. The residential areas in the vicinity of the Project alignment range between “noisy residential” to “quiet residential” with existing noise levels that are expected to range between 45 to 61 dBA during the day. For the receptors that would experience intermittently increased

noise levels of approximately 94 dBA, this temporary impact would be approximately 33 dBA louder than existing conditions. This resulting difference in noise level is substantial, and a receptor would perceive the noise as 8-16 times louder than baseline levels.

To reduce construction noise, Mitigation Measures MM N-1a and MM N-1b, which specify source-specific noise control techniques and require providing written advance notification to potentially impacted agencies and land uses, are recommended. These controls would ensure that feasible noise reduction strategies are implemented. Impacts would be less than significant with mitigation.

Substation Modifications

Moraga Substation

LESS THAN SIGNIFICANT WITH MITIGATION. The Moraga Substation is located within the City of Orinda, which exempts construction from the noise ordinance maximum noise level at receiving properties but establishes limits to the time of day when construction can be performed. Construction is limited to 8:00 a.m. to 6:00 p.m., Mondays through Fridays, and 10:00 a.m. to 5:00 p.m. on Saturdays. No construction is to be performed on Sundays or major holidays. No heavy construction equipment is to be used on Saturdays or Sundays, but an exemption to allow use may be granted.

All activities at the Moraga Substation would occur within the existing PG&E property boundaries. The work would include upgrading equipment to ensure compatibility with the new conductors and integrating the new OPGW into the current control systems. Upgrades include installation of replacement circuit breakers, air switches, conductors and looping in of the OPGW. Modifications to the system protection hardware packages would take place within the substation's control buildings or enclosures and would involve adding new relays and the necessary mounting infrastructure. The duration of system protection upgrade construction would vary, ranging from approximately 1 day for setting adjustments to protective relay devices, to up to 5 weeks for the replacement of system protection devices. The installation of the new OPGW and replacement conductors to their terminals, as well as the replacement of circuit breakers and air switches, would occur outside of the substation buildings or enclosures. A forklift would be utilized for about two days on the western side of the substation where the current lines terminate and the closest receptors are approximately 575 feet to the south of the work area where the forklift would operate. The estimated noise level for typical construction activities using heavy equipment at this distance would be approximately 65 dBA. The proposed Project's expected substation staging area is commonly used for non-project substation activities. The nearest sensitive receptors are approximately 100 feet from the staging area, and a conservative estimated noise level would be approximately 79 dBA. There is not expected to be a helicopter landing zone within the substation staging area.

To reduce construction noise, Mitigation Measures MM N-1a and MM N-1b, which specify source-specific noise control techniques and require providing written advance notification to potentially impacted agencies and land uses, are recommended. Impacts would be less than significant with mitigation.

Oakland X Substation

LESS THAN SIGNIFICANT WITH MITIGATION. There are approximately 445 sensitive receptors within 1,000 feet of the Oakland X Substation, with the closest being approximately 40 feet from the substation. All work within the Oakland X Substation would occur within existing PG&E property, primarily inside the substation building, and would not require heavy machinery. Work would involve changing out equipment to be compatible with new conductors and looping new OPGW into existing control equipment. Heavy equipment use at the substation is expected to be limited to a forklift to support equipment delivery and removal for approximately 1 day. A forklift would have an approximate L_{max} of 75 dBA with an acoustic use factor of 20; on this basis, at 40 feet, the Leq would be 70 dBA. Expected noise levels from construction, therefore, are expected to be less than the estimated typical construction noise levels.

Construction at the Oakland X Substation would not result in an exceedance of any noise limits within the City of Oakland.

To reduce construction noise, Mitigation Measures MM N-1a and MM N-1b, which specify source-specific noise control techniques and require providing written advance notification to potentially impacted agencies and land uses, are recommended. Impacts would be less than significant with mitigation.

Construction Summary

Construction activities would be conducted close to residences, and according to the above analysis, construction activities would intermittently and substantially increase noise levels above the existing noise conditions. Construction work would exceed noise limits within the City of Oakland during construction of the Overhead Rebuild with receptors at a distance of 130 feet from construction activities being exposed to 77 dBA in the eastern section, and receptors at a distance of 50 feet being exposed to 79 dBA in the central section. Construction of the Underground Segment would also exceed the City of Oakland noise limits with sensitive receptors at a distance of 50 feet from construction activities being exposed to levels up to 94 dBA, where sheet pile driving could occur. Noise levels would exceed limits established by local jurisdictions during construction. While construction at any given location would occur for short periods of time, and the sources of noise would move along the proposed Project alignment, the impact would intermittently increase noise levels over the extended 35 months of construction.

Construction at each work area is anticipated to be short term, and to be limited to a few days to 2 to 3 weeks with intermittent and nonconsecutive days, which would further minimize the duration of elevated noise experienced by any one sensitive receptor. Construction would occur mostly Monday through Saturday between the hours of 7:00 a.m. and 5:30 p.m. As part of the proposed Project, PG&E would implement APMs, including APM NOI-2 through APM NOI-7. Recommended mitigation would supersede APM NOI-1.

Construction would generate noise levels in excess of established standards, particularly those of the Oakland Municipal Code. Given the intermittent effects of construction noise at any one location, source-specific measures would need to be used at different work locations to reduce and avoid the impacts of construction noise. To reduce construction noise and avoid significant impacts requires the implementation of Mitigation Measures MM N-1a and MM N-1b, which specify source-specific noise control techniques and require providing written advance notification to potentially impacted agencies and land uses. MM N-1a would reduce construction noise by requiring PG&E to employ standard noise reducing construction practices including complying with manufacturer's muffler requirements, turning off equipment when not in sure, locating areas for equipment and areas as far as practical from sensitive receptors, including noise control requirements for construction equipment to the maximum extent practicable, and including noise mitigation from metal plates covering trenches. MM N-1b would reduce potential impacts by providing written notice to all affected sensitive receptors at least 1 month prior to planned construction activities informing them where and when construction will occur and providing tips to reduce noise intrusion and providing a hotline to allow receptors to call to inquire regarding annoying noise or make complaints. These controls would ensure that feasible noise reduction strategies are implemented. Impacts would be less than significant with mitigation.

Operations and Maintenance

LESS THAN SIGNIFICANT. Operation and maintenance of the proposed Project would be similar to existing O&M procedures. The proposed changes to the Moraga Substation and the Oakland X Substation are not expected to add significant new sources of noise, as there would be no changes to the buildings, structures or fencing at the substations. The proposed Project would not add transformer banks nor other new substantial noise producing equipment at either substation. As such, there are no anticipated substantial temporary or permanent increase in ambient noise levels at noise sensitive receptors in the vicinity of the Moraga Substation or Oakland X Substation.

The overhead sections of the proposed Project would include the long-term sources of noise related to the audible corona effect of the rebuilt power lines. Corona discharge and corona-generated audible noise occurs with the electric field gradient that is part of normal and routine operation. Newly constructed power lines may generate a nominally higher level of audible noise for a short period during the initial weathering phase, which is the time when any residual surface oil from the manufacturing of the line or other irregularities on the new conductor surfaces resulting from the construction process dissipates. This typically lasts around one year after the power line is initially energized. The proposed conductors would include a non-specular finish that would minimize the duration and magnitude of the potential corona discharge and audible noise from the new conductors. PG&E predicts that the proposed overhead sections of the 115 kV power line would not cause any noise sensitive receptor to exceed 45 dBA during wet weather conditions (PG&E, 2023). Corona noise from the new overhead power lines would occur in the same corridor as the existing power lines and would be of the same nature as the existing conditions.

Mitigation Measures for Impact N-1

MM N-1a **General Construction Noise Management**. See full text in Section 3.12.4 (Mitigation Measures).

MM N-1b **Construction Notification.** See full text in Section 3.12.4 (Mitigation Measures).

With implementation of mitigation measures, noise impacts associated with construction activities would be reduced to a less than a significant level.

Impact N-2: Expose persons to or generate excessive groundborne vibration.

Construction

Construction activities have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific equipment used and operations involved. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude as distance increases. Table 3.11-17 displays vibration levels for typical construction equipment.

Table 3.11-17. Typical Construction Equipment Vibration Levels

Equipment	PPV at 25 feet (in/sec)
Pile driver (impact – upper range)	1.518
Pile driver (impact – typical)	0.644
Pile driver (sonic – upper range)	0.734
Pile driver (sonic – typical)	0.170
Large Bulldozer	0.089
Caisson Drilling	0.089
Trucks	0.076
Jackhammer	0.035
Small Bulldozer	0.003

Source: FTA, 2018; PG&E, 2024.

Proposed Project construction would create vibration from the use of equipment including excavators, dozers, and impact pile drivers. There are no vibration-sensitive land uses (e.g., high precision manufacturing facilities or research facilities with optical and electron microscopes) within the immediate vicinity of the construction sites that would be used by the proposed Project. The significance thresholds for excessive groundborne vibration are dependent on whether the proposed Project would generate ground borne vibration that would cause nuisance, annoyance, or physical damage to a structure.

Vibration energy dissipates rapidly as the distance between the activity and vibration-sensitive receptor increases and would normally be perceptible in the immediate vicinity, within approximately 50 feet of the vibration-generating equipment. General construction equipment, except for pile driving, has the potential to exceed the vibration damage criteria if within 25 feet of a structure. The California Department of

Transportation (Caltrans) has vibration thresholds for construction activities designed to prevent structural damage, where damage to the most susceptible buildings would be avoidable for transient (single isolated vibration event) vibration levels under 0.12 in/sec PPV, and damage to older residential structures would be avoidable for transient vibration levels under 0.5 in/sec PPV (Caltrans, 2020). Table 3.11-18 shows that the upper range of vibration levels for an impact pile driver would exceed the damage threshold for the most fragile structures if the activity occurs within 135 feet of such structures.

Table 3.11-18. Vibration Levels Generated by Construction Equipment (PPV)

Equipment Description		PPV at 25 feet (in/sec)	PPV at 50 feet (in/sec)	PPV at 100 feet (in/sec)	PPV at 135 feet (in/sec)	PPV at 150 feet (in/sec)
Large Bulldozer		0.089	0.0315	0.0111	0.0071	0.006
Pile Driver (Impact)	Upper Range	1.518	0.5367	0.1898	0.1210	0.103
	Typical	0.644	0.2277	0.0805	0.0513	0.044
Pile Driver (Sonic)	Upper Range	0.743	0.260	0.092	0.058	0.050
	Typical	0.170	0.060	0.021	0.014	0.012

Source: Federal Transit Administration, Aspen, 2025.

The highest levels of vibration during the proposed Project would be caused by impact pile driving, which has the greatest potential to cause damage to those buildings that are "extremely susceptible to vibration damage" or objects or buildings of historic interest. PG&E anticipates that pile driving would be limited in duration and would be used only during underground construction. Depending on final design, pile driving could potentially be necessary within 150 feet of buildings and residences that could be susceptible to damage. To avoid potential structural impacts during pile driving, the proposed Project includes APM NOI-8. Under APM NOI-8, PG&E would conduct a detailed assessment during final design of the proposed Project and implement site-specific minimization measures, such as using vibratory or sonic pile driving, which would reduce the extent of this impact.

The potential for human annoyance would be more widespread than the potential for structural damage. There are approximately 380 sensitive receptors within 100 feet, and 119 sensitive receptors within 50 feet of the work areas. Table 3.11-19 shows that general construction equipment, such as a bulldozer, would exceed the annoyance threshold of 80 VdB for receptors within 25 feet of the source.

Table 3.11-19. Vibration Levels Generated by Construction Equipment (VdB)

Equipment Description		VdB at 25 feet	VdB at 50 feet	VdB at 100 feet	VdB at 135 feet	VdB at 150 feet
Large Bulldozer		87.0	78.0	68.9	65.0	63.7
Pile Driver (Impact)	Upper Range	112.0	103.0	93.9	90.0	88.7
	Typical	104.0	95.0	85.9	82.0	80.7
Pile Driver (Sonic)	Upper Range	105.0	96.0	86.9	83.0	81.7
	Typical	93.0	84.0	74.9	71.0	69.7

Source: Federal Transit Administration, 2018; Aspen, 2025.

Groundborne vibration generated from equipment, including pile driving would exceed the criterion established by the FTA (80 VdB) and adopted as a threshold by the City of Oakland. As part of the proposed Project, APM NOI-8 would conduct vibration monitoring during pile driving activities, or in response to a complaint, to confirm that vibration levels are within acceptable guidelines. Site-specific minimization measures such as modifying the type of hammer, reducing hammer energy, modifying hammer frequency, or using vibratory pile driving would also be implemented as necessary to reduce the potential effects of off-site vibration. Under APM NOI-8, the proposed Project construction methods would be modified and

monitored to minimize exposure of residential and commercial properties to pile driving vibration. Additionally, groundborne vibration and noise would occur during daytime hours and would be short term in duration.

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT. Pile driving would not occur during overhead powerline rebuild, and as such, the potential for structural damage due to vibration during overhead rebuild would be minimal. Because vibration from general construction equipment use would exceed the annoyance threshold of 80 VdB only during instances when receptors are within 25 feet of the source, the potential for annoyance would be limited. The overhead power line rebuild would not generate excessive groundborne noise or vibration, and impacts would be less than significant.

Underground Power Line

LESS THAN SIGNIFICANT WITH MITIGATION. The highest levels of vibration during the proposed Project would be caused by impact pile driving in the underground portion of the Project in the City of Oakland and the City of Piedmont, which has the greatest potential to cause damage. The use of pile driving would be limited in duration and would only be used during construction of the underground power lines. There are approximately 380 sensitive receptors within 100 feet of the underground work areas, and 119 sensitive receptors within 50 feet of the underground work areas, and thus areas of potential pile driving activities. With APM NOI-8, the proposed Project construction methods would be modified and monitored to reduce the impact as necessary. Under APM NOI-8, the proposed Project would include a vibration assessment that would consider site-specific factors and be incorporated into project construction. The APM NOI-8 lacks specificity in terms of the standards to be met and in defining where additional assessment would be needed. Recommended mitigation would supersede APM NOI-8 by clarifying the locations and schedule of applicability and the applicable performance standards for avoiding structural damage and human annoyance. Implementation of Mitigation Measure MM N-2a would limit the schedule of pile driving to occur only between the hours of 8:00 a.m. and 4:00 p.m. This prohibition would prevent sleep disruption and reduce the potential for annoyance impacts. MM N-2a also ~~focus future vibration assessment to s~~locations of potential pile driving ~~within 150 feet of potentially sensitive structures,~~ specifies the standards for avoiding exposure of structures and people to excessive vibration levels, and includes the creation of a vibration control plan. Therefore, impacts would be less than significant with mitigation.

Substation Modifications

LESS THAN SIGNIFICANT. Pile driving would not occur as part of substation modifications, and the use of other heavy construction equipment would be minimal during substation modifications. As such, potential damage due to vibration would be minimal to none, and the potential for annoyance would be limited. Therefore, the proposed modifications at the Moraga Substation and Oakland X Substation would not generate excessive groundborne noise or vibration, and impacts would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. The equipment used for the normal operation and maintenance of the proposed Project would not generate excessive groundborne noise or vibration. Impacts would be less than significant.

Mitigation Measures for Impact N-2

MM N-2a Vibration Assessment and Control. See full text in Section 3.11.4 (Mitigation Measures).

With implementation of MM N-2a, vibration impacts associated with underground power line construction would be reduced to a less than significant level.

3.11.4. Mitigation Measures

MM N-1a **General Construction Noise Management.** (*Supersedes APM NOI-1*). PG&E will employ standard noise-reducing construction practices including the following:

- Comply with manufacturer's muffler requirements on all construction equipment engines and ensure exhaust mufflers are in good condition.
- Turn off construction equipment when not in use.
- Locate stationary equipment, construction staging areas, helicopter landing zones, and construction material areas as far as practical from sensitive receptors.
- Include noise control requirements for construction equipment and tools in specifications provided to construction contractors to the maximum extent practicable, including performing all work in a manner that minimizes noise.
- Shield portable and stationary noise sources (e.g., generators, pumps) and staging areas from adjacent noise-sensitive receptors by an engine shroud, enclosure, temporary sound walls, or acoustic blankets. Where feasible, sound walls or acoustic blankets shall have a height of no less than 8 feet, a Sound Transmission Class (STC) of 27 or greater, and a surface with a solid face from top to bottom without any openings or cutouts.
- To mitigate noise from metal plates covering trenches, rubber padding or other noise-dampening materials shall be installed beneath the plates to reduce noise and vibrations caused by vehicles passing over them, and from construction activities, particularly during nighttime work.

MM N-1b **Construction Notification.** (*Supersedes APM NOI-1*.) PG&E shall provide written notice at least 1 month prior to planned construction activities as follows:

- Written notice shall be provided to all affected jurisdictions, including local agencies and jurisdictions, emergency service providers, and public transit agencies.
- Written notice shall be provided to all daycare facilities, schools, elderly housing facilities, and residences, and administrators of parks and open spaces, within 500 feet of all construction sites, structure installation and removal sites, staging yards, access roads, and areas of drone use, and within 1,000 feet of helicopter landing zones. Written notices shall provide tips on reducing noise intrusion – for example, by closing windows facing the planned construction.
- PG&E shall post notices in public areas, including recreational use areas, within approximately 500 feet of the project alignment and construction work areas at least 1 month prior to planned construction activities. The announcement shall state where and when construction will occur in the area, including areas of helicopter construction.
- PG&E shall identify a public liaison to respond to concerns of neighboring receptors during construction, including residents and schools, about construction noise disturbance.
- PG&E shall provide a hotline telephone number in all posted notices and written notices to allow impacted residents, schools, or park users to call to inquire regarding schedule and noise. Throughout construction, PG&E shall document, investigate, evaluate, and attempt to resolve all project-related noise complaints. PG&E shall provide documentation to CPUC of all complaints and the actions taken to resolve complaints on a monthly basis.

If a helicopter landing zone to be used will be located on East Bay Municipal Utility District (EBMUD) or East Bay Regional Park District (EBRPD) land, PG&E shall coordinate with EBMUD and EBRPD to obtain approval on the proposed location. This approval shall be documented by providing written approval at least 30 days prior to any helicopter landing.

To allow adequate time for potential utility relocation in advance of Project construction, PG&E shall notify utility service providers about utilities that may require relocation at least 18 months prior the start of construction.

MM N-2a **Vibration Assessment and Control.** (*Supersedes APM NOI-8*). PG&E shall limit pile driving to occur only between the hours of 8:00 a.m. and 4:00 p.m., to prevent levels that could disrupt sleep by exceeding the annoyance threshold of 80 VdB at residential structures. Where ~~pile driving may be required within 150 feet of residential or commercial structures,~~ sonic pile drivers may be used within 40 feet of a historic structure or impact pile drivers within 115 feet of a historic structure, or if an impact pile driver is used within 60 feet of an occupied structure, PG&E shall prepare a Vibration Control Plan prior to the commencement of construction activities, meeting the following requirements:

- The Vibration Control Plan shall be prepared by a licensed structural engineer and shall include all reasonable methods required to minimize vibration such that monitored vibration levels do not exceed 0.5 inches per second Peak Particle Velocity ~~or the annoyance threshold of 80 VdB at residential structures~~. These methods may include limiting the extent of pile driving activity near occupied structures and using alternative installation methods for piles. Final design efforts and construction methods will consider soils and hammer type and use when assessing potential for vibration.
- Site-specific minimization measures such as pre-drilling pilot holes to reduce resistance, modifying the type of hammer, reducing hammer energy, modifying hammer frequency, or using vibratory pile driving will be implemented as necessary to reduce the potential effects of off-site vibration.
- Vibration monitoring will be conducted during pile driving activities, or in response to a complaint, to confirm that monitored vibration levels do not exceed 0.5 inches per second Peak Particle Velocity ~~or the annoyance threshold of 80 VdB at residential structures~~.
- If threshold levels are exceeded, vibration monitoring reports shall document the site-specific minimization measures implemented to reduce or limit the duration and level of the impact and shall document actions taken to adjust construction activities in response to field conditions.
- The Vibration Control Plan shall also establish baseline conditions at potentially affected structures, provide shoring design to protect buildings and structures from damage, document damage at the conclusion of vibration generating activities, and include recommendations for repair if necessary.
- Monitoring for vibration may be reduced or eliminated when it has been established that these measures, if required, are effective for the site conditions.

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3.12. Paleontological Resources

This section describes the known paleontological resources in the area of the Project and assesses the Project's potential impacts on paleontological resources. Paleontological resources (i.e., fossils) are limited, non-renewable resources that hold scientific and educational significance. Fossils, or evidence of past life, include the remains of plants and animals and indirect evidence such as animal tracks and burrows.

This section reviews the known geology and associated paleontological resources relevant to the Project area. This information is used to determine paleontological sensitivity ratings for geologic units that underly the Project area. These ratings indicate the potential for fossils to be present.

This section also details the regulatory setting applicable to paleontological resources. The Project's potential impacts on paleontological resources were assessed for significance using the criteria stated in Appendix G of the CEQA Guidelines. The conclusions of the impact analysis are detailed in Section 3.12.3.3 and the Applicant Proposed Measures (APMs) are listed in Table 3.12-2.

The scoping effort conducted by CPUC from February 25 through March 27, 2025, resulted in no public comments relating to paleontological resources.

3.12.1. Environmental Setting

3.12.1.1. Paleontological Resources Data Collection Methodology

The Project's study area for paleontology was defined as the maximum Project footprint plus a 0.5-mile buffer around the footprint (Earthview Science, 2024). Information about the geology and paleontological resources in the Project study area is derived from numerous sources, including published literature, geologic maps, paleontological records in online databases, and a paleontological resources impact evaluation report prepared by Earthview Science in 2024 (EIR Appendix H) that assessed the paleontological resources in the study area. Important references include the 1:50,000 scale geologic map of Graymer (2000) and the online databases of the University of California, Museum of Paleontology (UCMP) and the Paleobiology Database (PBDB). Paleontological significance and sensitivity were determined for each of the geologic units in the Project study area.

3.12.1.2. Geologic Setting

The Project area is located near the center of the Coast Ranges geomorphic province, where the northern and southern Coast Ranges are separated by a depression that contains the San Francisco Bay (Wagner, 2002). The Project area runs roughly 5 miles from the East Bay Hills to the alluvial plain along the San Francisco Bay. The East Bay Hills have a complex geologic history with a sequence of Mesozoic metamorphosed volcanic rock (i.e., oceanic crust) and sedimentary rocks (i.e., pelagic deposits and turbidites) underlying Neogene marine and terrestrial sedimentary rocks (Graymer, 2000). The basement units are late Jurassic to late Cretaceous in age and include the Franciscan Complex and the Great Valley Complex, both of which outcrop in the Project area. The fault-bound Neogene strata are divided into assemblages: Assemblage I consists of Paleocene to Miocene sedimentary sequences and Assemblage II consists of Pliocene deposits (Graymer, 2000).

The Project study area is associated with numerous distinct geologic units in Contra Costa and Alameda counties (Figure 3.7-1, Geologic Map, in Appendix A), with most of them known as non-fossiliferous or lacking records of fossil localities near the study area. No fossil localities are documented within the study area. There are a handful of recorded invertebrate fossils associated with the geologic units in the Project area.

Two invertebrate fossils were reported from the Siesta Formation and three invertebrate fossils were reported from the Orinda Formation. The Redwood Canyon Formation also has three reported invertebrate

fossil localities, although with no taxonomic information. Well-preserved fossil corals have been reported from the one recognized outcrop of the glauconitic sandstone (Ta) of Assemblage I (Graymer, 2000), along Saroni Drive and within half of a mile of the Project area (Earthview Science, 2024). Microfossils are present, and usually abundant, in various geologic units in the study area (Earthview Science, 2024).

The geologic units in the study area in which vertebrate macrofossils have been found are, from youngest to oldest: Pleistocene-age alluvial and fluvial deposits, Siesta Formation (Assemblage I), Moraga Formation (Assemblage I), Orinda Formation (Assemblage I), Claremont Formation (Assemblage I), and Mulholland Formation (Assemblage II). Descriptions of these geologic units and their vertebrate paleontological resources are summarized below. Lithological descriptions are from Graymer (2000), unless otherwise noted.

Pleistocene-Age Alluvial and Fluvial Deposits (Qpaf). Pleistocene-age fossils have been found on the East Bay Coastal Plain in fluvial and alluvial deposits. These sediments are brown, dense, clay-rich sands with gravel, found along modern streams next to Holocene sediments.

The western end of the Project area, including Oakland X Substation, sits on Pleistocene-aged alluvial and fluvial sediments. Numerous vertebrate fossil localities are recorded near the Project area. The closest fossil locality is at Montclair Playground, which is located less than 1 mile to the northwest of the Project area. Twelve other vertebrate fossil localities are present, from 2 to 5 miles distant from the Project area. The localities have produced a diverse assemblage of Ice Age megafauna, including mammoths (*Mammuthus*), camels (Camelidae), giant ground sloths (*Megalonyx* and *Glossotherium*), mastodons (*Mammut*), and bison (*Bison*) (UCMP, 2025).

Siesta Formation (Tst). The Siesta Formation of Assemblage I is a late Miocene, nonmarine unit that is exposed for approximately 6 miles, running northwest-southwest and intersecting the eastern end of the Project area. The Siesta Formation consists of siltstone, claystone, sandstone, and minor amounts of limestone, that have produced 15 reported fossil localities. Eleven of those localities produced vertebrate fossils and six of those vertebrate fossil localities are located less than 2 miles from the Project area: the Curtis locality is 2 miles southwest of the Project and 5 vertebrate localities in Siesta Valley are approximately 2 miles northwest of the Project. The remaining fossil localities are all less than 4 miles from the Project area. The vertebrate faunal assemblage includes mastodons (*Mammut*), camels (*Megatylopus*, *Aepycamelus*, and *Pliauchenia*), horses (*Pliohippus*, *Mesohippus*, and *Hipparion*), rabbits/hares (*Hypolagus*), pronghorn (*Merycodus*), beaver (*Eucastor*) and shovel-tusked proboscideans (*Gomphotherium*) (UCMP, 2025).

Moraga Formation (Tmb and Tms). The late Miocene Moraga Formation is primarily a volcanic unit and consists of two subunits: basalt and andesite with rhyolite tuffs (Tmb) and interflow sedimentary rocks (Tms). A vertebrate fossil locality was reported less than 2 miles from the Project area and a second locality in an outcrop of volcanic tuff (Tmb) is roughly 2.5 miles from Project. These localities yielded a camel (unidentified Camelidae) and horse (*Hipparion*), respectively (UCMP, 2025).

Orinda Formation (Tor). The Orinda Formation is another late Miocene geologic unit and is widely exposed throughout the East Bay Hills. It consists of lithologies that include, from coarsest- to finest-grained: pebble to boulder conglomerates, conglomeratic sandstone, coarse- to medium-grained lithic sandstone, and green and red siltstone and mudstone. As a result of the Caldecott Tunnel boring, the Orinda Formation has at least 20 recorded vertebrate fossil localities in Contra Costa County. The closest locality to the Project area is the Bellshire locality, approximately 1.5 miles north of the Project area. Numerous sites, such as the Orinda and Caldecott Tunnel localities, are roughly 2 miles away from the Project area. A large and diverse faunal assemblage is represented from these localities and includes both terrestrial and marine animals. Some of the reported fauna include split-hoofed mammals called merycoidodonts (*Ticholeptus*), camels (unidentified Camelidae, *Procamelus*), rhinoceros (*Aphelops*), horse (*Hipparion*, *Cormohipparion* and *Nannippus*), shrews (*Sorex*) rodents (*Copemys* and *Myomorpha*), rabbits/hares (*Hypolagus*), baleen whales (Cetotheriidae), unidentified birds (Aves), unidentified reptiles (Reptilia), turtles (*Hesperotudo*), and fish (e.g., *Lepisosteus*) (UCMP, 2025).

Claremont Formation (Tcc). The Claremont Formation is a middle to late Miocene marine unit consisting of chert, brown shale, and white sandstone. No vertebrate fossils have been reported from Claremont outcrops in Contra Costa County; however 4 vertebrate fossil localities were discovered in Alameda County during the boring and construction of the Caldecott Tunnel. These fossils were found less than 2 miles away from the Project area, in the fourth bore of the Caldecott Tunnel, and include a shark tooth (Selachimorpha), fish scales (Actinopterygii), and whale bones (Cetacea) (UCMP, 2025).

Mulholland Formation (Tmll). The Mulholland Formation of Assemblage II is a Pliocene-aged terrestrial deposit of sandstone and mudstone (fluvial and lacustrine) that is exposed roughly 0.5 mile east of the Moraga Substation. A large and diverse faunal assemblage has been documented for the Mulholland Formation, including: bears (*Agriotherium*), bone-crushing dog (*Borophagus*), shovel-tusked proboscideans (*Gomphotherium*), rhinoceroses (*Teleoceras*), horses (*Hipparion*, *Pliohippus*, and *Nannippus*), peccaries (*Prosthennops*), camels (*Megatylopus*), rodents (*Peromyscus*, *Cupidinimus* and *Pliomotodon*), rabbits/ hares (*Hypolagus*), beaver (*Dipoides*), cranes (Gruidae), and the unusual marine mammal *Desmostylus* (UCMP, 2025).

3.12.1.3. Paleontological Sensitivity

PG&E uses definitions of paleontological significance and sensitivity based on the Federal Land Policy and Management Act (FLPMA) of 1976, and standards developed by agencies and professional societies, including the Bureau of Land Management (BLM), Society for Vertebrate Paleontology (SVP), and the California Department of Transportation (PG&E, 2024). Paleontological sensitivity is determined using the BLM's Potential Fossil Yield Classification (PFYC) system, a method of classifying geologic units "based on the relative abundance of significant paleontological resources and their sensitivity to adverse impacts" (BLM, 2016). Significant paleontological resources include scientifically significant vertebrate, invertebrate, and plant fossils. The relative abundance of significant localities is the primary determinant for the class assignment. It is important to note that "although significant localities may occasionally occur in a geologic unit that has been assigned a lower PFYC classification, widely scattered important fossils or localities do not necessarily indicate a higher class assignment" (BLM, 2016).

The system includes 6 classes for assessing the paleontological potential of surface geology: Very Low (Class 1), Low (Class 2), Moderate (Class 3), High (Class 4), Very High (Class 5), and Unknown (Class U). The criteria from BLM (2016) are as follows:

Class 1 – **Very Low**. Geologic units that are not likely to contain recognizable paleontological resources. Units assigned to Class 1 typically have one or more of the following characteristics:

- Geologic units are igneous or metamorphic, excluding air-fall and reworked volcanic ash units.
- Geologic units that are Precambrian in age.

1. Management concerns for paleontological resources in Class 1 units are usually negligible or not applicable.
2. Paleontological mitigation is unlikely to be necessary except in very rare or isolated circumstances that result in the unanticipated presence of paleontological resources, such as unmapped geology contained within a mapped geologic unit. For example, young fissure-fill deposits often contain fossils but are too limited in extent to be represented on a geological map; a lava flow that preserves evidence of past life, or caves that contain important paleontological resources. Such exceptions are the reason that no geologic unit is assigned a Class 0.

   Overall, the probability for impacting significant paleontological resources is very low and further assessment of paleontological resources is usually unnecessary. An assignment of Class 1 normally does not trigger further analysis unless paleontological resources are known or found to exist.

However, standard stipulations should be put in place prior to authorizing any land use action in order to accommodate an unanticipated discovery.

Class 2 – **Low**. Geologic units that are not likely to contain paleontological resources. Units assigned to Class 2 typically have one of more of the following characteristics:

- Field surveys have verified that significant paleontological resources are not present or are very rare.
- Units that are generally younger than 10,000 years before present.
- Recent aeolian deposits.
- Sediments exhibit significant physical and chemical changes (i.e., diagenetic alteration) that make fossil preservation unlikely.

1. Except where paleontological resources are known or found to exist, management concerns for paleontological resources are generally low and further assessment is usually unnecessary except in occasional or isolated circumstances.
2. Paleontological mitigation is only necessary where paleontological resources are known or found to exist.

   The probability of impacting significant paleontological resources is low. Localities containing important paleontological resources may exist, but are occasional and should be managed on a case-by-case basis. An assignment of Class 2 may not trigger further analysis unless paleontological resources are known or found to exist. However, standard stipulations should be put in place prior to authorizing any land use action in order to accommodate unanticipated discoveries.

Class 3 – **Moderate.** Sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence. Units assigned to Class 3 have some of the following characteristics:

- Marine in origin with sporadic known occurrences of paleontological resources.
- Paleontological resources may occur intermittently, but abundance is known to be low.
- Units may contain significant paleontological resources, but these occurrences are widely scattered.
- The potential for an authorized land use to impact a significant paleontological resource is known to be low-to-moderate.

1. Management concerns for paleontological resources are moderate because the existence of significant paleontological resources is known to be low. Common invertebrate or plant fossils may be found in the area, and opportunities may exist for causal collecting.
2. Paleontological mitigation strategies will be proposed based on the nature of the proposed activity.

   This classification includes units of moderate or infrequent occurrence of paleontological resources. Management considerations cover a broad range of options that may include record searches, pre-disturbance surveys, monitoring, mitigation, or avoidance. Surface-disturbing activities may require assessment by a qualified paleontologist to determine whether significant paleontological resources occur in the area of a proposed action, and whether the action could affect the paleontological resources.

Class 4 **– High.** Geologic units that are known to contain a high occurrence of paleontological resources. Units assigned to Class 4 typically have the following characteristics:

- Significant paleontological resources have been documented, but may vary in occurrence and predictability.
- Surface disturbing activities may adversely affect paleontological resources.

- Rare or uncommon fossils, including nonvertebrate (such as soft body preservation) or unusual plant fossils, may be present.
- Illegal collecting activities may impact some areas.

1. Management concern for paleontological resources in Class 4 is moderate to high, depending on the proposed action.
2. Paleontological mitigation strategies will depend on the nature of the proposed activity, but field assessment by a qualified paleontologist is normally needed to assess local conditions.

   The probability for impacting significant paleontological resources is moderate to high, and is dependent on the proposed action. Mitigation plans must consider the nature of the proposed disturbance, such as removal or penetration of protective surface alluvium or soils, potential for future accelerated erosion, or increased ease of access that could result in looting. Detailed field assessment is normally required, and on-site monitoring or spot-checking may be necessary during land disturbing activities. In some cases, avoidance of known paleontological resources may be necessary.

Class 5 – **Very High**. Highly fossiliferous geologic units that consistently and predictably produce significant paleontological resources. Units assigned to Class 5 have some or all of the following characteristics:

- Significant paleontological resources have been documented and occur consistently.
- Paleontological resources are highly susceptible to adverse impacts from surface disturbing activities.
- Unit is frequently the focus of illegal collecting activities.

1. Management concerns for paleontological resources in Class 5 areas are high to very high.
2. A field survey by a qualified paleontologist is almost always needed. Paleontological mitigation may be necessary before or during surface disturbing activities.

   The probability for impacting significant paleontological resources is high. The area should be assessed prior to land tenure adjustments. Pre-work surveys are usually needed and on-site monitoring may be necessary during land use activities. Avoidance or resource preservation through controlled access, designation of areas of avoidance, or special management designations should be considered.

Class U **– Unknown Potential.** Geologic units that cannot receive an informed PFYC assignment. Characteristics of Class U may include:

- Geological units may exhibit features or preservational conditions that suggest significant paleontological resources could be present, but little information about the actual paleontological resources of the unit or area is known.
- Geological units represented on a map are based on lithologic character or basis of origin but have not been studied in detail.
- Scientific literature does not exist or does not reveal the nature of paleontological resources.
- Reports of paleontological resources are anecdotal or have not been verified.
- Area or geologic unit is poorly or under-studied.
- BLM staff has not yet been able to assess the nature of the geologic unit.

1. Until a provisional assignment is made, geologic units that have an unknown potential have medium to high management concerns.
2. Lacking other information, field surveys are normally necessary, especially prior to authorizing a ground-disturbing activity.

An assignment of "Unknown" may indicate the unit or area is poorly studied, and field surveys are needed to verify the presence or absence of paleontological resources. Literature searches or consultation with professional colleagues may allow an unknown unit to be provisionally assigned to another Class, but the geological unit should be formally assigned to a Class after adequate survey and research is performed to make an informed determination.

The PFYC criteria were applied to the geologic units in the study area as summarized in Table 3.12-1. These sensitivity ratings incorporate the geologic unit descriptions in Section 3.12.1.2. This assessment finds that the Project area has paleontological sensitivity ranging from very low to high (PFYC System Classes 1 to 4).

Table 3.12-1. Paleontological Sensitivity of Geologic Units in Study Area

Geologic Unit	Paleontological Sensitivity – PFYC Category	Basis for Sensitivity Rating
Af – Artificial fill	1: very low	Artificial fill has lost its geological context.
Qhsc – stream channel deposits Qhaf – Alluvial/fluvial deposits (Holocene)	2: low	Holocene sediments were deposited in the last 11,700 years and are generally too young to contain scientifically significant fossils.
Qpaf – Alluvial/fluvial deposits (Pleistocene)	4: high	Pleistocene-age deposits are present at the west end of the Project area. Significant vertebrate fossils have been found in Qpaf sediments and there is a high probability of finding vertebrate fossils during the extensive excavation for the duct banks and vaults in this unit.
Tst – Siesta Formation	4: high	This formation is fossiliferous with eleven vertebrate fossil localities within 4 miles of the Project area.
Moraga Formation – Tmb and Tms	3: moderate	Two vertebrate localities were found in the volcanic ash layers of this unit, within 2 miles of the Project area. This is considered a moderate concentration of fossils across 9 miles of discontinuous outcrops.
Tor – Orinda Formation	4: high	Previous ground disturbance (Caldecott Tunnel construction) in this unit produced over 20 vertebrate fossil localities in the East Bay. Numerous localities are within 2 miles of the Project area.
Tcc – Claremont chert	3: moderate	Previous ground disturbance (Caldecott Tunnel construction) yielded four vertebrate fossil localities in this unit.
Tsm – glauconitic mudstone	2: low	Previous ground disturbance (Caldecott Tunnel construction) in this unit did not produce any vertebrate fossils.
Tes – mudstone	2: low	Microfossils, such as foraminifera, are abundant in this unit (Graymer, 2000).
Ta – glauconitic sandstone	4: high	Well-preserved fossil corals are reported within half a mile of the Project area (Graymer, 2000; Earthview Science, 2024).
TmIl – Mulholland Formation	2: low	Numerous vertebrate fossils have been found in this unit, which is exposed to the east of the Project and is not likely to be encountered during subsurface activities.
Kr – Redwood Canyon Formation	3: moderate	A few marine invertebrate fossil localities have been found across large exposures of this unit.
Ksc – Shephard Creek Formation	2: low	No fossils are recorded for this unit.
Ko – Oakland Conglomerate	2: low	No fossils are recorded for this unit.
Kjm – Joaquin Miller Formation	2: low	No fossils are recorded for this unit.
Jsv – Keratophyre	1: very low	Intrusive igneous rocks do not contain fossils.
Jb – Massive basalt and diabase Sp – Serpentinite	1: very low	These intrusive igneous rocks and metamorphic rocks from the Coast Range Ophiolite do not contain fossils.

Geologic Unit	Paleontological Sensitivity – PFYC Category	Basis for Sensitivity Rating
Kfn – Sandstone Novato Quarry	2: low	Invertebrate fossils have been found in this unit in Marin County, but not in Alameda County or Contra Costa County.
KJfm – Franciscan Complex Fs – Graywacke and meta-graywacke	2: low	The low-grade metamorphism of the Franciscan Complex reduces the likelihood of macrofossil preservation. Macrofossils are found in these units only in rare instances and microfossils are abundant.

The following geological units have high paleontological sensitivity and ground disturbance activities that reach more than 3 feet depth would have high potential to encounter paleontological resources:

- Tst – Siesta Formation
- Tor – Orinda Formation
- Ta – Glauconitic sandstone
- Qpaf – Alluvial/fluvial deposits (Pleistocene)

3.12.2. Applicable Regulations, Policies, and Standards

3.12.2.1. Federal

Federal laws protecting paleontological resources apply to fossils on federal lands. The Project does not impact federal lands and federal laws protecting paleontological resources do not apply to the Project.

3.12.2.2. State

California Public Resources Code

The California PRC provides statutes protecting paleontological resources. California PRC § 5097.5 legally bars the excavation, removal, destruction, or defacing of paleontological features, including vertebrate sites and fossilized footprints, without the permission of the jurisdictional public agency responsible for managing those public lands. Under California PRC § 5097.5(b), "public lands" are defined as any "lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof." California PRC § 30244 requires reasonable mitigation of adverse impacts to paleontological resources from developments.

3.12.2.3. Local

Because the California Public Utilities Commission has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary land use regulations. The following subsections analyze local regulations related to paleontological resources for informational purposes and to assist with CEQA review. These specific documents are discussed:

- *City of Orinda Safety Element* (Orinda, 2023)
- *Contra Costa County 2045 General Plan* (Contra Costa County, 2024)
- *City of Oakland General Plan* (Oakland, 1996)
- *City of Piedmont General Plan* (Piedmont, 2009)

The *Alameda County General Plan* does not cover the project alignment because all portions of the project alignment within Alameda County are within the jurisdiction of the City of Oakland or the City of Piedmont. Although PG&E is not subject to local discretionary permitting, ministerial permits will be secured, as required.

City of Orinda

No regulations pertaining to paleontological resources were found for the City of Orinda.

Contra Costa County

The 2024 Contra Costa County General Plan addresses paleontological resources in the Conservation, Open Space, and Working Lands Element (COS). Paleontological resources are listed under Goal COS-10 (Archaeological, cultural, and historic resources that are identified and preserved), with two specific policies that mitigate potential environmental impacts (Contra Costa County, 2024, page 7-34):

- **COS-P10.6:** Upon discovery of significant historic or prehistoric archaeological artifacts or fossils during project construction, require ground-disturbing activities to halt within a 50-foot radius of the find until its significance can be determined by a qualified historian, archaeologist, or paleontologist and appropriate protection and preservation measures developed.
- **COS-P10.7:** Require significant historic, archaeological, and paleontological resources to be either preserved onsite or adequately documented as a condition of removal. Any documentation of historic resources shall be conducted in accordance with Historic American Building Survey (HABS) Level III standards, as defined by the US Secretary of the Interior.

City of Oakland

Paleontological resources are mentioned in the Open Space, Conservation, and Recreation Element of the City of Oakland General Plan, but specific policies and objectives are not stated: “Some of Oakland's most important natural assets are ‘earth resources,’ including soils and minerals, archaeologic and fossil remains, and the geologic formations that define the city's topography” (Oakland, 1996, page 3.2).

City of Piedmont

The 2024 update to the Natural Resources and Sustainability Element of the Piedmont General Plan includes a paleontological resources policy (Piedmont, 2009, p. 5-26 to 5-27):

> **Policy 13.14: Paleontological Resources**
>
> For new development that involves ground disturbance within the high sensitivity Pleistocene alluvial fan and fluvial deposits (Qpaf) geologic unit, the project Applicant shall retain a Qualified Paleontologist prior to excavations who shall direct all mitigation measures related to paleontological resources. If evidence of subsurface paleontological resources is found during construction, excavation and other construction activity shall cease and the construction contractor shall contract a qualified paleontologist to evaluate the find and make appropriate recommendations. If warranted, the paleontologist shall prepare and implement a standard Paleontological Resources Mitigation Program for the salvage and curation of the identified resources.

3.12.3. Environmental Impacts

3.12.3.1. Impact Analysis Approach

The proposed Project’s ground-disturbing activities (e.g., drilling, grading, trenching) were assessed for their potential to result in significant impacts on paleontological resources. Significant impacts are defined by whether Project activities will directly or indirectly destroy a unique paleontological resource or site, per Appendix G of the CEQA Guidelines. The criteria for significance are discussed in more detail in Section 3.12.3.2. The impact analysis is based on the known geology and paleontology of the Project study area (derived from literature, maps, and databases), the paleontological significance and sensitivity of each geologic unit, and the construction activities in the corresponding segments of the Project area. The paleontological sensitivity ratings of each geologic unit underlying the Project area are based on the PFYC System and the extent of ground-disturbing activities in each segment of the Project. The PFYC System, detailed in Section 3.12.1.3, and paleontological sensitivity ratings for each geologic unit are listed in Table 3.12-1. An important metric for gauging impact of the proposed Project is the overall length of the trench

excavations. Due to their overall length, trench excavations for duct banks and vaults disturb more subsurface geology than foundation excavations for replacement transition structures. It is assumed that the removal of existing structures and facilities will occur in previously disturbed sediments and have no effect on paleontological resources.

Table 3.12-2 lists the APMs that are incorporated into the proposed Project to reduce the Project's potential impacts to paleontological resources.

Table 3.12-2. Applicant Proposed Measures – Paleontological Resources

APM	Description
Paleontological Resources	
APM PAL-1	**Retain a Qualified Paleontological Principal Investigator.** A Paleontological Principal Investigator who meets the standards set forth by the Society of Vertebrate Paleontology will be retained to ensure that all APMs related to paleontological resources are properly implemented during construction. The Paleontological Principal Investigator will have a master's degree or Ph.D. in geology or paleontology, have knowledge of the local paleontology, and be familiar with paleontological procedures and techniques.
APM PAL-2	**Worker Environmental Awareness Training.** Training on paleontological resources protection will be administered for excavation deeper than 3 feet below ground surface (bgs) at all work locations. Training may be provided by PG&E as a stand-alone training, or it may be included as part of the overall environmental awareness training as required by the Project. The training will include the following: ■ The types of fossils that could occur at the Project site ■ The types of lithologies in which the fossils could be preserved ■ The procedures that should be taken in the event of a fossil discovery ■ Penalties for disturbing paleontological resources
APM PAL-3	**Paleontological Resource Monitoring for Select Construction Activities.** A paleontological monitor will be present to monitor for paleontological resources in areas where Siesta Formation (Tst), Orinda Formation (Tor), glauconitic sandstone (Ta), and Pleistocene alluvial and fluvial deposits (Qpaf) occur at the surface and where excavation is greater than 3 feet deep and, for excavations involving drilling or augering, where a drill diameter that is larger than 3 feet will be used. Monitoring is not required if this work occurs in soil or sediment that is imported or previously disturbed. Locations of activities requiring monitoring where previously disturbed or imported soil or sediment is not known are: ■ Structure foundation excavation greater than 3 feet bgs using a drill that is 3 feet or greater in diameter at the following locations: RN1, RS1, RN2, RS2, RN5, RS5, RN6, RS6, RN7, RS7, RN8, RS8, RN15, RS15, RN21, RS21, TN28, TS28, and TN29. ■ Vault installation within Park Boulevard beginning at its intersection with Wellington Street continuing within Park Boulevard Way to the Oakland X Substation property. The paleontological monitor will be able to: (1) recognize fossils and paleontological deposits and deposits that may be paleontologically sensitive; (2) take accurate and detailed field notes, photographs, and locality coordinates; and (3) document Project-related ground-disturbing activities, their locations, and other relevant information, including a photographic record. Monitoring at these locations can be reduced if, after initial monitoring, it is determined the Project's Paleontological Principal Investigator that there is a low likelihood of identifying paleontological resources.
APM PAL-4	**Unanticipated Paleontological Discovery.** If significant paleontological resources are discovered during PG&E's construction activities, the following procedures will be followed: ■ Stop work immediately within 100 feet of the fossil find. ■ Contact the designated Project inspector and PG&E Cultural Resource Specialist (CRS) immediately. ■ Protect the site from further impacts, including looting, erosion, or other human or natural damage.

APM	Description
	■ Arrange for a qualified paleontologist to evaluate the discovery. If the discovery is determined to be significant, PG&E will implement measures to protect and document the paleontological resource. Work may not resume within 100 feet of the find until approved by the paleontologist and CRS. ■ Obtain permission from the landowner before treating the fossils. Curate all fossils discovered in an appropriate repository. A qualified paleontologist will be notified to review the need for paleontological monitoring during subsequent ground-disturbing activities with the potential to affect paleontologically sensitive sediments at that location. The qualified paleontologist will be responsible for the reassessment of paleontological sensitivity upon the receipt of additional information from ongoing excavations, which may result in reducing or increasing the amount of monitoring required.

3.12.3.2. Impact Significance Criteria

The following criterion for paleontological resources applies to both Project construction and Project operation and maintenance. This criterion is from the Geology section of the CEQA Guidelines Appendix G. A significant effect is defined as "a substantial adverse change in the physical conditions which exist in the area affected by the proposed project (Section 15002(g), CEQA Guidelines). It is worth noting that the same activities (e.g., drilling, grading, trenching) can have different levels of significance in different environmental settings (Section 15064(b), CEQA Guidelines). The evaluation of this criterion is discussed in Section 3.12.3.3. The criterion for paleontological resources (unique geologic features are discussed in Section 3.7, Geology and Soils) is whether the proposed Project would:

- **PAL-1:** Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

3.12.3.3. Impacts and Mitigation Measures

Impact PAL-1: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Construction

The proposed Project involves removing 5 miles of four overhead 115 kV circuit lines and some of their supporting structures and rebuilding 4 miles of overhead lines and about 1 mile of buried lines under Oakland city streets. This would result in approximately 48 replacement structures (towers or poles), 4 transition pole structures, 2 double-circuit duct banks, and numerous vaults. The foundations for the replacement and transition structures will require either augering or micropiles. The duct banks will require trench excavations (~4 feet wide by 5 feet deep on average, may go as deep as about 10 feet depending on field conditions), as will the vaults (42 feet long by 18 feet wide and 13 feet deep). There would be no excavations at either the Moraga or Oakland X substations.

The proposed Project would not take place on or within 1 mile of a unique paleontological resource. Most of the Project area sits on geological units with very low to low paleontological sensitivity. These units include previously disturbed soils and nonfossiliferous volcanic or metamorphic rocks. The Project area features segments (slightly less than 2 discontinuous miles in total length) located on geologic units with high paleontological sensitivity and high potential to encounter paleontological resources. These units are, from youngest to oldest: Pleistocene alluvial/fluvial deposits, Siesta Formation, Orinda Formation, and glauconitic sandstone of Assemblage I.

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT. The proposed Project would feature overhead transmission lines being rebuilt from Moraga Substation to the intersection of Park Boulevard and Estates Drive. Some segments of the rebuilt lines would use existing towers and foundations, while the others would have new replacement towers or poles installed. For the replacement structures, the new foundations would require either drilling or micropile installation. Micropile installation creates holes that are roughly 12 inches in diameter. Any fossil encountered while drilling micropiles would be pulverized by the smaller drill bits. The transition poles and lattice steel pole replacement structure foundations would be drilled using auger diameters of 3 to 8 feet to create holes that are 3 to 8 feet in diameter and up to 30 feet deep. The auger holes in geologic units with high paleontological sensitivity would generate spoil piles where partial or intact paleontological resources could be found. There are 12 replacement and transition sites where drilling would create spoil piles in areas with high paleontological sensitivity: RN1, RS1, RS2, RN7, RS7, RN8, RS8, RN21, RS21, TN28, TS28, and TN29.

PG&E's APMs PAL-1 through APM PAL-4 require a qualified principal investigator be retained to provide a worker environmental awareness training to construction staff, monitor specific construction activities in sensitive areas, and provide procedures to follow in the event of an unanticipated discovery. Implementation of APM PAL-1 through APM PAL-4 would avoid directly or indirectly destroying a unique paleontological resource or site at these drill sites. Impacts to paleontological resources would be less than significant.

Overhead Power Line Removal

NO IMPACT. The removal of transmission existing tower foundations would likely involve digging through artificial fill or previously disturbed sediments, both of which would be unlikely to contain significant fossils. Any fossils present in the artificial fill or disturbed sediments would lack provenance (i.e., it is unknown where the fossil was originally found, both geographically and stratigraphically) and would likely be damaged from previous construction activities. Therefore, the Project's proposed overhead power line removal activities would not directly or indirectly destroy a unique paleontological resource or site.

Underground Power Line

LESS THAN SIGNIFICANT. The proposed Project's southern underground segment would require installation of two double-circuit underground duct banks that would run approximately 1.2 miles from the intersection of Park Avenue and Estates Drive to the Oakland X Substation. This portion of the rebuild would require digging trenches that would be about 4 feet wide by 5 feet deep, and possibly reaching 10 feet deep based on field conditions. The underground line would also feature vaults at approximately 1,200-foot intervals. Each vault would require an excavated trench that would be 42 feet long by 18 feet wide and 13 feet deep.

This segment of the proposed Project would involve ground disturbance through Pleistocene alluvial and fluvial deposits that have high paleontological sensitivity. APM PAL-1 through APM PAL-4 require retention of a qualified principal investigator to provide a worker environmental awareness training to construction staff, monitor specific construction activities in sensitive areas, and provide procedures to follow in the event of an unanticipated discovery. APM PAL-3 identifies Pleistocene alluvial and fluvial deposits as paleontologically sensitive geologic units that would require a paleontological monitor be present during construction activities in those deposits. Implementation of APM PAL-1 through APM PAL-4 would avoid directly or indirectly destroying a unique paleontological resource or site at these drill sites. Therefore, impact to paleontological resources would be less than significant.

Operations and Maintenance

NO IMPACT. Ground-disturbing activities are not part of standard operation or maintenance of the proposed Project. Impacts on unique paleontological resources or sites or unique geologic features are therefore not expected during normal operation and maintenance.

3.12.4. Mitigation Measures

No mitigation is required.

3.12.5. References

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3.13. Public Services

This section describes existing conditions and potential impacts on public services that could result from construction, operation, and maintenance of the Project, and concludes that impacts would be less than significant. Public services include fire and emergency protection, police protection, school, and health-care facilities. Emergency access is discussed in Section 3.15, Transportation and Traffic. Temporary construction-related impacts on schools and parks—such as dust and noise—are discussed in Sections 3.3, Air Quality, and 3.11, Noise, respectively. Potential impacts to parks and recreational facilities are discussed in Section 3.14, Recreation, and are not addressed in this section. The Project's potential effects on public services were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. Construction and operations and maintenance of the proposed Project were analyzed for the impact on the provision of public services for fire protection, police protection, schools, and healthcare facilities.

PG&E has proposed Applicant Proposed Measures (APM) that would serve to avoid or reduce impacts to public services. These are described in Section 3.13.3.1

No scoping comments were received related to public services.

3.13.1. Environmental Setting

The study area for public services includes the cities and counties located along the right-of-way where the proposed Project would be implemented. The Project is within Contra Costa and Alameda Counties. Incorporated cities within the study area include Oakland, Piedmont, and Orinda. Information about public services for the environmental setting was provided in PG&E's Proponent's Environmental Assessment (PEA; PG&E 2024) and has been reviewed and updated in this section. The PEA is not further cited in this section.

Descriptions of fire, police, schools, and hospitals in each local jurisdiction are provided in the following subsections. Public services and facilities that could serve the Project and schools within 0.25 mile of project components are shown on Figure 3.13-1 (Service Providers and Facilities) in Appendix A.

3.13.1.1. Fire Protection

The Project passes through the jurisdiction of several agencies that provide fire services. Table 3.13-1 provides a summary of fire stations, as well as police stations described in Section 3.13.1.2, and their approximate distances from the Project. Fire protection services are described in more detail by jurisdiction in the subsections that follow.

Table 3.13-1. Nearest Fire and Police Stations to the Proposed Project

Station	Address	Approximate Distance from Project
Fire Stations		
Orinda Fire House 44	295 Orchard Road, Orinda	0.8 mile
Oakland Fire Station 24	5900 Shepard Canyon Road, Oakland	Adjacent to the Project
Oakland Fire Station 16	3600 13th Avenue, Oakland	0.1 mile
Oakland Fire Station 6	7080 Colton Boulevard, Oakland	0.4 mile
Piedmont Fire Station	120 Vista Avenue, Piedmont	1.25 miles
Police Stations		
Contra Costa County Valley Station	150 Alamo Plaza, Alamo	6.75 miles
City of Orinda Station	22 Orinda Way, Orinda	1.9 miles

Station	Address	Approximate Distance from Project
Alameda County Sheriff Peralta Police Station	333 East 8th Street, Oakland	1.8 miles
Oakland Eastmont Police Station	2651 73rd Avenue, Oakland	3.7 miles
Piedmont Police Station	403 Highland Avenue, Piedmont	1.0 mile

Contra Costa County

The portion of the Project in unincorporated Contra Costa County is a State Responsibility Area (SRA[39]). CAL FIRE is responsible for fire prevention and suppression in the SRAs as described in Section 3.18, Wildfire.

City of Orinda

The portion of the Project in the City of Orinda is served by the Moraga-Orinda Fire Protection District (MOFPD). MOFPD encompasses 42 square miles, protecting approximately 38,500 residents in a combination of urban, suburban, and rural areas as well as open spaces, regional parks, and recreation areas. There are approximately 14,091 parcels within the MOFPD, and it responds to more than 3,000 incidents annually from 5 fire stations.

The closest fire station is Fire House 44, approximately 0.8 mile from Moraga Substation at 295 Orchard Road in Orinda. This station houses three firefighters and has a T44 Pierce 2017 100-foot Tiller Truck, a WT44 2009 Pierce/Kenworth Water Tender with a 2,500-gallon tank and 1,000 gallons per minute (gpm) pump, and an E644 2019 Type VI wildland pumper with a 300-gallon tank and 300 gpm pump as the primary equipment.

City of Oakland

Fire protection in the City of Oakland is provided by the City of Oakland Fire Department (OFD). In the 2020-2021 fiscal year, OFD employed 435 full-time equivalent firefighters and officers and 85 civilians, with 25 stations in its service area. During 2021, the OFD had 53,351 emergency responses, 3,210 fires extinguished, and 8,432 inspections. As of March 2021, the total response time (90 percent of the time) was 8 minutes and 26 seconds.

According to a City of Oakland WebMap of public services, the nearest fire stations in Oakland are Station 24, Station 16, and Station 6. Fire Station 24 is at 5900 Shepard Canyon Road, Fire Station 16 is at 3600 13th Avenue, and Fire Station 6 is at 7080 Colton Boulevard. All three fire stations provide ambulance and fire services.

City of Piedmont

Fire protection in the City of Piedmont is provided by the Piedmont Fire Department (PFD), which consists of a single fire station and 24 personnel across 3 shifts. The fire station is located at 120 Vista Avenue in Piedmont, approximately 1.25 miles north of the Project alignment. In 2022, the PFD responded to 997 calls, including 36 fire-related incidents and 422 emergency medical incidents. Response times are not publicly available.

[39] A state responsibility area are areas recognized by the California Board of Forestry and Fire Protection where CAL FIRE is the primary emergency response agency for fire suppression and prevention. (CAL FIRE, 2025)

3.13.1.2. Police Protection

Contra Costa County and City of Orinda

The Contra Costa County Sheriff's Office is responsible for policing the unincorporated areas of the County, as well as cities that contract for sheriff services (Orinda, Lafayette, and Danville), and special districts. The Contra Costa County Sheriff's Office serves more than 1 million residents in the 715 square miles of the County. They respond to more than 600,000 calls for services.

The Contra Costa County Sheriff's Valley Station Patrol Division service area includes the unincorporated County area. The Valley Station, located at 150 Alamo Plaza in the City of Alamo, is an approximately 20-minute drive from Moraga Substation, the nearest point of the Project.

The City of Orinda contracts police services from the Contra Costa County Sheriff's Office. The City of Orinda Police Department (COPD) have a staff of 14 police personnel and serves approximately 18,681 people across 12.7 square miles. The COPD is an approximately 8-minute drive from Moraga Substation, the nearest point of the Project.

City of Oakland

The City of Oakland Police Department provides law enforcement services to the City of Oakland. It is divided into 5 police areas and 35 patrol territories. The Project components within the City of Oakland overlap with Police Areas 2, 3, and 4, and Beats 13Z, 22X, 21Y, and 16Y. Oakland Police Department head-quarters is at 455 7th Street in downtown Oakland; the Eastmont Police Station is at 2651 73rd Avenue. In addition, the Alameda County Sheriff's office operates the Peralta Police Station at 333 East 8th Street in Oakland, an approximately 8-minute drive from the nearest project location at Oakland X Substation.

City of Piedmont

The Piedmont Police Department (PPD) employs 20 sworn personnel and 8 non-sworn personnel. The PPD responds to an average of 27 calls per day, and calls are handled through a computerized system that is shared with the fire department. The PPD is divided into two patrol areas. The Project falls within Beat 1, the city limits east of Highland Avenue. The Piedmont police station is at 403 Highland Avenue in Piedmont. The PPD is an approximately 7-minute drive from the nearest project location at the intersection of Park Boulevard and Estates Drive. Incident response times are not publicly available.

3.13.1.3. Schools

The Oakland Unified School District has six schools located within 0.25 miles of the Project. In addition, several preschools and private schools are within 0.25 miles of the Project, including one in the City of Piedmont. The schools, and their approximate distances from the Project, are shown in Table 3.13-2. One school in the Orinda Union School District is slightly outside the 0.25-mile radius but has been included for informational purposes. No schools in unincorporated Contra Costa County are located within 0.25 miles of the Project.

Orinda Union School District

The Orinda Union School District serves the City of Orinda and includes four elementary schools and one middle school.

Oakland Unified School District

The Oakland Unified School District serves the Project area within the City of Oakland. This district includes 45 elementary schools, 4 kindergartens through 8th grade schools, 11 middle schools, 16 high schools (including grades 6 to 12, 9 to 12, and 11 and 12), 4 alternative schools, special education services, and

adult education. As shown in Table 3.13-2, the Oakland Unified School District has six schools that are within 0.25 miles of Project components. In addition, several preschools and private schools in Oakland are within 0.25 miles of Project components.

Piedmont

The Piedmont Unified School District serves the Project area within the City of Piedmont. This district includes three elementary schools, one middle school, one traditional high school, and one alternative high school. The Project is within 0.25 miles of one private school within the City of Piedmont.

Table 3.13-2. Schools within 0.25 Miles of the Proposed Project

School Name (Jurisdiction)	Address	Approximate Distance from Nearest Project Area
Del Rey Elementary (Orinda Unified School District [USD])	25 El Camino Moraga, Orinda	0.3 miles southeast of Moraga Substation.
Joaquin Miller Elementary (Oakland USD)	5525 Ascot Drive, Oakland	0.15 miles southeast of project ROW.
Montera Middle School (Oakland USD)	5555 Ascot Drive, Oakland	School yard, potential staging, is 100 feet east of ROW with existing access from Scout Road through parking lot.
Open Minds Early School and Academia De Mi Abuela (Private)	2162 Mountain Boulevard, Oakland	0.21 miles west of potential staging area adjacent to EN21 and EN23.
Sequoia Nursery School (Private)	2666 Mountain Boulevard, Oakland	0.24 miles north of potential staging area at Lincoln Ave and Monterey Blvd.
Growing Light Montessori School (Private)	4700 Lincoln Avenue, Oakland	0.1 miles southwest of potential staging area at Lincoln Ave and Monterey Blvd.
KSS Immersion Preschool of Oakland (Private)	2540 Charleston Street, Oakland	0.25 miles southwest of potential staging area at Lincoln Ave and Monterey Blvd.
Head Royce School (Private)	4315 Lincoln Avenue, Oakland	0.17 miles southwest of potential staging area at Lincoln Ave and Monterey Blvd.
Ability Now Bay Area (Private)	4500 Lincoln Avenue, Oakland	0.18 miles southwest of potential staging area at Lincoln Ave and Monterey Blvd.
Corpus Christi School (Private)	1 Estates Drive, Piedmont	School yard, a potential staging area, is immediately south of EN29 and ES31 work area.
Gan Mah Tov Preschool (Private)	3778 Park Boulevard, Oakland	200 feet south of underground construction on Park Blvd.
Duck Pond Preschool (Private)	3947 Park Boulevard, Oakland	North side of roadway, adjacent to underground construction on Park Blvd.
Les Petite Francophones (Private)	4101 Park Boulevard, Oakland	North side of roadway, adjacent to underground construction on Park Blvd.
Crocker Highlands Elementary (Oakland USD)	525 Midcrest Road, Oakland	0.19 miles northwest of the staging areas located at the end of Wellington St.
Glenview Elementary (Oakland USD)	4215 La Cresta Avenue, Oakland	0.12 miles southwest of underground construction on Park Blvd.
Edna Brewer Middle School (Oakland USD)	3748 13th Avenue, Oakland	50 feet south of underground construction on Park Blvd.
Oakland High School (Oakland USD)	1023 MacArthur Boulevard, Oakland	0.14 miles west of Oakland X Substation.

3.13.1.4. Hospitals

The hospitals and urgent care facilities nearest to the Project are Sutter Urgent Care in Orinda, Highland Hospital in Oakland, and CityHealth Urgent Care in the Montclair area of Oakland. Table 3.13-3 provides a summary of the hospitals and urgent care facilities, their addresses, and distances from the Project.

Table 3.13-3. Hospitals Near the Proposed Project

Hospital Name	Address	Approximate Distance from Project
Sutter Urgent Care – Orinda	12 Camino Encinas, Orinda	1.45 miles from nearest staging area; 2.5 miles from Moraga Substation
Highland Hospital	1411 E 31 Street, Oakland	0.4 miles from Oakland X Substation
CityHealth	1970 Mountain Boulevard, Oakland	0.3 miles from structures EN20/ES22

3.13.2. Applicable Regulations, Policies, and Standards

3.13.2.1. Federal

There are no federal regulations, plans, and standards for public services that apply to the proposed Project.

3.13.2.2. State

California Fire Code (CCR Title 24, Part 9).

The California Fire Code is based on the International Fire Code from the International Code Council and contains consensus standards related to establishing good practices to safeguard the public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new or existing buildings, structures, and premises. The California Fire Code requires fire apparatus access roads to have a minimum unobstructed width of 20 feet. Other state regulations are related to health, fire, and building safety. These regulations include the California Health Code, the California Fire Code, and the Uniform Building Code (UBC), which are implemented at the local level by ordinances.

Fire Prevention Standards for Electric Utilities

The Fire Prevention Standards for Electric Utilities (CCR Title 14, Sections 1250-1258) provide definitions, maps, specifications, and clearance standards for applying the requirements of PRC Sections 4292-4296 to projects in SRAs under the jurisdiction of CAL FIRE.

3.13.2.3. Local

Because the CPUC has exclusive jurisdiction over Project siting, design, and construction, PG&E is not subject to most local (city and county) discretionary regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

Contra Costa County 2045 General Plan – Public Facilities and Services Element

The Public Facilities and Services Element includes policy guidance to support public services, water and wastewater, drainage and flood risk, public safety and emergency services, solid waste management, parks and recreation, school, and libraries. Goal PFS-6, Efficient and effective law enforcement, fire, and emergency medical services for all communities includes the following polices:

- **PFS-6.3**. During the discretionary review process for projects with potential to increase demand on fire protection services, consult with the applicable fire district to identify any upgrades to fire protection facilities, infrastructure, and equipment needed to reduce fire risk and improve emergency response.

The Element also includes the following public safety standard goals:

- **Sheriff Response Times.** Average law enforcement response time of five minutes or less for Priority 1 calls (where a threat to people may exist).
- **Fire Response Times**. Four minutes or less response time for the arrival of the first engine company at a fire suppression incident, 90 percent of the time.
  - Six minutes or less response time for the arrival of the second engine company at a fire suppression incident, 90 percent of the time.
  - Eight minutes or less response time for an initial full alarm assignment at a fire suppression incident that does not involve a high-rise building, 90 percent of the time.
  - Ten minutes and 10 seconds or less response time for an initial full alarm assignment at a fire suppression incident that involves a high-rise building, 90 percent of the time.
- **Emergency Medical Services Response Times**. Four minutes or less response time for the arrival of a unit with a first responder, 90 percent of the time.
  - Eight minutes or less response time for the arrival of an advanced life support company, 90 percent of the time.

Contra Costa County Fire Protection District – Ordinance 2023-07

This ordinance establishes fuel mitigation and exterior hazard abatement standards, requirements for document of compliance prior to property sales, and adopt requirements for fuel breaks on parcels within the fire district. To reduce the risk of uncontrolled wildfire, Fuel breaks are required on all Parcels in the Fire District. A Fuel break requires the removal or medication of fuel, maintained on an annual basis by June 1 of each year, or on a recurring basis as determined by the Fire Code Official, in a manner that will prevent the transmission of fire.

Moraga-Orinda Fire District – Ordinance 23-01

This ordinance adopts the 2022 edition of the California Fire Code with certain amendments, and by reference the 2021 International Fire Code, published by the International Code Council. This ordinance also repeals Ordinance 20-01.

Moraga-Orinda Fire District – Ordinance 23-03

This ordinance established fuel mitigation and exterior hazard abatement standards in all state and local responsibilities areas within the district, requirements for documentation of compliance prior to sale of property, and adopts findings of fact. The fuel mitigation requirements are as follows:

(a) Prohibition. No Person who has any ownership or possessory interest in or control of a Parcel within any State Responsibility Area or Local Responsibility Area within the Fire District shall allow to exist thereon any Hazardous Vegetation or Combustible Material that constitutes a Fire Hazard as determined by the Fire Code Official.

(b) Defensible Space for Structures and Attached Decks. All Persons who have any ownership or possessory interest in or control of any Parcel within the Fire District shall maintain Defensible Space adjacent to all Structures and attached decks on the Parcel.

Moraga-Orinda Fire District – Ordinance 23-08

This ordinance adopts requirements for fuel breaks on parcels in both the state responsibility and local reasonability areas within the fire district and repeals Ordinance 23-04. The fuel break requirements are as follows:

- A fuel break requires the removal or modification of fuel, maintained on an annual basis by June 1 of each year, or on a recurring basis as determined by the Fire Code Official, in a manner that will prevent the transmission of fire.
- The standards for construction of fuel breaks in this ordinance shall comply with the standards for construction of fuel breaks as outlined in the Fire Safe Regulations.
- Fuel breaks are required on all the following parcels within the district:
  - Parcels located within a “Community at Risk” as identified in the publication entitled “Communities at Risk from Wildfires,” produced by the California Department of Forestry and Fire Protection.
  - All Parcels within the District that are immediately adjoining to a "Community at Risk" within the District or are immediately adjoining to a "Community at Risk" outside the District's boundaries.
  - All Parcels within the District, located in the unincorporated area of Contra Costa County, which have at least one habitable structure.
  - All Parcels within the District that are immediately adjoining to a Parcel or Parcels described above.

City of Orinda General Plan – Safety Element

The City of Orinda updated their Safety Element in January of 2023. The element identifies potential natural and human-created hazards that could affect the City of Orinda’s (City’s) residents, businesses, and services. Additionally, the element conveys the City’s goals, policies, and actions to minimize the hazards to safety in and around Orinda. Goal S-4, a community that seeks toa void and minimize the risk of loss of life, injury, and property loss from wildland fires and urban fires includes the following policies:

- **Policy S-36.** Coordinate with the East Bay Municipal Utilities District to maintain an adequate, long-term water supply for fire suppression needs for the community.
- **Policy S-39**. Require proposed development to provide adequate access for fire and emergency vehicles and equipment that meets or exceeds the standards in the California Fire Safe Regulations (Sections 1273 and 1274 of the California Code of Regulations – Title 24, Division 1.5, Chapter 7, Articles 2 and 3).
- **Policy S-40**. Identify existing public and private roadways in fire hazard severity zones and the wildland-urban interface (WUI) that are not in compliance with current fire safety regulations, including road standards for evacuation and emergency vehicle access, vegetation clearance, and other requirements of the California Fire Safe Regulations (Sections 1273 and 1274 of the California Code of Regulations - Title 14, Division 1.5, Chapter 7, Articles 2 and 3), to the extent resources are available. Work at retrofitting City-owned roadways as needed to meet current standards and require private property owners to do the same, to the extent feasible and given the absence of other site constraints.
- **Policy S-41.** Continue to coordinate with PG&E to underground power lines throughout the community, especially in the wildland-urban interface and fire hazard severity zone areas where wildfire risk is greatest.
- **Policy S-42**. Collaborate with MOFD to provide roadside fuel reduction, defensible space, and vegetation management, particularly along evacuation routes.

- **Policy S-43**. Support efforts by MOFD and other regional partners to establish an extensive community education and motivational program regarding Wildfire Risk Reduction, Home Hardening, and Emergency Preparedness, including development and maintenance of defensible space.

Piedmont General Plan – Community Services and Facilities Element

The City of Piedmont updated the Community Services and Facilities Element was updated in February of 2024. The Element addresses municipal buildings, public safety services, educational facilities, social services, and water, sewer, storm drainage, energy, and telecommunication facilities. Goal 33, provide and maintain high-quality community services that allow the efficient delivery of City services contains the following policies:

- **Policy 33.7 Mitigating Development Impacts**. Ensure that major development plans are reviewed by appropriate City agencies, including Police, Fire, and Public Works. Consult with other affected agencies such as the School District, EBMUD, Ava, and PG&E as needed. Recommendations for additional equipment, facilities and improvements may be incorporated as conditions of approval based on this review.

Goal 34, Maintain high-quality law enforcement, fire protection, and emergency medical services contains the following policies:

- **Policy 34.1 Public Safety Levels of Service**. Ensure the efficient organization, administration, funding, and delivery of police, fire, and emergency medical services to the residents of Piedmont. The City will strive to maintain its response time of three minutes or less for 90 percent of its emergency police, fire, and medical calls, and a Fire Department Insurance Service Office (ISO) rating of 3 or better.
- **Policy 34.4 Intergovernmental Coordination**. Cooperate and coordinate with the City of Oakland and the Alameda County Sherriff's Department, Fire Department, and other regional partners to respond to crime and enhance the ability to respond to fires, disasters, and medical emergencies.
- **Policy 34.7 Defensible Space, Evacuation Planning, and Emergency Access**. Encourage new development (including additions and alterations) to incorporate lighting, landscaping, and design features that reduce the potential for crime, facilitate rapid response to emergency calls, and facilitate evacuation in event of an emergency. Prohibit new development and home alterations that would impede emergency access.

City of Oakland 2045 General Plan – Safety Element

The City of Oakland adopted the Oakland Safety Element in September of 2023. Chapter 4, Emergency Preparedness and Response, includes information about eh City's Emergency Preparedness and Response programs, agencies, and operations. Additionally, it provides goals and policies developed by the City to addresses the needs of Oakland residents during emergencies. Goal SAF-8, Maintain an Emergency Preparedness and Response Network That Keeps All Oaklanders Informed, Connected, and Safe, Before, During, and After an Emergency contains the following policies:

- **Policy SAF-8.1 Emergency Response**. Maintain and enhance the City's capacity for emergency response, fire prevention, and firefighting.
- **Policy SAF-8.2 Emergency Services Review**. Continue to engage the Police and Fire departments in the development review process to ensure that projects are designed and operated in a manner that minimizes the potential for public safety and fire hazards and maximizes the potential for responsive police and fire services.
- **Policy SAF-8.13 Critical Facilities Funding**. Continue to explore funding sources for capital improvements necessary for emergency response, with priority given for fire station improvements.

City of Oakland Municipal Code

12.12.220 - Excavations—Supervision of Director of Public Works. All excavations, filling of excavations, and repairing of street surfaces, pursuant to the provisions of this title, shall be made under the supervision and direction of the Director of Public Works to supervise and direct all such making and filling of excavations, and repairing of street surfaces, and to require that all such excavations filling and repairing comply with the requirements of the provisions of this code and of the ordinances City.

12.12.190 - Street Maintenance. After the completion of the work, the permittee shall exercise reasonable care in inspecting for and immediately repairing and making good any injury or damage to any portion of the street which occurs as a result of work done under the permit, including any and all injury or damage to the street which would not have occurred had such work not been done.

The permittee shall, upon notice from the Director of Public Works or his or her authorized representative, immediately repair any injury or damage in any portion of the street which occurs as a result of the work done under the permit, including any and all damage to the street which would not have occurred had such work not been done, and which, in the opinion of the Director of Public Works or his or her authorized representative, constitutes a public hazard. In the event such repairs are not made by the permittee within 24 hours after notice, the Director of Public Works is authorized to make such repairs.

12.12.210 - Defects Appearing after Completion—Duty to repair. If the pavement or surface of the street over said excavation should become depressed or broken at any time after the work has been completed—natural wear of the surface or improper work of some other party excepted—the permittee shall, upon written notice from and an opportunity to be heard by the Director of Public Works or his or her authorized representative, make immediate repairs to the satisfaction of Public Works. If said pavement is not completely restored within 30 days after such notice has been given, Public Works shall have the authority to perform the restoration work at the expense of the permittee.

City of Piedmont Municipal Code

Section 7.2 – Permit Required; Exception. It shall be unlawful for any person to make, or cause or permit to be made, any excavation in or under the surface of any land, public or private, in the City without first obtaining a permit from the City Council in the manner provided in this chapter. A separate permit is not required to make an excavation for a foundation or a basement in connection with the erection of a building on the premises in which the excavation is to be made and for which a building permit has been issued. (Ord. No. 110 N.S., 1).

Section 7.13 – Regulation to be Complied With During Excavation. Any person to whom an excavation permit is issued shall comply with the following:

(a) All vehicles transporting rock, earth or other materials from such excavation over the public streets of the City shall travel only over such route as may be directed by the superintendent of streets to be least dangerous to public safety, cause the least interference with general traffic and cause the least damage to the public streets.

(b) The floor of any such excavation shall not be made lower than the level thereof as set forth in the application provided for in this chapter.

(c) If, in the opinion of the superintendent of streets, any such excavation will present a dangerous condition if left open, such excavation shall be enclosed by a suitable fence.

(d) Any rock, earth or other material that may be deposited on any public street or place from any vehicle transporting such materials from any such excavation shall be immediately removed in a manner satisfactory to the superintendent of streets at the expense of the person to whom the permit to excavate was issued. (Ord. No. 110 N.S., 9).

3.13.3. Environmental Impacts

3.13.3.1. Impact Analysis Approach

This analysis considers the potential impact to and disruption of public services within the jurisdictions where the proposed Project would be located.

Applicant Proposed Measures

PG&E did not propose any Applicant Proposed Measures (APMs) specific to public services. However, PG&E proposed one APM pertaining to traffic and transportation and two APMs pertaining to wildfire that are relevant to public services. Implementation of these APMs is considered part of the Project for purposes of the evaluation of environmental impacts. Table 3.13-4 presents these APMs.

Table 3.13-4. Applicant Proposed Measures – Public Services

APM	Description
Public Services	
APM TRA-1: PG&E Temporary Traffic Controls	PG&E will obtain any necessary transportation and encroachment permits from Caltrans and the local jurisdictions, as required, including those related to state route crossings and the transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during construction. PG&E will develop traffic control plans to detail road and lane closure or width reduction or traffic diversion as required by the encroachment permits. Residents and emergency service providers will be notified of upcoming road closures consistent with the notification procedures described in APM NOI-1. Construction activities that are in, along, or cross local roadways will follow best management practices and local jurisdictional encroachment permit requirements—such as traffic controls in the form of signs, cones, and flaggers—to minimize impacts on traffic and transportation, including emergency vehicle access and evacuation routes in the project area. Where work areas will occupy the end of a street with no secondary access and residential access may be restricted, PG&E will implement residential safe transport. PG&E will provide the CPUC with copies of permits obtained prior to construction activity in each jurisdiction or location. If required for obtaining a local encroachment permit, PG&E will establish a Traffic Management Plan (TMP) to address haul routes, timing of heavy equipment and building material deliveries, workers and equipment parking, potential street or lane closures, signing, lighting, and traffic control device placement. When working on state highways, PG&E will ensure traffic control operations are compliant with both the California Temporary Traffic Control Handbook, 2019 edition, and the California Manual on Uniform Traffic Control Devices, 2014 edition, and any updated versions of these documents that become available before start of construction.
APM WFR-1: Construction Fire Prevention Plan	A project-specific Construction Fire Prevention Plan for construction of the project will be prepared prior to initiation of construction by PG&E. The PG&E plan will be approved by the CPUC. The final plan will be approved by the CPUC at least 30 days prior to the initiation of construction activities. The plan will be fully implemented throughout the construction period, and it will include the following at a minimum: ■ The purpose and applicability of the plan ■ Incorporation of the requirements in PG&E's current Utility Standard TD-1464S for Preventing and Mitigating Fires While Performing PG&E Work ■ Responsibilities and duties for compliance ■ Preparedness training and drills ■ Procedures for fire reporting, response, and prevention that include: o Identification of daily site-specific risk conditions o The tools and equipment needed on vehicles and on hand at sites o Reiteration of fire prevention and safety considerations during tailboard meetings o Daily monitoring of the Red-Flag Warning System with appropriate restrictions on types and levels of permissible activity ■ Coordination procedures with federal, state, and local fire officials and emergency responders, including notifications of temporary lane or road closures

APM	Description
	■ Crew training, including the construction fire prevention practices described in APM WFR-2 ■ Method(s) for verifying that all plan protocols and requirements are being followed PG&E or its contractor will be responsible for training project personnel and enforcing all provisions of the PG&E Construction Fire Prevention Plan, as well as performing other duties related to fire detection, prevention, and suppression for the project. Construction activities will be monitored to ensure implementation and effectiveness of the plan.
APM WFR-2: Fire Prevention Practices	PG&E will implement the following fire prevention practices at active construction sites and during maintenance activities: ■ Existing PG&E personnel conducting maintenance on the project are trained on the PG&E Utility Standard TD-1464S for Preventing and Mitigating Fires While Performing PG&E Work or relevant current standard and will follow the standard in regard to training, preparation, communication methods and means, observations of and alerts concerning weather conditions including NWS events, and PG&E's work restrictions and fire mitigation required for elevated PG&E Utility FPI ratings (R4, R5, or R5-Plus). ■ Construction personnel will be trained in fire-safe actions, including PG&E's current Utility Standard for Preventing and Mitigating Fires While Performing PG&E Work, Wildfire Prevention Contract Requirements, and the project's PG&E Construction Fire Prevention Plan concerning initial attack, firefighting, and fire reporting. Construction personnel will be trained and equipped to extinguish small fires to prevent them from growing into more serious threats. ■ Construction personnel will have fire suppression equipment on all construction vehicles per PG&E Utility Standard TD-1464S and will be required to park vehicles away from dry vegetation. Water tanks and/or water trucks will be sited or available at active project sites for fire protection during construction. ■ All construction crews and inspectors will be provided with radio and cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. All fires will be reported to the fire agencies with jurisdiction in the area upon discovery of the ignition. ■ While performing stationary ground-level jobs or activities from which a spark, fire, or flame may originate (for example, welding, cutting, grinding), all flammable material (for example, grass, leaf litter, dead or dying tree) must be removed down to the mineral soil around the operation for a minimum of 10 feet. ■ PG&E General Requirements for Wildfire Mitigation (R1 to R3) apply for PG&E work areas located farther than 5 miles from an FIA when the nearest FIA has an elevated FPI rating (R4, R5, or R5-Plus), except during NWS Red-Flag Warnings and Fire Weather Watch events when R5 mitigations will apply. ■ For work within an FIA, during Red-Flag Warning and Fire Weather Watch events, as issued by the NWS, and elevated PG&E Utility FPI rating (R4, R5, or R5-Plus), all construction activities will refer to the current PG&E Standard TD-1464S and related requirements such as PG&E Wildfire Prevention Contract Requirements, Attachment 1 – Wildfire Mitigation Matrix, and Attachment 2 – Wildfire Risk Checklist Fire Mitigations. With the increased potential fire risk of R4, additional water resources are required, and a working fire watch is assigned to be able to continue work as long as the weather conditions are evaluated to ensure it remains safe to continue work. For R5 and R5-Plus ratings, measures beyond R1 to R4 levels include posting a dedicated fire watch at the jobsite, making available a trailer-mounted water tank or alternative water delivery method at the jobsite, and modifying the fuel sources surrounding the jobsite. All planned work is suspended during an R5-Plus fire rating. During all emergency work being performed for an R5-Plus fire rating, personnel must have a PG&E Safety and Infrastructure Protection Team on standby or a 300-gallon water tender available. Use of heavy equipment (blades, dozers, skid steers, excavators, back hoes), construction hot work, and electrical equipment work (including tasks related to conductors, pole, and overhead equipment from which a spark, fire, or flames may originate) are allowed with the R5 mitigations in place but not allowed during R5-Plus conditions.

3.13.3.2. Impact Significance Criteria

Project impacts related to public services are evaluated against the CEQA Appendix G significance criteria. The impact analysis evaluates potential Project impacts during the construction phase and the operation and maintenance phase.

Significance Criteria

CEQA's Appendix G checklist identifies a public services impact if the Project would:

- **PS-1**: Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government 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,
  - police protection,
  - schools,
  - parks,
  - other public facilities.

Section 3.14, Recreation addresses parks and Section 3.15, Transportation addresses impacts to roadway constraints and emergency access. Therefore, impacts related to parks and emergency access are not addressed in this section.

3.13.3.3. Impacts and Mitigation Measures

Impact PS-1: The Project would result in substantial adverse impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, or healthcare facilities.

Construction

Proposed Project construction is anticipated to occur over a 35-month period beginning in August 2028, with completion in July 2031. Construction would require up to 117 construction workers during peak construction periods. The construction activities occurring in each of the three project segments are described briefly below.

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT WITH MITIGATION (FIRE AND POLICE PROTECTION), LESS THAN SIGNIFICANT (SCHOOLS AND HEALTHCARE FACILITIES). Construction activities in this segment would require the replacement of 45 existing structures. This segment starts at the Moraga Substation and ends at the intersection of Park Boulevard and Estates Drive and includes about four miles of overhead line construction. West of this point, the proposed Project would transition to underground conduits. Construction of the Overhead Power Line Rebuild segment would occur in Contra Costa County, the City of Oakland, and the City of Piedmont and is anticipated to occur over 18 months.

Construction of the proposed Project would substantially affect the provision of public services for fire and police protection. Construction of the proposed Project would not substantially affect the provision of public services at schools or healthcare facilities. Analysis for each service type is provided in the sections below.

Fire Protection

Figures 3.18-1 (CAL FIRE Fire Hazard Severity Zones) and 3.18-2 (CPUC High Fire Threat Districts) in Appendix A illustrate the fire risk areas crossed by the proposed Project. Approximately 1.2 miles of the Project in the Contra Costa County is within a state responsibility area CAL FIRE very high fire hazard severity zone (FHSZ) designation. In the central and eastern portions of the Project in the City of Oakland and Alameda County, approximately 2.4 miles of the overhead portion occur within a local responsibility area very high FHSZ designation. Furthermore, approximately 1 mile of the project alignment in the cities of Oakland and Piedmont is within a Tier 2 high fire threat district (HFTD), and approximately 3 miles of the alignment in the cities of Orinda and Oakland is within a Tier 3 HFTD, as designated by the CPUC (PG&E 2024).

Construction activities risk starting both small fires and major fires. Electrical sparks, combustion of fuel oil, hydraulic fluid, mineral oil, or insulating fluid at substations, flammable liquids, explosions, or over-heated equipment may cause fires. As a result, construction of the proposed Project could result in an increased demand for fire protection services.

PG&E has committed to implementation of three APMs that would address the risk of fires during construction: APM WFR-1 Construction Fire Prevention Plan; APM WFR-2 Fire Prevention Practices; APM TRA-1 Temporary Traffic Controls.

The full text of these APMs is presented in Table 3.13-4. These APMs provide procedures for preventing, responding to, and reporting fires during construction of the proposed Project and ensuring emergency access. However, they do not provide advanced notification to fire protection providers of construction activities. Therefore, impacts would be significant absent mitigation.

PG&E would be required to implement Mitigation Measure (MM) N-1b (Construction Notification). Implementation of MM N-1b would provide advanced notification to fire protection providers. MM N-1b (provided in Section 3.11, Noise, at the end of Subsection 3.11.3.3) would require PG&E to provide written notice at least 1 month prior to planned construction activities to all relevant agencies, and sensitive receptors and residences within approximately 500 feet of construction sites, staging yards, access roads, and areas of drone use, and within approximately 1,000 feet of helicopter landing zones. Advanced notification would allow fire protection providers to plan alternate routes around the proposed Project's construction activities.

PG&E would also be required to implement MM T-1a (Traffic Management Plan and Safe Transport). MM T-1a (provided in Section 3.15, Transportation, in subsection 3.15.3.3) would require PG&E to prepare a traffic management plan (TMP) for approval by local jurisdictions and agencies. The TMP would include methods for minimizing construction effects on roadways and establish the timing and method for notifying emergency service providers regarding Project activities. Implementation of MM T-1a would establish the timing and methods for notifying fire protection providers of Project activities, such as road closures, that could affect response time.

With implementation of MM N-1b and MM T-1a, construction of the proposed Project would not put substantial additional demand on fire service providers as fire service providers would have advanced notification to plan alternate routes around construction activities. As construction of the proposed Project would not impact response times, no new or expanded fire protection facilities would be required. Thus, the proposed Project would not have a substantial adverse physical impact from construction of new or expanded facilities. Impacts would be less than significant with mitigation

Police Protection

Police stations serving the Overhead Rebuild portion of the Project include the Contra Costa Sheriff Valley Station, City of Orinda Police Station, Alameda County Sheriff Peralta Police Station, Oakland Eastmont Police Station, and Piedmont Police Station. Security measures such as temporary fencing, surveillance

cameras and security personnel would be in placed at all construction locations where equipment or materials are left onsite overnight which would decrease the potential need for police services (see Section 2.3.8.3).

Construction activities of the proposed Project and presence of construction workers could generate increased traffic from construction vehicles and employees commuting to work areas. This would result in increases in traffic throughout the Project area, which could increase the accident potential in the Project area and affect police response times, due to traffic related to accidents, during the 35-month construction period. The construction could increase demands on police services due to damage to or theft of construction equipment or materials. While police services may be required for isolated events during construction, project construction would not permanently increase the local population, so new or expanded law enforcement facilities or increased staff levels would not be required.

PG&E has committed to implementing APM TRA-1, Temporary Traffic Controls, to ensure that traffic controls are used. This would include notification of upcoming road closures to emergency service providers at least 1 week prior to planned construction activities. MM T-1a would establish the timing and methods for notifying police agencies. This APM does not provide adequate advanced notification to allow police protection providers to plan alternate routes around proposed Project Construction activities. MM N-1b would provide local police agencies would be with advanced notification of construction activities to allow adequate planning. With implementation of MM N-1b and MM T-1a, they would maintain acceptable service ratios, response times, or other performance objectives and no new or altered facilities would be required. Impacts on police protection services would be less than significant with mitigation.

Schools

Construction workers would not be relocating to the project area and would place no demand on schools. There would be no demand for new or expanded school facilities because of project construction. Impacts would be less than significant.

Healthcare Facilities

The use of healthcare facilities may be required during construction by workers who are injured on the job or become ill. Local healthcare facilities are expected to adequately handle any worksite accidents. Minor injuries could be treated at Sutter Urgent Care in Orinda or CityHealth in Oakland. Injuries resulting in significant trauma would be treated at Highland Hospital in Oakland. Project construction would therefore not require new or physically altered healthcare facilities or staffing or result in the increase in emergency responder staff levels within the Project area; impacts would be less than significant.

Overhead Power Line Removal

LESS THAN SIGNIFICANT WITH MITIGATION (FIRE AND POLICE PROTECTION), LESS THAN SIGNIFICANT (SCHOOLS AND HEALTHCARE FACILITIES). Construction activities in this segment would require the removal of 22 existing structures, conductors, and foundations between the Oakland X Substation and the proposed transition structures at Park Boulevard and Estates Drive. These activities would take place in the Cities of Piedmont and Oakland. No new structures would be installed. The construction actives associated with his segment are anticipated to occur over 7 months.

Construction activities required for removal of existing structures in this segment of the proposed Project would be similar to the structure and conductor removal required for the Overhead Power Line Rebuild segment discussed above. However, in this segment, no new structures would be erected, so construction activities would be more limited. PG&E would be required to implement MM N-1b (Construction Notification). MM N-1b would require PG&E to provide written notice at least 1 month prior to planned construction activities to all relevant agencies, and sensitive receptors and residences within approximately 500 feet of construction sites, staging yards, access roads, and areas of drone use, and within

approximately 1,000 feet of helicopter landing zones. PG&E would also be required to implement MM T-1a, Traffic Management Plan and Safe Transport. MM T-1a would require PG&E to prepare a TMP for approval by local jurisdictions and agencies. The TMP would include methods for minimizing construction effects on roadways and establish the timing and method for notifying emergency service providers regarding Project activities.

The demand for and provision of fire, police, school, and hospital services described for the Overhead Power Line Rebuild segment would also apply to this segment. No new or altered facilities would be required. Construction impacts for the Overhead Power Line Removal segment would be less than significant with mitigation.

Underground Power Line

LESS THAN SIGNIFICANT WITH MITIGATION (FIRE AND POLICE PROTECTION), LESS THAN SIGNIFICANT (SCHOOLS AND HEALTHCARE FACILITIES. Construction activities for the Underground Power Line segment would include trenching and duct bank installation, vault installation, and cable installation along an approximately 1 mile stretch of Park Boulevard and Park Boulevard Way between Estates Drive and the Oakland X Substation. Construction of the underground segment is anticipated to occur over 19 months between July 2028 and February 2030. See Section 2.3.6 of the Project Description for a full description of the construction activities that would be required for the Underground Power Line segment.

Construction of the proposed Project in this segment could substantially affect the provision of public services for fire or police protection but would not substantially affect the provision of schools and healthcare facilities. Analysis for each service type is provided in the following sections.

Fire Protection

Approximately 0.4 miles of the underground alignment would be within an area with a very high FHSZ designation. Also, a portion of the underground alignment would be within a Tier 2 HFTD. Construction activities would include potential ignition sources. The presence of construction in an area of fire hazard would potentially increase the demand for fire-fighting services during construction, if a fire were to start as a result of construction activities. As described above, PG&E would implement APM TRA-1 (Temporary Traffic Controls), APM WRF-1 (Construction Fire Prevention Plan), and APM WRF-2 (Fire Prevention Practices). See Table 3.13-4 for the full text of these APMs. These APMs provide procedures for preventing, responding, and reporting fire during construction of the proposed Project. However, they do not provide advanced notification to fire protection providers of construction activities. Therefore, impacts would be significant absent mitigation. Advance notification would provide fire protection providers with adequate time to plan alternate routes around the proposed Project construction activities.

As described above for the Overhead Power Line Rebuild segment, PG&E would be required to implement MM N-1b (Construction Notification) and MM T-1a. Implementation of MM T-1a (Traffic Management Plan and Safe Transport) would establish the timing and method for notifying emergency service providers. Implementation of MM N-1b (Construction Notification) would provide advanced notification of road closures to emergency service providers, allowing them to anticipate the need for and identify alternate routes. Thus, no new or expanded fire protection facilities would be required to maintain response times. The proposed Project would not have a substantial adverse physical impact from construction of these facilities. With implementation of MM T-1a and MM N-1b, impacts on fire service providers would be less than significant with mitigation.

Police Protection

Police stations serving the underground area of the proposed Project would include the Alameda County Sheriff Peralta Police Station, the Oakland Eastmont Police Station, and Piedmont Police Station. Construction activities and the presence of construction workers during the 35-month construction period could

increase demands on police services (e.g., as a result of traffic accidents, vandalism, or theft of construction equipment). As noted in Section 2.3.8.3 of the Project Description, PG&E would implement security measures such as use of temporary fencing, surveillance cameras and security personnel. These measures would be in place at all construction locations where equipment or materials are left onsite overnight. This would decrease the potential need for police services by deterring theft.

Construction of the proposed Project would generate construction-related traffic throughout the Underground Power Line segment of the Project area. This increase in traffic could increase the accident potential in the Project area or affect police response times during the 35-month construction period.

PG&E has committed to implementing APM TRA-1, Temporary Traffic Controls, to ensure that traffic controls are properly developed and implemented. However, this APM does not provide police protection providers with adequate time to plan alternate routes around the proposed Project construction activities. Therefore, impacts would be significant absent mitigation. MM T-1a (Traffic Management Plan and Safe Transport) would establish methods for minimizing construction effects on roadways and the timing and method for notifying emergency service providers regarding project activities. MM N-1b would include notification of upcoming road closures to emergency service providers at least 1 month prior to planned construction activities. Advanced notification would allow police protection providers adequate time to plan alternate routes around the proposed Project construction activities. With implementation of MM T-1a and MM N-1b, police protection providers would be able to maintain acceptable service rations, response times, and other performance objectives. Therefore, no new or expanded facilities would be required and the proposed Project would not have a substantial adverse physical impact from the construction of new or expanded facilities. Impacts would be less than significant with mitigation.

Schools

Construction of the underground segment would occur adjacent to schools. Coordination would occur with schools to prevent construction from being disruptive enough to interfere with school activities such that school functions would need to relocate to new or expanded facilities. Construction workers required for the proposed Project would not be relocating to the Project area, so there would not be an increased demand for schools. Impacts would be less than significant.

Healthcare Facilities

The use of healthcare facilities may be required during construction by workers who are injured on the job or become ill. Minor injuries could be treated at CityHealth in Oakland. Injuries resulting in significant trauma would be treated at Highland Hospital in Oakland. Construction workers required for the proposed Project would not be relocating to the Project area and local healthcare facilities would be able to serve construction workers as the need may arise. Therefore, existing facilities are expected to adequately handle response to worksite accidents and illnesses. Project construction would therefore not require new healthcare facilities or personnel or result in the need to increase emergency responder staff levels within the Project area. Impacts would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. The proposed Project is a rebuild of an existing power line. The existing facilities have been undergoing operations and maintenance activities for many decades, and the impacts of the proposed Project during operations and maintenance are anticipated to be similar to the operations and maintenance activities occurring with the existing facilities. Existing operations and maintenance crews would complete necessary operations and maintenance activities and impacts on public services would be similar to those now occurring. Impacts would be less than significant.

The existing facilities do not include underground power lines, so the underground aspect would be new. Operations and maintenance activities for the underground portion of the Project would include regular

underground line inspections. Routine inspections would include quarterly visual inspections of all facilities, and detailed inspections, conducted very two years, would include visual inspection of the lines and vaults as well as infrared inspection of the terminations. Access to underground lines or vaults would include traffic control support to open vault covers within roadways. These inspections may involve short-term lane closures along Park Boulevard and Park Boulevard Way. Impacts would be less than significant.

Mitigation Measures for Impact PS-1

MM N-1b **Construction Notification.** (See full text in Section 3.11, Noise)

MM T-1a **Traffic Management Plan and Safe Transport.** (See full text in Section 3.15, Transportation)

With implementation of mitigation measures, impacts associated with the provision of public services for fire or police protection would be reduced to a less than a significant level.

3.13.4. Mitigation Measures

MM N-1b **Construction Notification.** See full text in Section 3.11, Noise.

MM T-1a **Traffic Management Plan and Safe Transport.** See full text in Section 3.15, Transportation.

3.13.5. References

CAL FIRE (California Department of Forestry and Fire Protection), 2025. State Responsibility Area Five-year Review. https://calfire-umb05.azurewebsites.net/projects-and-programs/state-responsibility-area-viewer/. March 17, 2025.

City of Oakland, 2025 Code of Ordinances. https://library.municode.com/ca/oakland/codes/code_of_ordinances. March 12, 2025.

City of Piedmont, 2025. Piedmont City Code – Chapter 7: Excavations. https://cdnsm5-hosted.civiclive.com/UserFiles/Servers/Server_13659739/File/Government/City%20Charter%20&%20Code/Chapter%207.pdf?v=3RwRntS4M&v=3RwRntS4M. March 18, 2025.

PG&E (Pacific Gas & Electric Company), 2024. Moraga-Oakland X 115 kV Rebuild Project Proponent's Environmental Assessment. Application A.24-11-005. November 15. https://ia.cpuc.ca.gov/environment/info/aspen/moraga-oakland/toc-pea.htm.

3.14. Recreation

This section describes existing conditions and potential impacts on recreational resources as a result of construction, operation, and maintenance of the Project and concludes that less-than-significant impacts would occur on recreation with PG&E's implementation of its Applicant Proposed Measures (APMs) and other mitigation identified in this section. The Project's potential effects on recreational resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines.

During the scoping effort conducted by CPUC from February 25 through March 27, 2025, the East Bay Regional Park District (EBRPD) provided several public comments and concerns relating to recreation. Specifically, EBRPD provided input on PG&E's proposed temporary use of and access to park land. (See EBRPD letter A005 in Appendix C). EBRPD has been coordinating with PG&E to minimize impacts to the environment and to park operations. EBRPD's March 27, 2025, scoping letter requested coordination continue in several key areas, including requests to:

- Notify and coordinate with Park District staff prior to any work within Sibley Volcanic Regional Preserve (Sibley). Avoid crossing bridges with narrow turning areas within Sibley by using Gudde Ridge Trail and Arroyo Willow Trail. If access from Edgewood Road is not feasible, PG&E would access from Sibley's Eastport Staging Area off Pinehurst Road and use the first bridge crossing.
- Confirm that the Park District's future campground parking lot (50'x50') would be sufficient for helicopter landing and staging.Apply for a Temporary Park Access Permit with the Park District for a potential helicopter landing and staging area within the lot.
- Address needed road improvements along Gudde Ridge Trail north of the McCosker Loop Trail junction and along the service road leading up to transmission towers EN9 and ES10, and coordinate with Park District Park Operations staff on these improvements.
- Coordinate the construction timeline with Park District staff to ensure it does not conflict with Fiddleneck Campground construction or operations, as the power lines proposed to be replaced go over this area.

EBRPD also identified that the proposed Project alignment is preferred over the alternative route presented in Alternative E, as the alternative route would have greater impacts to woodland habitat. EBRPD's scoping comments are addressed in Section 3.14.3.3 Impacts and Mitigation Measures. EBRPD also requested to be provided with Project notices of future referrals, environmental review, and public hearings.

Recreation facilities are described in Section 3.14.1. Environmental Setting. The first four comments above relating to Recreation are addressed in Section 3.14.3.3, Environmental Impacts, including Mitigation Measures (MM) REC-3a and REC-5a, which identify procedures for coordinating with park and open space managers to minimize impacts, advise of site use and closures, and address any damage. EBRPD has been added to the Project notification mailing list maintained by CPUC.

3.14.1. Environmental Setting

Recreational resources potentially affected by the Project include local and regional parks as well as school playground facilities and private recreation facilities. Aerial maps were reviewed to identify parks and recreation areas within 0.5 miles of the project. (Refer to Figure 3.14-1 (Parks and Recreation Facilities) in EIR Appendix A for parks and recreation facilities within 0.5 miles of the proposed Project.) The East Bay Regional Park District (EBRPD) website; the EBRPD Sibley Volcanic Regional Preserve Land Use Plan Amendment EIR; the City of Oakland General Plan OSCAR Element; East Bay Municipal Utility District website and East Bay Watershed Master Plan (EBMUD, 2023); the Phase 1 Oakland 2045 General Plan Updates EIR (Oakland, 2023); and the Oakland Parks and Recreation website; and the City of Piedmont's List of Parks, Sports Fields, and Dog Parks website were also reviewed as part of the recreational resources evaluation.

3.14.1.1. Recreational Setting

Regional Setting

Most of the Project area is in the East Bay hills. Numerous regional parks, preserves, open spaces, and city parks are in the hills of Alameda County and Contra Costa County. In these two counties, EBRPD acquires, manages, maintains, and preserves natural and cultural resources to protect them and to provide the public recreational opportunities and environmental education. Overall, EBRPD encompasses 125,496 acres in 73 parks, with 1,330 miles of trails (EBRPD, 2025a). A total of approximately 25 million people visited the parks in 2022 (Regional Parks Foundation, 2025). The Regional Parks Foundation supports the EBRPD through fundraising to support access, stewardship, educational and recreational programs, and parkland acquisition.

The City of Orinda has six publicly maintained parks (both City and school facilities) (Orinda, 2025). Only one is in the Project vicinity. Orinda Oaks Park is approximately 0.65 miles northeast of Moraga Substation at its nearest point. The private Crestwood Pool Association is one mile to the northwest.

The City of Piedmont has nine recreation facilities, including parks, sports fields, and dog parks (Piedmont, 2025). Hampton Park and Piedmont Sports Field and Crocker Park are within 0.5 miles of the Project's power lines.

As of 2025 the City of Oakland has 166 public parks covering 4,927 acres (City of Oakland, 2025). The City's Parks, Recreation & Youth Development Department manages recreation programs and 149 of the public parks; the remainder are managed either by EBRPD or the Port of Oakland. The City's Open Space, Conservation, and Recreation (OSCAR) Element identifies 10 general categories of parks. The category with the largest parks is "region-serving parks," which are large recreation areas with diverse natural and human-made features, are typically 25 acres or larger, and are intended to serve the entire city (City of Oakland, 1996). The category of "school playgrounds" includes the areas on public school properties that provide recreational facilities and play areas for students and that serve local neighborhoods.

Local Setting

The Project footprint intersects with two EBRPD regional parks, a private swim and tennis club, two City of Oakland parks, two schools (one public and one private), the Montclair Railroad Trail (MRRT) linear park, and a private golf course. Each of these is discussed in the following subsections, generally from east to west along the Project alignment.

EBRPD Sibley Volcanic Regional Preserve

The 928-acre Sibley Volcanic Regional Preserve (originally Round Top Park) is one of EBRPD's original parks (EBRPD, 2025c). The preserve provides a self-guided tour of round-top volcanoes (the Volcanic Trail); other trails for hiking, biking, and horseback riding, including the Bay Area Ridge Trail/Skyline National Trail. Restrooms, drinking water, parking facilities, and a backpack campground are also available. The Sibley Backpack Campground has two walk-in primitive campsites for up to 15 campers, along with two tent pads, two picnic tables, and a pit toilet (EBRPD, 2025d). An unstaffed visitor center at the Skyline Boulevard parking area has displays illustrating the preserve's geology. Cattle grazing occurs in areas of the preserve.

In 2018, EBRPD amended its Sibley Volcanic Preserve Land Use Plan and certified the Final EIR for incorporating adjacent open spaces into Sibley Volcanic Regional Preserve (EBRPD, 2018). The amendment includes restoration of Alder Creek and Leatherwood Creek, which was completed in 2023; expansion of existing staging (parking) areas; improvements to existing roadways and utilities; construction of three vehicle bridges over Alder Creek; expansion of the trail system; and development of a 50-person combined group camping/interpretive destination site with restrooms, interpretive and picnic facilities, parking, and operations facilities. The group camp and some proposed trails are near the power line alignment. The

location of the planned group camp, known as Fiddleneck Field, was identified in the PEA as a potential staging area and helicopter landing zone for construction.

EBRPD Huckleberry Botanic Regional Preserve

The 241-acre Huckleberry Botanic Regional Preserve was established to protect a native plant community that is found in only a few locations along California's coast (EBRPD, 2025b). Refer to Section 3.4, Biological Resources, for information on vegetation present in the preserve. The preserve includes a 1.7-mile interpretive loop trail as well as restrooms, parking, and picnic facilities. The Upper Pinehurst Trail, the Lower Pinehurst Trail, and the East Bay Skyline National Recreation Trail (Skyline National Trail) pass through the preserve. The 31-mile Skyline National Trail, overlain with segments of the Bay Area Ridge Trail and the Juan Bautista de Anza Trail, connects the preserve to the regional trail network (EBRPD, 2018). Dogs, bicycles, and horses are prohibited in the preserve; however, dogs and horses are allowed on the Skyline National Trail (EBRPD, 2025b). The Project's power lines pass over the easternmost segment of the interpretive trail.

The Hills Swim & Tennis Club

The Hills Swim & Tennis Club is a private club in Oakland with pools, tennis courts, and other facilities. The club's northernmost parking lot along Manzanita Drive is a potential staging area. The northern end of the parking lot is adjacent to PG&E property where Structures EN10 and ES11 are located.

City of Oakland Shepherd Canyon Park

Shepherd Canyon Park is a region-serving public park located just east of State Route (SR-) 13 that extends for approximately one-half mile along Shephard Creek. The 34-acre park contains hiking trails, sports fields, a picnic area, and a playground. The Montclair Railroad Trail (MRRT) passes through the park. The sports fields sit atop what used to be the middle portion of the natural channel of Shephard Creek, which is part of the Sausal Creek watershed. The proposed project alignment runs through a portion of the western edge of the park. Construction staging and a potential helicopter landing zone would be located on the park's sports fields.

Montclair Railroad Trail

The 1.5-mile paved multi-use MRRT extends from the northern end of Shepherd Canyon Park south and east to Montclair Village (Friends of MRRT, 2025). The trail is in the old right-of-way of the former Sacramento Northern Railroad, an interurban railway that passed through Montclair Village and Shepherd Canyon on the way to Sacramento and Chico. Several informal trails east of the MRRT connect to the local community. Construction staging is planned to occur at various locations along and within the trail.

Montera Middle School

The Oakland Unified School District's (OUSD's) Montera Middle School is on 19 acres just east of SR-13, where the Project alignment crosses the highway. Approximately 659 students are enrolled (Public School Review, 2025). Playground facilities at the school include a track and baseball field, basketball courts, and a concrete "field" (OUSD, 2025a), which is a potential staging area. Access to structures EN23 and ES25 and the potential staging area connects through the school parking lot off Scout Road.

Joaquin Miller Elementary School

Joaquin Miller Elementary School, part of the OUSD, is adjacent to Montera Middle School. Approximately 430 students are enrolled (OUSD, 2025b). The elementary school's northwestern concrete playground shares a fence with Montera Middle School's concrete "field" where the potential staging area for the Project is located.

Montclair Golf Course

Montclair Golf Enterprise's private 9-hole "pitch-and-putt" style golf course is in Dimond Canyon Park, just west of SR-13 where the Project alignment crosses the highway (VisitOakland.com, 2025). The parking lot is a potential staging area.

City of Oakland Dimond Park/Dimond Canyon

Dimond Park/Dimond Canyon is a linear region-serving public park extending from SR-13 south approximately 1.2 miles along Sausal Creek. Hiking trails extend the length of Dimond Canyon. Additional park facilities are located in the 12-acre Dimond Park at the south end of Dimond Canyon and include a recreation center, basketball courts, tennis courts, a swimming pool, playgrounds, barbeques, picnic tables, and restroom facilities. The Project's power lines run through the northern portion of the park and cross several recreational trails.

Corpus Christi School

Corpus Christi School, a private Roman Catholic school serving kindergarten through 8th grade, is directly southwest of the intersection of Park Boulevard and Estates Drive in Oakland (Corpus Christi School, 2025). Basketball courts are on a portion of the school's parking lot, and a fenced playground is located adjacent to the driveway off Estates Drive. The parking lot would be used for a tension pull site during construction.

Edna Brewer Middle School

Edna Brewer Middle School, part of OUSD, is located approximately 50 feet from the edge of Park Boulevard where the underground portion of the Project is proposed. The school grounds include hard-surfaced playing fields.

Additional Parks and Recreational Facilities

Other parks and recreational facilities, including playgrounds at public schools, that are within 0.5 miles of the Project area but do not intersect it are shown on Figure 3.14-1 (Parks and Recreation Facilities) in Appendix A and include the following:

- Moraga Country Club Golf Course (Moraga), a private club where several holes of the course within 0.5 miles of Moraga Substation;
- Del Rey Elementary School (Orinda), which has outdoor recreation facilities including softball fields within 0.5 miles of Moraga Substation;
- Claremont Canyon Regional Preserve (Oakland/EBRPD), which has a small area within 0.5 miles of the staging areas and access near SR-24;
- Grizzly Peak Open Space (Oakland), an open space without trails within 0.5 miles of the staging areas and Project access near SR-24;
- Reinhardt Redwood Regional Park (Oakland/EBRPD), a 1,833-acre park with multiuse trails, picnic areas, play areas, archery, camping, and regional trails connecting to EBRPD Huckleberry Botanic Regional Preserve and Sibley Volcanic Regional Preserve; only a small area of the northernmost portion of the park is within 0.5 mile of the power line alignment near Skyline Boulevard;
- Montclair Park (Oakland), a 7-acre park with a recreation center and outdoor facilities including a pond, three play areas, a skate ramp, picnic areas, a ball field, basketball courts, pickleball and tennis courts, within 0.5 miles of the Project's power lines near SR-13;

- Beaconsfield Canyon (Oakland), a 5.5-acre open space with informal trails within 0.5 mile of the power line alignment near Shepherd Canyon Park;
- Marjorie Saunders Park (Oakland), a small open space near the potential staging area at Montera Middle School;
- Joaquin Miller Park (Oakland), a 500-acre park with redwood and oak woodlands, creeks, trails, an off-leash dog area, and other facilities; only a small area of the westernmost portion of the park is within 0.5 miles of the power line alignment near SR-13;
- Head Royce Elementary and Highschool (Oakland), a private school which has a pool, tennis courts, and sports fields and is within 0.5 miles of a potential staging area along Lincoln Boulevard;
- Hampton Park and Piedmont Sports Field (Piedmont), with facilities for soccer, baseball, tennis, children's football, basketball, volleyball, and a playground within 0.5 miles of the Project's power lines;
- Crocker Park (Piedmont), a 1-acre park with a lawn area, flower beds and an art sculpture within 0.5 miles of the Project's power lines;
- Glenview Elementary School (Oakland), which has outdoor playing surfaces within 0.5 miles of the Project's power lines;
- Crocker Highlands Elementary School (Oakland), which has outdoor playing surfaces within 0.5 miles of the Project's power lines;
- Oakland High School (Oakland), which has outdoor recreation facilities including a football field within 0.5 miles of Oakland X Substation; and
- Bella Vista Park (Oakland), a 1.6-acre park with three play areas, basketball hoops, picnic tables, benches, a community garden, and a community artwork area within 0.5 miles of Oakland X Substation.

3.14.2. Applicable Regulations, Policies, and Standards

Because the CPUC has exclusive jurisdiction over Project siting, design, and construction, PG&E is not subject to local (city and county) discretionary regulations except for air districts and Certified Unified Program Agencies with respect to air quality and hazardous waste regulations, respectively. No local regulations related to recreational resources are applicable to the Project. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process. Including understanding potential impacts and methods to reduce impacts.

3.14.2.1. Federal and State

No federal or State regulations related to recreational resources are applicable to the Project.

3.14.2.2. Local

East Bay Regional Park District. An EBRPD Temporary Park Access Permit is required for:

- Access to a park, trail, or land banked property for the purpose of tree work, maintenance, or construction activities,
- Activities taking place on Park District Property including:
  - Staging vehicles or equipment
  - Helicopter work that affects operations of Park District lands (overhead work)
- Activities can be from one day to one year. If the access request if for over one year, a Long-Term Park Access and Use Permit is required

Contra Costa General Plan. The General Plan identifies policies and actions to assess and provide for the development of a diverse range of recreational facilities. The proposed Project does not affect and is not affected by these policies and actions.

Oakland General Plan. The Open Space, Conservation, and Recreation (OSCAR) Element of the General Plan includes objectives and policies that address the management of open land, natural resources, and parks in the City. The proposed Project does not affect and is not affected by these policies and actions.

City of Oakland. Construction within Oakland parks requires obtaining necessary permits and approvals through the Planning and Building Department.

3.14.3. Environmental Impacts

3.14.3.1. Impact Analysis Approach

As part of the Project, PG&E has identified one APM specific to recreation; it requires advanced notice of access limitations. See Table 3.14-1. However, APM REC-1 is superseded by Mitigation Measure (MM) REC-3a to address issues not covered in the APM. MM REC-3a is provided in Section 3.14.4.4.

Other APMs proposed by PG&E to address impacts to other resources have the salutary effect of also helping reduce impacts to recreation facilities and recreationalists. A full list of APMs is presented in Table 2.9-1 in EIR Chapter 2, Project Description. Examples of APMs that help reduce impacts to nearby recreation facilities and trail users during and after construction are also included in Table 3.14-1.

Table 3.14-1. Applicant Proposed Measures – Recreation

APM	Description
Recreation	
APM REC-1	**Coordination with Park and Open Space Management and Signage. [*Superseded by MM REC-3a*]** PG&E will coordinate closely with park and open space landowners for temporary public land closures during project construction activities. If traditional access is temporarily unavailable, signs advising recreational facility users of construction activities, including directions to alternative trails and/or bikeways, will be posted at entrance gates to park and open space areas. Signage will be posted at least 1 week in advance of the construction activity near a park or open space area.
APM AIR-1	**Dust Control During Construction.** Pacific Gas and Electric Company (PG&E) will implement measures to control fugitive dust consistent with BAAQMD's Basic Best Management Practices (BMPs) (BAAQMD, 2023) as follows: ■ All exposed surfaces within the active construction area (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day as necessary to contain dust. ■ All haul trucks transporting soil, sand, or other loose material offsite will be covered. ■ All visible mud or dirt trackout onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. ■ All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph). ■ All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. ■ All grading activities shall be suspended when average wind speeds exceed 20 mph. If excavating soils when average wind speeds exceed 20 mph, soil piles will be lightly sprayed with water to contain dust to the work area. ■ Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations.

APM	Description
	Where project activities are within 1,000 feet of residential areas, PG&E will also implement the following additional BMPs, consistent with BAAQMD's Enhanced BMPs (BAAQMD, 2023): ■ Limit the simultaneous occurrence of excavation, grading, and ground-disturbing construction activities. ■ Minimize the amount of excavated material or waste materials stored at the site. Stabilize soil where project grading occurred and the area is inactive for at least 14 calendar days. Soil stabilization measures may include wood mulch, gravel, seeding or application of other non-toxic soil stabilizer consistent with APM HYD-1.
APM AIR-3	**Minimize Construction Equipment Exhaust**. PG&E will minimize construction equipment exhaust as follows: ■ Use low-emission or electric construction equipment where feasible. ■ Ensure that cranes, off-highway trucks, and tractors/loaders/backhoes used during project construction will comply with Tier 4 emissions standards, pending availability. ■ Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following startup that limit their availability for use following startup. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction supervisors will include briefings to crews on vehicle use as part of preconstruction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.
APM HYD-3	**Project Site Restoration.** As part of the final construction activities, PG&E will restore all removed curbs and gutters, repave, and restore landscaping or vegetation, as necessary.
APM NOI-1	**General Construction Noise Management. [*Superseded by Mitigation Measure N-1a*]** PG&E will employ standard noise-reducing construction practices such as the following: ■ Comply with manufacturer's muffler requirements on all construction equipment engines and ensure exhaust mufflers are in good condition. ■ Turn off construction equipment when not in use, where applicable. ■ Locate stationary equipment, construction staging areas, helicopter landing zones, and construction material areas as far as practical from sensitive receptors. ■ Include noise control requirements for construction equipment and tools in specifications provided to construction contractors to the maximum extent practicable, including performing all work in a manner that minimizes noise. PG&E will provide written notice at least 1 week prior to planned construction activities to all sensitive receptors and residences within approximately 500 feet of construction sites, staging yards, access roads, and areas of drone use, and within approximately 1,000 feet of helicopter landing zones. PG&E also will post notices in public areas, including recreational use areas, within approximately 500 feet of the project alignment and construction work areas. The announcement will state approximately where and when construction will occur in the area, including areas of helicopter construction. Notices will provide tips on reducing noise intrusion – for example, by closing windows facing the planned construction. PG&E will identify a public liaison to respond to concerns of neighboring receptors during construction, including residents, about construction noise disturbance. PG&E also will establish a toll-free telephone number for receiving questions or concerns during construction and develop procedures for responding to callers. Contact information for reaching the PG&E public liaison officer by telephone or in person will be included in the notices and also posted conspicuously at the construction sites. PG&E will respond to questions or concerns received.

APM	Description
APM NOI-2	**Noise Minimization with Portable Barriers**. Compressors and other small stationary equipment used during construction of PG&E project components will be shielded with portable barriers if appropriate and if located within approximately 200 feet of a residence.
APM NOI-3	**Noise Minimization with Quiet Equipment.** Quiet equipment will be used during construction of PG&E project components whenever possible (for example, equipment that incorporates noise control elements into the design, such as quiet model compressors or generators, can be specified).
APM TRA-1	**Temporary Traffic Controls.** PG&E will obtain any necessary transportation and encroachment permits from Caltrans and the local jurisdictions, as required, including those related to state route crossings and the transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during construction. PG&E will develop traffic control plans to detail road and lane closure or width reduction or traffic diversion as required by the encroachment permits. Residents and emergency service providers will be notified of upcoming road closures consistent with the notification procedures described in APM NOI-1. Construction activities that are in, along, or cross local roadways will follow best management practices and local jurisdictional encroachment permit requirements—such as traffic controls in the form of signs, cones, and flaggers—to minimize impacts on traffic and transportation, including emergency vehicle access and evacuation routes in the project area. Where work areas will occupy the end of a street with no secondary access and residential access may be restricted, PG&E will implement residential safe transport. PG&E will provide the CPUC with copies of permits obtained prior to construction activity in each jurisdiction or location. If required for obtaining a local encroachment permit, PG&E will establish a Traffic Management Plan (TMP) to address haul routes, timing of heavy equipment and building material deliveries, workers and equipment parking, potential street or lane closures, signing, lighting, and traffic control device placement. When working on state highways, PG&E will ensure traffic control operations are compliant with both the California Temporary Traffic Control Handbook, 2019 edition, and the California Manual on Uniform Traffic Control Devices, 2014 edition, and any updated versions of these documents that become available before start of construction.
APM TRA-2	**PG&E Repair of Damaged Transportation Infrastructure.** Restoration of roads and all removed or damaged curbs, gutters, and sidewalks will be done in compliance with the locally issued ministerial permits. Road restoration is based on matching the roadway's existing subbase and surface (asphalt, concrete, or a combination of both). After backfilling a duct bank trench or vault excavation, a road base backfill or slurry concrete cap will be installed and a pavement surface will be laid where the trench or excavation occurred. The edges of the pavement surface will be leveled to match the existing adjacent pavement surface. If the initial pavement surface is cold patch asphalt, then it will act as a temporary layer to return the road to service per ministerial permit conditions. Temporary cold patch asphalt will be removed before the final road pavement surface is installed. Final pavement surface restoration will use hot mix asphalt, concrete, or a combination of both depending on the ministerial permit conditions. Repaving and striping will be completed sequentially as completed sections of road surface are being restored, and this process will continue until the pavement restoration activity is complete.

3.14.3.2. Impact Significance Criteria

Project impacts related to recreational resources were evaluated using the criteria in the CEQA Appendix G Checklist as well as recreation-related criteria identified in the CPUC's "Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing, and Proponent's Environmental Assessments" (CPUC 2019). The impact analysis evaluates potential Project impacts during the construction phase and the operation and maintenance phase.

In Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the

setting. Per Appendix G of the CEQA Guidelines, the potential significance of Project impacts on recreation were evaluated for each of the criteria listed.

The CEQA Checklist significance criteria for recreation impacts are:

- **REC-1:** Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?
- **REC-2:** Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

In addition to these significance criteria, the Project's potential effects on recreational resources were evaluated using the CPUC's Additional CEQA Impact Questions for Recreation in the "Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing, and Proponent's Environmental Assessments." These additional impact questions are:

- **REC-3:** Would the project reduce or prevent access to a designated recreation facility or area?
- **REC-4**: Would the project substantially change the character of a recreational area by reducing the scenic, biological, cultural, geologic, or other important characteristics that contribute to the value of recreational facilities or areas?
- **REC-5**: Would the project damage recreational trails or facilities?

3.14.3.3. Impacts and Mitigation Measures

Impact REC-1: Increase the use of existing parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

LESS THAN SIGNIFICANT. Implementation of the Project would not contribute to an increase in population that would increase the use of recreational facilities. Likewise, the construction workforce would be largely from the existing regional labor pool and would not greatly increase use of local parks and recreational facilities beyond existing levels, as they are assumed to already live in the region and use these facilities. Workers who do not live in the area may use nearby park facilities during project construction, but any increase associated with such use would be negligible and temporary and would not contribute substantially to the physical deterioration of existing facilities. Therefore, the Project would not result in substantially increased demand for recreational facilities and would not contribute to substantial physical deterioration of these facilities.

Some recreation facilities have been identified as potential staging areas and other recreation facilities, such as trails, would be used to access sites where short-duration construction activities would occur, such as structure installation or removal. Longer term use of sites as staging areas during construction would make them unavailable to recreationalists, potentially increasing use of alternate recreational facilities in the region. Also, periodic short-term closures of trails to facilitate Project construction at specific sites would displace potential trail users. Given the availability of alternative recreational opportunities and facilities in the region, the relatively few recreational facilities affected by the Project, and the short-term nature of most closures, the potential for substantial physical deterioration of a recreation facility to occur or be accelerated is less than significant. When no longer needed for access or staging, disturbed areas would be restored to pre-construction conditions. Under APM HYD-3, final construction activities by PG&E would include restoration of the paving and landscaping as needed.

Project operation and maintenance will be conducted with existing staff. Therefore, impacts would be less than significant during overhead and underground line construction, removal of unneeded structures, and operations and maintenance activities.

Impact REC-2: Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. The proposed Project does not include the development or expansion of any recreational facilities. However, recreational areas disturbed during construction would be restored as needed. Any reconstruction, repaving, and/or revegetation needed would be part of the overall Project construction program and would involve equipment use and ground disturbance. The MOX Project APMs would apply, including those for control of dust and exhaust (APMs AIR-1 and AIR-3), noise (APMs NOI-1, NOI-2, and NOI-3), runoff, and sediment. As explained in EIR Section 3.11 (Noise), APM NOI-1 would be superseded by Mitigation Measure N-1a, which requires general construction noise management, and therefore, would be implemented in its place. With implementation of MM N-1a, impacts from site restoration work would be less than significant.

Operations and Maintenance

NO IMPACT. The proposed Project does not include the development or expansion of any recreational facilities. Therefore, there is no potential for this impact to occur during O&M.

Mitigation Measures

MM N-1a General Construction Noise Management. See full text in Section 3.11, Noise.

With implementation of MM N-1a, noise impacts related to restoration of recreational areas disturbed during construction would be less than significant.

Impact REC-3: Reduce or prevent access to a designated recreation facility or area.

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. Various work areas, staging areas, and access routes for construction would occur at some parks and recreation facilities, including Sibley Volcanic Regional Preserve, Shepherd Canyon Park, Dimond Canyon, MRRT, and Montclair Golf Course, as well as several school playgrounds. EBRPD has identified issues regarding access routes to some towers and work areas and the use of a planned campground area as a helicopter landing zone. In addition, some access roads and trails may require improvements in order to be used and the timing of construction may conflict with campground use or construction is a concern. EBRPD requests coordination and consultation on these issues.

The public use of or access to these areas during Project construction would be reduced or prevented. Where trails are needed to provide access to work sites, such as for a structure replacement, trail access would be limited for the relatively short duration of construction. Where a site is used for staging, no access would be available for the length of time the site is needed. Figure 2.1-2 in Appendix A shows access routes, staging areas, and landing zones. Recreational use of access routes may be impeded by the presence of workers and equipment enroute to a work site, but this is a transitory problem. Where a trail is adjacent to a work site, the trail segment may be closed for the duration of construction (such as the assembly and erection of a structure). Such closure may be for a few weeks. Where feasible, alternate detours around the site would be provided. Laydown areas and landing zones would be used for longer durations. These areas would be closed to the public.

The recreational areas needed to facilitate construction constitute a small portion of the recreational land and facilities available in the area and their closure would not reduce or prevent recreational use of the remainder of the park facilities. One planned landing zone/staging area would potentially be located in

Sibley Volcanic Regional Preserve on the site for the planned group camping area/interpretive destination site. The feasibility of using the site would need to be coordinated with EBRPD and comply with FAA requirements for helicopter operations. PG&E plans to use helicopters only in the eastern portion of the Project. This construction would take approximately 16 months, after which the site would be restored and available. However, use at the site would be periodic, and approximately four months overall during the 16-month construction period in the eastern portion of the Project. The disturbed area would be restored as needed following construction.

One of two parking lots at the private The Hills Swim & Tennis Club would potentially be used for construction staging. Access to the private swim and tennis club would not be affected. At the conclusion of construction, the parking lot would become available once again.

Construction access and the work areas for Structures EN29, ES21, RN18, RS18, EN20, ES22, EN21, ES23, RN19, and RS19 construction access would require use MRRT, which is the major trail through Shepherd Canyon Park. Tree trimming or removal and minor civil work to stabilize banks where equipment would operate during construction may be required. During construction, portions of the trail may be blocked by equipment.

The recreation fields at Shepherd Canyon Park would be used for construction staging and may not be available for recreational use during this time. However, the construction use would be short term and other parks in the area provide similar recreation opportunities during this period. The entrance road and parking lot at the private Montclair Golf Course would be used for short-term construction access and staging. During construction, access to the private golf course would not be available. The Bridgeview Trail, the Dimond Canyon Trail, and the Old Cañon Trail in Dimond Canyon would be near construction work areas and access for Structures EN25, ES27, RN23, RS23, EN26, ES28, RN24, RS24, EN27, ES29, RN25, and RS25. During construction, portions of the trails would be temporarily closed for public safety during adjacent construction activities or when reconductoring activities are occurring that cross overhead. Signs, flaggers/monitors, and other safety measures will be implemented under MM REC-3a so that access is prevented during active construction. Where feasible, temporary routes around the site may be identified. If it is necessary to block the entire width of a trail, trail users will still be able to use unblocked portions of the trail. These impacts will be temporary.

Parking lots and hard surface playing fields would be used for construction access and staging at Montera Middle School, Corpus Christi School, and Edna Brewer Middle School. The facilities would not be available for recreational use while construction is underway. However, the construction use is short-term, and these areas would be used for construction when the schools are not in session.

The Project would not reduce or prevent access to recreational facilities or areas once constructed. During construction, work-related activities and needs would reduce or prevent access to some park and recreation facilities as described above, construction activities are temporary and would last no more than a few weeks at any specific park location. Other recreational facilities are available nearby in Contra Costa County, Orinda, Oakland, and Piedmont that could be used for those periods when construction needs limit or prevent access at some park locations.

APM REC-1 provides for advance notice of closures or limitations through coordination with park facility operators and posting of notices. However, APM REC-1 does not specify how the safety of trail and park users would be ensured in and around active construction areas. Therefore, impacts would be significant absent mitigation.

Among other requirements, Mitigation Measure (MM) N-1b requires that if a helicopter landing zone to be used would be located on East Bay Municipal Utility District (EBMUD) or East Bay Regional Park District (EBRPD) land, PG&E will coordinate with EBMUD and EBRPD to obtain approval on the proposed location.

MM REC-3a replaces APM REC-1. MM REC-3a includes coordination and signage requirements and also addresses park and trail user safety by requiring implementation of signage, barriers, and monitors, as appropriate, at locations where trail or park users may encounter construction activity. Absent implementation of MM REC-3a, park and trail users could be at risk of injury if they enter an active construction zone. Under MM REC-3a, if it is necessary to block the entire width of the trail, trail users would still be able to use portions of the trail that are not restricted. Construction along trails would be episodic and would last for a few days at a time (e.g., foundation borings followed later by structure installation, followed later by conductor stringing). Notice of closures and date would be provided to the trail manager and posted. As needed, disturbed areas of the trail would be restored following construction; improvements left in place will not reduce or prevent access to the trail.

Analysis of visual and noise impacts to recreational facilities and users resulting from construction of the Project is provided in Section 3.2, Aesthetics, and Section 3.11, Noise, respectively. With implementation of MM REC-3a, potential impacts to park and trail users at and near construction-related activities would be less than significant under Impact REC-3.

Operations and Maintenance

LESS THAN SIGNIFICANT. Construction activities will not affect access to the parks and recreation facilities following construction. The operation and maintenance of the rebuilt overhead lines and alterations to the substations would be similar in nature and intensity to the current O&M regime for the existing lines and substations. Access would be the same as existing access. Effects on recreational uses at and near the Project alignment would be affected in a similar fashion as currently occurs. O&M activities associated with the new underground portion of the rebuilt lines would be in roadways, rather than a designated recreational facility or area. The level of O&M activities associated with underground lines is anticipated to be less than that required for overhead lines. When O&M occurs on underground lines, temporary roadway lane closures may be required at access vaults. This would be a short-term impact that would not impact access to the designated recreational facility or area, as recreationalists, such as bicyclists and walkers, would be able to safely navigate around the work area. O&M of the rebuilt lines would have a less-than-significant impact under Impact REC-3.

Mitigation Measures for Impact REC-3

MM N-1b **General Construction Noise Management.** See full text in Section 3.11, Noise.

MM REC-3a **Coordinate with Park and Open Space management and provide signage, barriers, and monitors to ensure safety of trail and park users.** See full text in Section 3.14.4 (Mitigation Measures).

With implementation of MM REC-3a, potential impacts associated with access to and safe use of recreation facilities during Project construction would be reduced to a less than a significant level under Impact REC-3.

Impact REC-4: Substantially change the character of a recreational area by reducing the scenic, biological, cultural, geologic, or other important characteristics that contribute to the value of recreational facilities or areas.

Construction

LESS THAN SIGNIFICANT. Staging areas and the presence of construction activity at individual work sites in and near recreational areas would temporarily alter the visual character of these locations. This would be a temporary effect that would end with the completion of construction. Existing structures supporting electrical cables would be replaced with somewhat taller structures. The new structures would close to

the existing structures and would be within the same transmission corridor and be similar in character to existing structures. Refer to Section 3.2 Aesthetics, for a discussion of visual impacts. In some areas of Sibley Volcanic Regional Preserve, Shepherd Canyon Park, Dimond Canyon, and MRRT, construction would require trimming or removal of trees and vegetation. The amount of vegetation work needed will depend on final engineering. It would consist of removal or trimming to accommodate equipment movement and construction of structures. However, the amount of vegetation removed or modified would be relatively small and the natural landscape characteristics contributing to the value of these parks would not be substantially changed. Refer to Section 3.4, Biological Resources, for additional information on vegetation removal. Use of helicopters and other equipment would introduce noise into the park settings. Refer to Section 3.12, Noise, for a discussion of noise impacts and applicable mitigating measures. As with other construction-related impacts, noise generating activities would be temporary and periodic during construction and would cease at the end of construction.

Construction of new structures would occur near sites of existing structures and, following construction (including removal of no longer needed structures) the sites would be restored and stabilized. Vegetation trimming or removal would be minimal. Any risk of ground instability would be addressed by project design and application of APMs to address such issues as erosion and sedimentation. No cultural resources are anticipated to be affected. Therefore, the Project would have a less than significant impact on the important characteristics that contribute to the value of recreational facilities or areas.

Operations and Maintenance

LESS THAN SIGNIFICANT. Operation and maintenance activities in the park and open space areas would be the same as current O&M activities and the effects on the character of recreational areas would be similar to those that currently occur. Following construction, disturbed areas would be restored. O&M activities would use existing access to overhead lines and structures. The periodic short-term presence of maintenance equipment and crews would be visible to persons at or near the location where the maintenance occurs. Because of the localized nature of any O&M activities and their temporary nature, these impacts would be less than significant for recreationalists under Impact REC-4.

Impact REC-5: Damage recreational trails or facilities.

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. PG&E has proposed use of various areas within EBRPD lands as access routes, work and laydown areas, and helicopter landing areas. EBRPD has identified that some alternate trails and park areas for temporary use during construction that might be better at reducing impacts than the proposed areas. (See EIR Appendix C, EBRPD scoping letter A05). The proposed Project also identified MMRT and the Old Cañon Trail in Dimond Canyon as access routes or work locations. Additional playground and park areas have been identified as potential staging or component assembly areas. Use of vehicles and equipment on trails and other recreation facilities during construction may result in damage to the trails or facilities. PG&E would obtain permits for access or encroachment on park lands, which may require restoration of any damage. However, the conditions imposed by such permits are not known at this time. Moreover, use of private recreation facility lands would require agreements with property owners, the conditions of which are also unknown. While APM TRA-2 (see Section 3.15, Transportation) provides for repair of damage to transportation infrastructure, it does not address potential damage to recreation facilities. Therefore, impacts would be significant absent mitigation.

During scoping, EBRPD identified concerns regarding potential adverse effects on park roads and camping areas. Mitigation Measure REC-5a requires PG&E to coordinate with park facility owners/managers to identify where reasonable feasible alternatives to planned access and use are available that would reduce

impacts and disruption, and to assess and address damage to park facilities. This will ensure that such damage is addressed and alternatives are considered that reduce adverse effects. With implementation of MM REC-5a, the potential impact on recreational trails and facilities would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. Following construction, disturbed areas would be restored. O&M activities would use existing access to overhead lines and structures. Access to the underground segment of the Project would be at vaults located in roadways, rather than a designated recreational facility or area. The periodic short-term presence of maintenance equipment and crews would be visible to persons at or near the location where the maintenance occurs. Because of the localized nature of any O&M activities, their temporary nature, and their physical separation from recreational trails or facilities, these potential impacts would be less than significant for recreationalists.

Mitigation Measures for Impact REC-5

MM REC-5a **Coordinate with recreation facility owners or managers to identify feasible alternatives and address damage to recreation assets.** See full text in Section 3.14.4 (Mitigation Measures).

With implementation of MM REC-5a, potential impacts associated with damage to recreation facilities or trails during Project construction would be reduced to a less than a significant level under Impact REC-5.

3.14.4. Mitigation Measures

MM N-1a **General Construction Noise Management.** See full text in Section 3.11 (Noise).

MM N-1b **Construction Notification.** See full text in Section 3.11 (Noise).

MM REC-3a below supersedes proposed APM REC-1, adding specific measures to address park user safety near construction activities.

MM REC-3a **Coordinate with Park and Open Space management and provide signage, barriers, and monitors to ensure safety of trail and park users. [*Supersedes APM REC-1*].** PG&E shall coordinate with park and open space managers regarding temporary closures required for project construction activities at least 30 days prior to the activity taking place. If traditional access is temporarily unavailable, signs advising recreational facility users of construction activities, including their duration, and providing directions to alternative trails and/or bikeways, shall be posted and clearly visible at entrance gates to park and open space areas. Signage will be posted at least 1 week in advance of the construction activity near a park or open space area. Where construction activities require use of or obstruct a trail or other park area otherwise open to recreational users, barriers, tape, or other devices blocking access or warning users of construction activity shall be in place. If available, routes around the construction will be identified and clearly marked. Where a trail or site is obstructed by construction activity monitors shall be onsite to prevent unauthorized public access to the construction area and to direct recreational users around or away from the site.

MM REC-5a **Coordinate with recreation facility owners or managers to identify feasible alternatives and address damage to recreation assets.** At least 60 days prior to using a recreation area for construction-related activities, PG&E shall coordinate with managers or owners of public and private recreation facilities (including trails, camping areas, playgrounds, parking areas, and similar assets) to determine if reasonable feasible alternatives to PG&E's planned access and site uses are available that would reduce impacts and disruption.

PG&E will coordinate with facility managers regarding the extent of the area(s) to be used, the access to the area(s), and the timing and duration of use. PG&E, in coordination with the applicable landowner or manager, shall also assess and address any significant damage resulting directly from PG&E construction activities. When an access route, work site, or staging area is no longer needed for construction-related activities, PG&E shall coordinate with the facility owner/manager on regarding the timing of restoration and shall restore any disturbed area to pre-construction conditions. If property owner agreements or agency permits stipulate usage and how to address damage, the conditions specified in any agreement or permit condition shall be applied in lieu of this mitigation measure. In the absence of such agreements or permit conditions, PG&E will identify damages and make appropriate repairs or compensation.

3.14.5. References

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3.15. Transportation

This section describes existing conditions and potential impacts on transportation from construction, operation, and maintenance of the Project.

The Project's potential effects on transportation and traffic were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines and the CPUC's Additional CEQA Impact Questions for Transportation in the *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing and Proponent's Environmental Assessments*. Project description information and potential impacts are organized and discussed based on the impact questions. A detailed Project description is discussed in Chapter 2, *Project Description*. Conclusions regarding the significance of potential impacts are discussed in detail in Section 3.15.3.3. Data presented in this section is based primarily on PG&E's Proponent's Environmental Assessment (PEA) (PG&E, 2024a), reviewed and updated by EIR authors.

The impacts addressed in this section include whether the proposed Project would: conflict with programs, plans, ordinances, or policies addressing the circulation system; conflict or be inconsistent with State CEQA Guidelines Section 15064.3(b) regarding vehicle miles traveled; substantially increase hazards due to a geometric design feature or incompatible uses; result in inadequate emergency access; create potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations; interfere with walking or bicycling accessibility; or substantially delay public transit. The circulation system encompasses several transportation modes, including transit, roadway, bicycle, and pedestrian facilities. While Appendix G of the CEQA Guidelines focuses on road-based transportation, helicopter landing zones are also discussed in this section given their role in transporting construction materials and workers by helicopter to Project construction areas in the eastern portion of the Project area.

Because this section addresses emergency access and evacuation, other related EIR sections include Section 3.13, Public Services and Section 3.18, Wildfire. Impacts on the use of recreational trails by pedestrians or bicyclists are discussed further in Section 3.14, Recreation. Potential safety impacts related to the transport of heavy materials using helicopters are discussed in Section 3.9, Hazards, Hazardous Materials, and Public Safety.

The scoping effort conducted by CPUC from February 25 through March 27, 2025, resulted in several public comments and concerns relating to transportation. Concerns communicated in the scoping process that are related to transportation and were considered in the analysis below include:

- Concerns about choke points, where construction in narrow streets in especially populated areas could hinder evacuation.
- Concern that the Moraga Substation is only accessible by one, two-lane road that serves as the primary entrance and exit for the Lost Valley Drive neighborhood in Orinda.
- Identify strategies to minimize impacts on traffic, such as street closures and hazardous conditions for pedestrians and vehicles.
- Identify what mitigation strategies would be in place in the event of an emergency to preserve access for emergency services and evacuation routes.
- Comment from the East Bay Regional Park District (EBRPD) that a proposed helicopter landing zone within a future campground area in the Sibley Volcanic Regional Preserve would not be feasible because the campground would be constructed prior to Project construction.

During consultation with the East Bay Municipal Utility District (EBMUD), EBMUD stated that any helicopter landing zones that would be located on EBMUD land would require coordination with EBMUD to obtain approval on the location (EBMUD, 2025). During consultation with the City of Oakland Department of Transportation (OakDOT), OakDOT stated that at least 1-month advance notification to the community is

required prior to construction (City of Oakland, 2025). In addition, OakDOT stated that Park Boulevard is concrete, and therefore, restoration of the entire street would be required after excavation (City of Oakland, 2025). For the restoration of concrete, the roadway would need to be closed for up to 3 days.

During consultation with the City of Piedmont, the City expressed concerns about traffic at the intersection of Estates Drive, which is near Corpus Christi School, located at 1 Estates Drive in Piedmont (City of Piedmont, 2025). The school is located within the overhead to underground transition area for the rebuilt line; therefore, the City stated that extensive traffic control would be needed at this location. In addition, the school currently uses a dirt lot owned by PG&E that is adjacent to the proposed transition pole as auxiliary parking. The City asked about whether the auxiliary parking lot would remain available for school use during Project construction and operation.

The California Department of Transportation (Caltrans) had no scoping comments.

The issues brought up during scoping and consultation are discussed in Sections 3.15.1.3 and 3.15.1.5; and under Impacts T-1 and T-3 through T-5 in Section 3.15.3.3.

3.15.1. Environmental Setting

3.15.1.1. Project Location

The Project area is located in the City of Orinda, in unincorporated areas of Contra Costa County, and in the cities of Oakland and Piedmont within Alameda County. The Project starts in the City of Orinda at Moraga Substation. The lines progress southwest, cross through hilly open space and park land, then enter a residential area, continue southwest across Skyline Boulevard and various local streets to State Route (SR-) 13. From SR-13, the lines progress southwest to near Estates Drive. From Estates Drive, the existing overhead lines that cross local streets would be removed and rerouted underground in Park Boulevard to Oakland X Substation near I-580.

3.15.1.2. Circulation System

A circulation system is comprised of various transportation facilities, including roadways, transit and rail services, bicycle facilities, and pedestrian facilities. The regional and local circulation system in the Project area consists of two-lane local roadways (one lane in each direction), city arterials, state routes (SR-13 and SR-24), and one interstate highway (Interstate [I-] 580). Alameda-Contra Costa Transit District (AC Transit) is the public transit agency that serves Alameda County and western portions of Contra Costa County. AC Transit has a number of bus routes and stops within 1,000 feet of the Project area. Existing pedestrian and bicycle facilities, as well as planned bicycle facilities, are within 1,000 feet of the Project area in the City of Oakland and the City of Piedmont. Planned bicycle facilities are within 1,000 feet of Moraga Substation in the City of Orinda. Additional details about these facilities are discussed below. Traffic data and other transportation system information were obtained from maps, literature searches, and aerial photographs.

3.15.1.3. Roadways

This section describes the roadways that would be used by workers, equipment, materials, and deliveries during Project construction and O&M activities. Project activities would require the use of the existing network of paved and unpaved public and private roads to access structure work areas, pull/tension sites, and laydown areas. Figure 3.15-1, Existing Roadway Network (in Appendix A) shows existing roads planned for Project use. While not specifically highlighted on Figure 3.15-1 (Existing Roadway Network), the broader network of paved roads leading to Project access roads or work areas would also be used during construction. Access routes would vary depending on the origin of the worker or truck and the type of activity that day. The roads that would most likely be affected are described below.

Major Roadways

I-580 is close to the Project area, and SR-13 and SR-24 are state routes within the Project area. Major City of Oakland-maintained arterials within the Project area include Skyline Boulevard, Mountain Boulevard, and Park Boulevard. These roadways are described as follows:

- Interstate 580 is an east-west eight-lane interstate highway in northern California that runs from U.S. Highway 101 in San Rafael to I-5 near Tracy. Oakland X Substation is located approximately 0.1 mile east of I-580 near the Park Boulevard undercrossing.
- State Route 24 is an east-west eight-lane freeway that runs from I-580/I-980 interchange in Oakland to I-680 in Walnut Creek. SR-24 would be used to access the staging and helicopter landing zones east of Caldecott Tunnel approximately 2.5 miles east of Moraga Sub~~s~~station.
- State Route 13 is a north-south four-lane freeway that runs entirely in Alameda County, connecting I-580 in Oakland to I-80/I-580 in Berkeley. The existing overhead power lines to be rebuilt within the existing alignment cross SR-13. SR-13 would be used to access local roads adjacent to the lines during construction, operation, and maintenance.
- Skyline Boulevard is a two-lane east-west arterial in the City of Oakland. The existing overhead power lines to be rebuilt within the existing alignment cross Skyline Boulevard. Skyline Boulevard would be used to access local roads adjacent to the lines during construction, operation, and maintenance.
- Mountain Boulevard is a north-south arterial that runs parallel to SR-13. The roadway has two lanes south of SR-13 and four lanes north of SR-13. The existing overhead power lines to be rebuilt within the existing alignment cross Mountain Boulevard. Mountain Boulevard would be used to access local roads adjacent to the lines during construction and O&M.
- Park Boulevard is a four-lane northeast-southwest arterial street. Park Boulevard is considered a transit street because it connects local destinations to regional transit streets. On-street parking is available along most of Park Boulevard. The power lines would transition from overhead to underground near the Estates Drive/Park Boulevard intersection, approximately 0.6 mile south of SR-13. The rebuilt power lines would progress southwest along a new underground alignment through Park Boulevard and end at Oakland X Substation near I-580.

Other roadways within the Project area include local streets and some collectors. Table 3.15-1 describes the roadways that would be affected by the Project. Annual average daily traffic (AADT) volumes for 2021 for state facilities in the study area were obtained from the Caltrans website (PG&E, 2024a).

Table 3.15-1. Existing Roadways within Project Area

Roadway	Road Type/Jurisdiction	Number of Lanes (2-way)	Traffic Volumes (AADT/Peak Hours)	Closest Project Component
Lost Valley Drive	Local Street/City of Orinda	2	N/A	Moraga Substation
Valley View Drive	Local Street/City of Orinda	2	N/A	Moraga Substation
Dolores Way	Local Street/City of Orinda	2	N/A	Access to workspace
Edgewood Road	Local Street/City of Orinda	2	N/A	Access to workspace
Wilder Road	Local Street/City of Orinda	1	N/A	Moraga Substation
Pinehurst Road	Local Street/ Unincorporated Contra Costa County	2	N/A	Proposed overhead power lines
Manzanita Drive	Local Street/City of Oakland	2	N/A	Staging area/Work area for rebuilt overhead power line structures
Skyline Boulevard	Arterial/City of Oakland	2	N/A	Staging area/Work area for rebuilt overhead power line structures

Roadway	Road Type/Jurisdiction	Number of Lanes (2-way)	Traffic Volumes (AADT/Peak Hours)	Closest Project Component
Arrowhead Drive	Local Street/City of Oakland	2	N/A	Staging area/Work area for rebuilt overhead power line structures
East Circle Drive	Local Street/City of Oakland	2	N/A	Staging area
Gunn Drive	Local Street/City of Oakland	2	N/A	Work area for rebuilt overhead power line structures
Saroni Drive	Local Street/City of Oakland	2	N/A	Staging area/Work area for rebuilt overhead power line structures
Sayre Drive	Local Street/City of Oakland	2	N/A	Staging area/Work area for rebuilt overhead power line structures
Saroni Court	Local Street/City of Oakland	2 (narrow roadway)	N/A	Access to work area
Paso Robles Drive	Local Street/City of Oakland	2	N/A	Rebuilt overhead power line structures
Balboa Drive	Local Street/City of Oakland	2	N/A	Staging area/Access to work site/ Rebuilt overhead power line structures
West Circle	Local Street/City of Oakland	2 (narrow roadway)	N/A	Access to work site/Staging area
Shepherd Canyon Road	Local Street/City of Oakland	2	N/A	Rebuilt overhead power line structures/Access to work area
Drake Drive	Local Street/City of Oakland	2	N/A	Access to work area
Scout Road	Local Street/City of Oakland	2	N/A	Rebuilt overhead power line structures/Access to work area
Mountain Boulevard	Arterial/City of Oakland	South of SR-13 ramps: 2 North of SR-13 ramps: 4	N/A	Staging area/Work area for rebuilt overhead power line structures
SR-13	State Route/Caltrans	4	63,000[a]	Staging area/Work area for rebuilt overhead power line structures
SR-24	State Route/Caltrans	8	169,000[a]	Staging area/Helicopter landing zone
Old Tunnel Road	Local Street/Unincorporated Alameda County	2 (narrow roadway)	N/A	Staging area/Helicopter landing zone
Fish Ranch Road	Local Street/Unincorporated Alameda County	2	N/A	Staging area/Helicopter landing zone
Monterey Boulevard	Local Street/City of Oakland	2	N/A	Staging area/Access to work site/ Work area for rebuilt overhead power line structures
Leimert Boulevard	Local Street/City of Oakland	2	N/A	Access to work area/Staging area
Estates Drive	Local Street/City of Piedmont	2	N/A	Transition area to underground power lines/Staging area
Saint James Drive	Local Street/City of Piedmont	2	N/A	Staging area
Trestle Glen Road	Collector Street/City of Piedmont	2	N/A	Staging area
Glendome Circle	Local Street/City of Oakland	2	N/A	Workspace/Staging area
Glendora Avenue	Local Street/City of Oakland	2	N/A	Access to work area
Elbert Street	Local Street/City of Oakland	2	N/A	Access to staging area
Everett Avenue	Local Street/City of Oakland	2	N/A	Workspace/Staging area

Roadway	Road Type/Jurisdiction	Number of Lanes (2-way)	Traffic Volumes (AADT/Peak Hours)	Closest Project Component
Wellington Street	Local Street/City of Oakland	2	N/A	Workspace/Staging area
Norwood Avenue	Local Street/City of Oakland	2	N/A	Workspace
Creed Road	Local Street/City of Oakland	2	N/A	Workspace
Holman Road	Local Street/City of Oakland	2	N/A	Workspace/Staging area
Bates Road	Local Street/City of Oakland	2	N/A	Workspace/Staging area
Grosvenor Place	Local Street/City of Oakland	2	N/A	Oakland X Substation/Workspace
Park Boulevard	Arterial/City of Oakland	4	WB: 1,030/680[b] EB: 570/770[b]	Power lines rebuilt underground
Park Boulevard Way	Local Street/City of Oakland	2	N/A	Power lines rebuilt underground/ Oakland X Substation
I-580	Interstate Highway/Caltrans	8	177,000[a]	Oakland X Substation

Source: PG&E, 2024a
[a] 2021 annual average daily traffic.
[b] 2017 average AM/PM peak hour volume along Park Boulevard between Alma Place/Grosvenor Place/Excelsior Avenue and Trafalgar Place/Monterey Boulevard.
N/A: Not Applicable/no available data

Vehicle Miles Traveled

The average 2020 daily vehicle miles traveled (VMT) in the study area is estimated to be higher than 25 VMT per capita just north of SR-13, and between 20 and 25 VMT per capita just south of SR-13 (PG&E, 2024a). VMT per capita is defined as home-based VMT at the residence Transportation Analysis Zone (TAZ), divided by total population in the TAZ. VMT includes all travel within the nine-county Bay Area plus San Joaquin County (the model area) plus estimates of travel distances beyond the ten-county model area (PG&E, 2024a). The average VMT per capita in 2020 in Alameda County was 19.4 miles (Alameda County Transportation Commission, 2019); this indicates that the average VMT in the study area (higher than 25 VMT and between 20 and 25 VMT per capita) is relatively high compared to the County average. This relatively high VMT value suggests a high reliance on personal automobile travel in the study area, compared to other modes of transportation (e.g., walking, bicycling, public transit).

Evacuation and Emergency Access Concerns

The Project alignment extends into the Oakland Hills where narrow urban streets with parked cars can adversely affect evacuation and first responder access (City of Oakland, 2021). The Oakland Hills area is fully built out and has a dense population, which could further restrict access during evacuation if too many vehicles leave the area at the same time. Most roads leading out of the City's hills are one lane in each direction (total of two lanes) and, therefore, have limited egress with choke points in especially populated locations. For example, Ascot Drive, Scout Road, and Colton Boulevard are very steep and narrow (20 feet) and have multiple sharp turns, especially in a half-mile portion of these roadways closest to the Hayward Fault. This portion of the Project area is also within a Fire Hazard Severity Zone (see Section 3.18, *Wildfire*). The northern neighborhood of the Oakland Hills was devastated by the 1991 Oakland Firestorm, which burned more than 1,520 acres in forested, wildland-urban interface, and suburban areas (City of Oakland, 2021). The Project alignment near SR-13 crosses through the historic boundaries of the 1991 Oakland Firestorm (EBRPD, 2011).

The City of Orinda also provided a scoping comment stating that Lost Valley Drive, a two-lane roadway (one lane in each direction), is the only road that provides access to Moraga Substation and is also the primary entry and exit for the Lost Valley neighborhood; therefore, the City is concerned about street closures and access for emergency services and evacuation in the event of an emergency. Moraga Substation

and the Lost Valley neighborhood are located in a wildland-urban interface (i.e., an area where human development, such as houses and other structures, meets or intermingles with undeveloped wildland vegetation), which is an area that could be susceptible to wildfire (see Figure 3.18-3 in Appendix A). The Lost Valley neighborhood is also adjacent to designated Very High Fire Hazard Severity Zones (see Figure 3.18-1 in Appendix A). The City's concerns regarding street closures and access are addressed in Section 3.15.3.1 under Impacts T-1 and T-4.

Wildfire evacuation impacts are discussed further in Impact WF-1 in EIR Section 3.18.

3.15.1.4. Transit and Rail Services

Figure 3.15-2, Existing Transit Services (in Appendix A) presents the existing transit services within 0.5 miles of the Project area. Transit data were obtained from the AC Transit website (PG&E, 2024a). AC Transit is a public transit agency serving Alameda County and the western portion of Contra Costa County. AC Transit is the main transit provider in the cities of Oakland and Piedmont. AC Transit provides bus services within 0.5 miles of the Project area. County Connection also provides bus service in central Contra Costa County; the nearest bus route in Orinda is approximately 0.5 mile from Moraga Substation. Bay Area Rapid Transit (BART) is the main rail service provider in the region; however, no rail services are within 0.5 miles of the Project area. The closest rail service is the BART Yellow Line (Antioch-SFO), which is more than 2 miles from the Project area.

The following transit lines are within 0.5 mile of the Project area:

- AC Transit operates Transbay Bus Services between local East Bay neighborhoods and the Salesforce Transit Center in San Francisco. Transbay Bus Line V runs between Salesforce Transit Center Bay 25 and California College of the Arts via I-580, Park Boulevard, Moraga Avenue, and Broadway Terrace. Line V passes through Park Boulevard in the Project's western section where the underground lines are proposed and turns onto Mountain Boulevard about 0.1 mile from where the overhead power lines are proposed to be rebuilt. Line V runs during commute hours, with an approximate service frequency of every 15 to 60 minutes.
- AC Transit ~~operates~~ operated Line 33 between Mountain Boulevard/Moraga Avenue in Piedmont and Montclair via Highland Avenue, Oakland Avenue, Harrison Street, Kaiser Center, Downtown Oakland, and Park Boulevard. As with Line V, Line 33 ~~passes~~ passed through Park Boulevard in the western section of the Project area where the underground lines are proposed and turns onto Mountain Boulevard approximately 0.1 mile away from where the overhead power lines are proposed to be rebuilt. Line 33 ~~runs~~ ran every day from 5:00 a.m. to 12:00 a.m. with an approximate service frequency of 15 to 30 minutes. AC Transit Line 33 was replaced by AC Transit Lines 18, 88, and 633 as part of AC Transit's Realign service changes that started on August 10, 2025[40]. AC Transit Line 18 includes stops near the Project area. Lines V and ~~33~~ 18 have stops within 0.5 mile of the Project area along Park Boulevard at Leimert Boulevard, Hollywood Avenue, Dolores Avenue, Everette Avenue, Wellington Street, Glenfield Avenue, Glen Park Road, Greenwood Avenue, East 38th Street, Kingsley Street, and Chatham Road, and on Mountain Boulevard at Snake Road.
- AC Transit operates Line NX, a Transbay Bus Service that runs between Millbrae Avenue/MacArthur Boulevard and Salesforce Transit Center in San Francisco via MacArthur Boulevard, Chatham Road, and I-580. Line NX passes through Chatham Road near Park Boulevard, undercrossing I-580 close to Oakland X Substation. Line NX runs during commute hours, with an approximate service frequency of every 10 to 60 minutes. Line NX's stop at Chatham Road/Park Boulevard is approximately 500 feet from Oakland X Substation.

[40] AC Transit Realign Service Changes. https://www.actransit.org/realign/service-changes. Accessed December 3, 2025.

- AC Transit operates Line NL, a Transbay Bus Service that runs between Eastmont Transit Center and Salesforce Transit Center in San Francisco via MacArthur Boulevard, Grand Avenue, downtown Oakland, and West Grand Avenue. As with Line NX, Line NL passes through Chatham Road near Park Boulevard, undercrossing I-580 close to Oakland X Substation. Line NL runs during commute hours, with an approximate service frequency of every 15 to 30 minutes. Line NL has the same stops as Line NX near the Project area.
- AC Transit operates Line 642, a supplementary service to schools that runs between Montera Middle School north of SR-13 and Snake Road/Colton Boulevard in Oakland via Snake Road, Colton Boulevard, Saroni Drive, and Colton Boulevard. Line 642 passes through Mountain Boulevard north of SR-13 where the overhead power lines are proposed to be rebuilt. The line operates Monday through Friday except holidays. Line 642 has stops within 0.5 mile of the Project area at Ascot Drive/Scout Road, Ascot Drive/ Camino Lenada, Snake Road/Mountain Boulevard, Snake Road/Shepherd Canyon Road, 5798 Snake Road, Snake Road/Magellan Drive, Snake Road/Zinn Drive, Snake Road/Gaspar Drive, Snake Road/Drake Drive, Snake Road/Colton Boulevard, Colton Boulevard/Heartwood Drive, Colton Boulevard/Chambers Drive, Colton Boulevard/Hemlock Lane, Colton Boulevard/Ridgewood Drive, Arrowhead Drive/ Homewood Drive, Arrowhead Drive/Glencourt Drive, and Glencourt Drive/Homeglen Lane.
- AC Transit operates Line 57 between the Public Market in Emeryville and Foothill Square in Oakland via Shellmound Street, 40th Street and MacArthur Boulevard. The line runs through Chatham Road and MacArthur Boulevard near I-580 and Park Boulevard undercrossing close to Oakland X Substation. Line 57 runs daily from about 5:00 a.m. to midnight with an approximate service frequency of 15 minutes. Line 57 has stops within 0.5 mile of the Project area along Chatham Road at Bruce Street, 13th Avenue, and Park Boulevard.
- AC Transit operates Line 805 between Uptown Oakland and Oakland Airport via Grand Avenue, MacArthur Boulevard, and Coliseum BART. As with Line 57, Line 805 runs through Chatham Road and MacArthur Boulevard near I-580 and Park Boulevard, undercrossing close to Oakland X Substation. Line 805 is an all-nighter that runs from midnight to the morning peak period with an approximate service frequency of one hour. Line 805 has the same stops as Line 57 near the Project area.
- County Connection operates Local Route 6, with service between the Orinda BART station and the Lafayette BART station via Moraga Way and Moraga Road. Local Route 6 runs daily from about 6 a.m. to 8 p.m. on weekdays with an approximate service frequency of 30 minutes and about 9:30 a.m. to 5:30 p.m. on weekends with an approximate service frequency of 80 minutes (PG&E, 2024a). The nearest stop to the Project area is at the intersection of Moraga Way and El Camino Moraga, approximately 0.4 mile from Moraga Substation. Local Route 6 is not shown on Figure 3.15-2 but runs along Moraga Way, which is shown on Figure 3.15-2 and located approximately 0.5 mile north of the Project area.

3.15.1.5. Bicycle Facilities

Figure 3.15-3, Existing and Planned Bicycle Facilities (in EIR Appendix A) presents existing and planned bicycle lanes, routes, and paths within approximately 1,000 feet of the Project area and extending into the Project vicinity.

The *City of Oakland General Plan* includes the *2019 Oakland Bike Plan*, which describes existing and recommended (proposed) bikeways or bicycle facilities in the City of Oakland (City of Oakland, 2019). The *2019 Oakland Bike Plan* defines bicycle facility types as follows:

- Shared Use Path: Paths shared by people walking and biking completely separated from motor vehicle traffic. The City of Oakland refers to this as a Class 1 Bikeway.
- Protected Bike Lane: On-street bike lane separated from motor vehicle traffic by curb, median, planters, parking, or other types of physical barrier. The City of Oakland refers to this as a Class 4 Bikeway.

- Buffered Bicycle Lane: Dedicated lane for bicycle travel separated from traffic by a painted buffer. The City of Oakland refers to this as Class 2B Bikeway.
- Bike Lane: Dedicated lane for bicycle travel adjacent to traffic. The City of Oakland refers to this as a Class 2 Bikeway.
- Neighborhood Bike Route: Calm local streets where bicyclists have priority but share roadway space with automobiles. The City of Oakland refers to this as Class 3B Bikeway.
- Bike Route: Signed bike route, sharing the roadway with motor vehicles. The City of Oakland refers to this as a Class 2 Bikeway.

Existing bicycle networks in the City of Oakland within 1,000 feet of the Project area are as follows:

- Neighborhood bike route on Excelsior Avenue between Park Boulevard and Ardley Avenue
- Bike route on Monterey Boulevard between Park Boulevard and Redwood Road
- Bike path on Shepherd Canyon Road between Saroni Drive and Lucas Avenue (locally known as the Montclair Railroad Trail)
- Bike route on Skyline Boulevard between Snake Road and Joaquin Miller Park
- Bike route on Saroni Drive, Glencourt Drive, Arrowhead Drive and Colton Boulevard (connection between Skyline Drive bike route and Montclair Railroad Trail)
- Buffered bike lane on Beaumont Avenue between Park Boulevard and Excelsior Avenue
- Neighborhood bike route on Kingsley Street between Park Boulevard and Excelsior Avenue
- Neighborhood bike route on Excelsior Avenue between Kingsley Street and Ardley Avenue

Planned bicycle networks in the City of Oakland within 1,000 feet of the Project area are:

- Bike lane on Park Boulevard between Leimert Boulevard and Grosvenor Place
- Bike path on Park Boulevard between Mountain Boulevard and Leimert Boulevard
- Neighborhood bike route on Leimert Boulevard between Park Boulevard and Redwood Road
- Neighborhood bike route on Mountain Boulevard between Park Boulevard and Moraga Avenue
- Neighborhood bike route on Holman Road between Grosvenor Place and Lakeshore Avenue

The *City of Piedmont General Plan* describes the existing bikeways within City limits. All Piedmont bikeways in the southeast side of the City are identified as Class III. Class III bikeways are defined by the City of Piedmont as bike routes that operate within moving traffic lanes and are distinguished only by signs or pavement markings. There is a Class III bikeway on Saint James Drive between Park Boulevard and Hampton Road (City of Piedmont, 2024b). This Class III bikeway crosses the portion of the Project alignment near and along Park Boulevard.

In the City of Orinda, a Class II bike lane along Moraga Way is within approximately 3,000 feet of the Project area (City of Orinda, 2011). The City of Orinda has planned bicycle facilities along roads within 1,000 feet of Moraga Substation, including along Valley View Drive and Don Gabriel Way. These facilities are also located along or in proximity to Moraga Way, which is approximately 0.5 mile north of the Project area; a relatively small portion of Moraga Way is included on Figure 3.15-3 (Existing and Planned Bicycle Facilities), and therefore, these facilities are not shown on the figure.

The City of Orinda also provided a scoping comment stating that Lost Valley Drive, a two-lane roadway (one lane in each direction), is the only road that provides access to Moraga Substation and is also the primary entry and exit for the Lost Valley neighborhood; therefore, the City is concerned about potentially

hazardous conditions for people walking, bicycling, or driving along this roadway. Lost Valley Drive is not designated as an existing or planned bicycle facility and does not have sidewalks within the Project area (as described in the following section); however, bicyclists and pedestrians may still use this roadway for access to and from the neighborhood, and therefore, the City's concerns regarding potentially hazardous conditions are addressed in Section 3.15.3.1 under Impacts T-1, T-3, and T-5.

As shown on Figure 3.15-3 (Existing and Planned Bicycle Facilities), trails within East Bay Regional Park District (EBRPD) jurisdiction cross through the Project area and are located along the proposed Project access roads. The trails are located within the Sibley Volcanic Regional Preserve (EBRPD, n.d.).

3.15.1.6. Pedestrian Facilities

Figure 3.15-4 (Existing Pedestrian Facilities) presents existing pedestrian facilities in the Project area. The City of Oakland maintains sidewalks along major roadways within the Project area, including Park Boulevard and Mountain Boulevard. On Figure 3.15-4 (EIR Appendix A), Park Boulevard is shown as an important pedestrian sidewalk, which is not an official designation but notes the importance of this roadway for pedestrian use due to the surrounding densely developed residential neighborhoods, which include schools and other community facilities. South of SR-13, most of the local streets have sidewalks within the Project area, including local streets in the City of Piedmont. North of SR-13, most local streets in the City of Oakland and City of Orinda do not have sidewalks within the Project area.

The main hiking trails within the Project area are Montclair Railroad Trail, Sausal Creek Trail, and trails within Huckleberry Botanical Regional Preserve and Sibley Volcanic Regional Preserve, including the East Bay Skyline National Recreational Trail.

3.15.2. Applicable Regulations, Policies, and Standards

3.15.2.1. Federal

Americans with Disabilities Act Standards for Accessible Design

The proposed Project would involve reconstructing sidewalks and trails at substation and line locations where existing sidewalks are removed or damaged. Reconstruction would be required to comply with Americans with Disabilities Act (ADA) standards. The U.S. Department of Justice enacted the ADA in 1990, which adopted enforceable accessibility standards for facility design. The revised ADA standards adopted in 2010 set minimum requirements for newly designed and constructed or altered state and local government facilities, public accommodations, and commercial facilities. State and local government facilities must adhere to the following requirements of the 2010 standards:

- Title II regulations at 28 Code of Federal Regulations (CFR) 35.151
- 2004 ADA Accessibility Guidelines at 36 CFR 1191, Appendices B and D

3.15.2.2. State

Caltrans owns the right-of-way (ROW) for state facilities, including any on- and off-ramps that provide access to the Project area. Any Project-related work within state ROW requires an encroachment permit from Caltrans. Caltrans is also the administering agency for regulations related to traffic safety, including licensing drivers, limiting weights and loads, transporting hazardous and combustible materials, and safely operating vehicles.

Senate Bill 743

In December 2018, the CEQA Guidelines were updated to incorporate Senate Bill 743. As a result, the CEQA guidelines (Section 15064.3) shift the focus of a CEQA analysis of transportation impacts to determine significance away from quantification of automobile delay to focus on vehicle miles traveled

(VMT). VMT refers to the amount and distance of automobile travel attributable to a project, sometimes expressed as an average per trip or per person. Section 15064.3(b)(3), Qualitative Analysis, recognizes that lead agencies may not be able to quantitatively estimate VMT for every project type and indicates that a qualitative analysis may be appropriate. Section 15064.3(b)(3) states:

> *Qualitative Analysis. If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.*

Technical Advisory on Evaluating Transportation Impacts in CEQA

The Governor's Office of Planning and Research (now called the Office of Land Use and Climate Innovation) issued a technical advisory to provide guidance on assessing project impacts under CEQA (OPR, 2018). Specifically, the technical advisory focuses on using VMT as the primary metric for transportation impact analysis and suggests thresholds for determining significance. The advisory also includes guidance on mitigation measures and considerations for various project types.

California Vehicle Code

Section 21400 of the California Vehicle Code directs Caltrans to adopt rules and regulations prescribing uniform standards and specifications for all official traffic control devices placed pursuant to the vehicle code. The *Work Area Traffic Control Handbook* (Bni Building News, 2024) provides the basic standards for the safe movement of traffic, including motorists, bicyclists, and pedestrians, on streets, highways, and bikeways during highway construction or utility work in accordance with Section 21400. The *California Manual on Uniform Traffic Control Devices* (Caltrans, 2025) provides uniform standards and specifications for all official traffic control devices in California, pursuant to the provisions of Section 21400.

California Bicycle Transportation Act

The California Bicycle Transportation Act (CBTA), codified in the Streets and Highways Code, Section 890-894.2, primarily focuses on establishing and funding bicycle infrastructure and programs. The CBTA is part of a broader effort to promote active transportation and make California a leader in bike-friendly environments.

3.15.2.3. Local

Because the CPUC has exclusive jurisdiction over Project siting, design, and construction for investor-owned utilities, the Project is not subject to local (city and county) discretionary regulations except for air districts and certified unified program agencies with respect to air quality and hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

Contra Costa County

The *Contra Costa General Plan* was first updated in 1991. The Transportation Element sets forth goals and policies describing the overall mobility program for the county and includes coordinated transportation planning, safe and sustainable transportation, multimodal roadway network, active transportation, goods movement, and air mobility (Contra Costa County, 2024b). Contra Costa County does not provide specific CEQA thresholds of significance for transportation.

Sections 3.9 (Hazards and Hazardous Materials and Public Safety), 3.13 (Public Services), and 3.18 (Wildfire) also include more information on emergency response, as discussed in the Public Facilities and

Services Element and Health and Safety Element of the *Contra Costa General Plan*. In addition, Section 3.9 (Hazards and Hazardous Materials and Public Safety) includes a discussion of emergency response procedures as provided in the *Contra Costa Operational Area Emergency Operations Plan*.

Alameda County

The *Alameda County General Plan* was adopted in 2021. The Mobility Element focuses on an equitable, safe, and sustainable transportation network for all county residents (Alameda County, 2022). Alameda County's goal is to reduce its greenhouse gas emissions by transforming its transportation system to give residents convenient and safe, climate-friendly transportation choices and alternatives to single-occupant vehicles and to reduce VMT. Alameda County does not provide specific CEQA thresholds of significance for transportation.

City of Orinda

The *City of Orinda General Plan* was adopted in 1987. The policies relevant to transportation are in the Land Use and Circulation Element, which was updated in January 2023 (City of Orinda, 2023a). The Element includes guiding policies that recommend retaining an existing peak hour level of service (LOS) of C or better at intersections where it prevails and improve the LOS at all other intersections. The City of Orinda does not provide specific CEQA thresholds of significance for transportation. Additional information on emergency response procedures is provided in Sections 3.9 (Hazards and Hazardous Materials and Public Safety), 3.13 (Public Services), and 3.18 (Wildfire), which include a discussion of the Safety Element of the *City of Orinda General Plan*.

City of Piedmont

The *City of Piedmont General Plan* was adopted in 2009. The Transportation Element focuses on addressing mobility, traffic flow, public transit, walking and bicycling, parking and safety (City of Piedmont, 2024b). The Transportation Element supports reducing VMT as a policy to achieve mobility and choice goals. The City of Piedmont does not provide specific CEQA thresholds of significance transportation. Additional information on emergency response procedures is provided in Sections 3.13 (Public Services) and 3.18 (Wildfire), which include a discussion of the Environmental Hazards Element and Community Services and Facilities Element of the *City of Piedmont General Plan*.

City of Oakland General Plan

The *City of Oakland General Plan* was adopted in 1998. The policies relevant to transportation are contained primarily in the Land Use and Transportation Element (City of Oakland, 2023a). Applicable local plans that are incorporated in the City's General Plan include the *City of Oakland Pedestrian Master Plan* (*Oakland Walks! 2017 Pedestrian Plan Update* [City of Oakland, 2017a]) and the *City of Oakland Bicycle Master Plan* (*2019 Oakland Bike Plan* [City of Oakland, 2019]). Additional information on emergency response procedures is also provided in Sections 3.13 (Public Services) and 3.18 (Wildfire), which include a discussion of the Safety Element of the *City of Oakland General Plan*.

City of Oakland Transportation Impact Review Guidelines

The *City of Oakland Transportation Impact Review Guidelines* provides guidelines for evaluating the potential transportation impact of proposed projects, both for CEQA compliance and to address their planning and engineering requirements (City of Oakland, 2017b).

Transportation Analysis (for Built Projects)

At the City of Oakland's discretion, operations analysis may be recommended at some development projects that generate more than 800 peak hour vehicle trips or 400 peak hour transit trips (for planning purposes only; no cumulative year analysis is required).

Construction

The City of Oakland advises that every reasonable effort be made to avoid and minimize construction impacts on pedestrian, bicycle, and bus facilities in the City through the development of traffic control plans that indicate proposed truck routes and operating hours. For large projects, the staging plans of construction trucks for materials delivery must be cited, and methods for addressing the parking needs of construction workers and displaced employees (if they would remain nearby onsite) must be identified.

The plans must identify proposed closures of sidewalks, parking lanes, bikeways, travel lanes, street segments, and all other rights-of-way, including the extent and duration of the closure. Potential impacts must be evaluated for pedestrian circulation, traffic operations (including vehicles, transit, and bicycles), and loading, in accordance with the City of Oakland's Supplemental Design Guidance. The need to remove or relocate transit stops must be noted. Long-term sidewalk detours are not acceptable in downtown Oakland, nor in areas with substantial pedestrian activity, such as near BART stations and in neighborhood commercial areas. Only in areas with little existing pedestrian volume would a long-term sidewalk detour be proposed (long-term sidewalk detours are typically defined as work that occupies a location for more than 3 consecutive days [FHWA, 2016]). If the number of construction truck trips anticipated for the Project would deteriorate the pavement, repair or replacement of the pavement may be necessary and can be prescribed as a condition of approval.

Oakland CEQA Thresholds of Significance

The City of Oakland's CEQA Thresholds of Significance require an evaluation of potential impacts related to VMT criteria. The Project would have a significant effect on the environment (City of Oakland, 2017a) if it would:

- Conflict with a plan, ordinance, or policy addressing the safety or performance of the circulation system, including transit, roadways, bicycle lanes, and pedestrian paths (except for automobile LOS or other measures of vehicle delay).
- Cause substantial additional VMT per capita, per service population, or other appropriate efficiency measure.
- Substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-flow lanes) or by adding new roadways to the network.

The following are thresholds of significance (City of Oakland, 2017a) related to substantial additional VMT:

- For residential projects, a project would cause substantial additional VMT if it exceeds existing regional household VMT per capita minus 15 percent.
- For office projects, a project would cause substantial additional VMT if it exceeds the existing regional VMT per employee minus 15 percent.
- For retail projects, a project would cause substantial additional VMT if it exceeds the existing regional VMT per employee minus 15 percent.

In addition, the City of Oakland defines VMT screening criteria for when a project does not exceed VMT thresholds of significance (City of Oakland, 2017a). If a project or components of the project meet any of the following screening criteria, then presumed VMT impacts would be less than significant for the project

or component of the project and a detailed VMT analysis is not required. The three key screening criteria are as follows:

- Presumption of less-than-significant impact for small projects that generate fewer than 100 vehicle trips per day
- Presumption of less-than-significant impact for residential, retail, and/or office projects in low-VMT areas
- Presumption of less-than-significant impact near stations within 0.5 mile of an existing major transit stop or an existing stop along a high-quality transit corridor

City of Oakland Complete Streets Policy

The *City of Oakland Complete Streets Policy* requires the City to consider an integrated transportation network with the design of infrastructure to be safe, attractive, and convenient for all users, including pedestrians, bicyclists, people with disabilities, seniors, motorists, public transportation users and operators, and any other users of roadways (Oakland City Council, 2013).

3.15.3. Environmental Impacts

3.15.3.1. Impact Analysis Approach

Potential impacts on the circulation system are assessed by describing potential Project activities that could inhibit access or cause safety hazards (e.g., lane closures, operation of equipment) and the length of time required for these Project activities at each location in the Project area. In addition, impacts on the roadway network are also assessed by determining the number of trips that would be added during construction and O&M, as well as a qualitative analysis of the anticipated increase in VMT.

The Applicant Proposed Measures (APMs) listed in Table 3.15-2 would be implemented as part of the proposed Project.

Table 3.15-2. Applicant Proposed Measures – Transportation

APM	Description
Transportation	
APM TRA-1: Temporary Traffic Controls	PG&E will obtain any necessary transportation and encroachment permits from Caltrans and the local jurisdictions, as required, including those related to state route crossings and the transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during construction. PG&E will develop traffic control plans to detail road and lane closure or width reduction or traffic diversion as required by the encroachment permits. Residents and emergency service providers will be notified of upcoming road closures consistent with the notification procedures described in APM NOI-1. Construction activities that are in, along, or cross local roadways will follow best management practices and local jurisdictional encroachment permit requirements—such as traffic controls in the form of signs, cones, and flaggers—to minimize impacts on traffic and transportation, including emergency vehicle access and evacuation routes in the project area. Where work areas will occupy the end of a street with no secondary access and residential access may be restricted, PG&E will implement residential safe transport. PG&E will provide the CPUC with copies of permits obtained prior to construction activity in each jurisdiction or location. If required for obtaining a local encroachment permit, PG&E will establish a Traffic Management Plan (TMP) to address haul routes, timing of heavy equipment and building material deliveries, workers and equipment parking, potential street or lane closures, signing, lighting, and traffic control device placement. When working on state highways, PG&E will ensure traffic control operations are compliant with both the California Temporary Traffic Control Handbook, 2019 edition, and the California Manual on Uniform Traffic Control Devices, 2014 edition, and any updated versions of these documents that become available before start of construction.

APM	Description
APM TRA-2: Repair of Damaged Transportation Infrastructure	Restoration of roads and all removed or damaged curbs, gutters, and sidewalks will be done in compliance with the locally issued ministerial permits. Road restoration is based on matching the roadway's existing subbase and surface (asphalt, concrete, or a combination of both). After back-filling a duct bank trench or vault excavation, a road base backfill or slurry concrete cap will be installed and a pavement surface will be laid where the trench or excavation occurred. The edges of the pavement surface will be leveled to match the existing adjacent pavement surface. If the initial pavement surface is cold patch asphalt, then it will act as a temporary layer to return the road to service per ministerial permit conditions. Temporary cold patch asphalt will be removed before the final road pavement surface is installed. Final pavement surface restoration will use hot mix asphalt, concrete, or a combination of both depending on the ministerial permit conditions. Repaving and striping will be completed sequentially as completed sections of road surface are being restored, and this process will continue until the pavement restoration activity is complete.
APM WFR-1: Construction Fire Prevention Plan	A project-specific Construction Fire Prevention Plan for construction of the Project will be prepared prior to initiation of construction by PG&E. The PG&E plan will be approved by the CPUC. The final plan will be approved by the CPUC at least 30 days prior to the initiation of construction activities. The plan will be fully implemented throughout the construction period, and it will include the following at a minimum: ■ The purpose and applicability of the plan ■ Incorporation of the requirements in PG&E's current Utility Standard TD-1464S for Preventing and Mitigating Fires While Performing PG&E Work ■ Responsibilities and duties for compliance ■ Preparedness training and drills ■ Procedures for fire reporting, response, and prevention that include: • Identification of daily site-specific risk conditions • The tools and equipment needed on vehicles and on hand at sites • Reiteration of fire prevention and safety considerations during tailboard meetings • Daily monitoring of the Red-Flag Warning System with appropriate restrictions on types and levels of permissible activity • Coordination procedures with federal, state, and local fire officials and emergency responders, including notifications of temporary lane or road closures • Crew training, including the construction fire prevention practices described in APM WFR-2 • Method(s) for verifying that all plan protocols and requirements are being followed PG&E or its contractor will be responsible for training Project personnel and enforcing all provisions of the PG&E Construction Fire Prevention Plan, as well as performing other duties related to fire detection, prevention, and suppression for the Project. Construction activities will be monitored to ensure implementation and effectiveness of the plan.
APM WFR-2: Fire Prevention Practices	PG&E will implement the following fire prevention practices at active construction sites and during maintenance activities: ■ Existing PG&E personnel conducting maintenance on the Project are trained on the PG&E Utility Standard TD-1464S for Preventing and Mitigating Fires While Performing PG&E Work or relevant current standard and will follow the standard in regard to training, preparation, communication methods and means, observations of and alerts concerning weather conditions including NWS events, and PG&E's work restrictions and fire mitigation required for elevated PG&E Utility FPI ratings (R4, R5, or R5-Plus). ■ Construction personnel will be trained in fire-safe actions, including PG&E's current Utility Standard for Preventing and Mitigating Fires While Performing PG&E Work, Wildfire Prevention Contract Requirements, and the Project's PG&E Construction Fire Prevention Plan concerning initial attack, firefighting, and fire reporting. Construction personnel will be trained and equipped to extinguish small fires to prevent them from growing into more serious threats. ■ Construction personnel will have fire suppression equipment on all construction vehicles per PG&E Utility Standard TD-1464S and will be required to park vehicles away from dry vegetation. Water tanks and/or water trucks will be sited or available at active project sites for fire protection during construction.

APM	Description
	■ All construction crews and inspectors will be provided with radio and cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. All fires will be reported to the fire agencies with jurisdiction in the area upon discovery of the ignition. ■ While performing stationary ground-level jobs or activities from which a spark, fire, or flame may originate (for example, welding, cutting, grinding), all flammable material (for example, grass, leaf litter, dead or dying tree) must be removed down to the mineral soil around the operation for a minimum of 10 feet. ■ PG&E General Requirements for Wildfire Mitigation (R1 to R3) apply for PG&E work areas located farther than 5 miles from an FIA when the nearest FIA has an elevated FPI rating (R4, R5, or R5-Plus), except during NWS Red-Flag Warnings and Fire Weather Watch events when R5 mitigations would apply. ■ For work within an FIA, during Red-Flag Warning and Fire Weather Watch events, as issued by the NWS, and elevated PG&E Utility FPI rating (R4, R5, or R5-Plus), all construction activities will refer to the current PG&E Standard TD-1464S and related requirements such as PG&E Wildfire Prevention Contract Requirements, Attachment 1 – Wildfire Mitigation Matrix, and Attachment 2 – Wildfire Risk Checklist Fire Mitigations. With the increased potential fire risk of R4, additional water resources are required, and a working fire watch is assigned to be able to continue work as long as the weather conditions are evaluated to ensure it remains safe to continue work. ■ For R5 and R5-Plus ratings, measures beyond R1 to R4 levels include posting a dedicated fire watch at the jobsite, making available a trailer-mounted water tank or alternative water delivery method at the jobsite, and modifying the fuel sources surrounding the jobsite. All planned work is suspended during an R5-Plus fire rating. During all emergency work being performed for an R5-Plus fire rating, personnel must have a PG&E Safety and Infrastructure Protection Team on standby or a 300-gallon water tender available. Use of heavy equipment (blades, dozers, skid steers, excavators, back hoes), construction hot work, and electrical equipment work (including tasks related to conductors, pole, and overhead equipment from which a spark, fire, or flames may originate) are allowed with the R5 mitigations in place but not allowed during R5-Plus conditions.
Field Protocol (FP-)12	Stockpile soil within established work area boundaries and locate stockpiles so as not to enter water bodies, stormwater inlets, other standing bodies of water. Cover stockpiled soil prior to precipitation events.

3.15.3.2. Impact Significance Criteria

Project impacts related to transportation were evaluated against the significance criteria in CEQA Guidelines Appendix G and CPUC's Additional CEQA Impact Questions for Transportation in the *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing and Proponent's Environmental Assessments*. The impact analysis evaluates potential Project impacts during both construction and O&M. The significance criteria in this section incorporate environmental standards, as defined in CEQA Guidelines § 15064.7(d). While Appendix G of the CEQA Guidelines focuses on road-based transportation, helicopter landing zones are also discussed in this section given their role in transporting construction materials and workers by helicopter to Project construction areas in the eastern part of the Project.

As stated in Section 3.15.2, in December 2018, the CEQA Guidelines were updated to incorporate Senate Bill 743, which shifted the analysis of transportation impacts from LOS (focused on automobile delay) to VMT (distance traveled by automobiles). An analysis of VMT provides a more comprehensive and accurate assessment of transportation impacts, focusing on the environmental consequences of driving rather than just traffic congestion. The change to VMT was intended to address the environmental impacts of single-occupancy vehicles, such as air pollution and noise; promote multimodal transportation, such as buses, which have the potential to increase automobile delay; and evaluate the efficiency of travel patterns.

Significance Criteria

The significance criteria below are from Appendix G of the CEQA Guidelines and address potential impacts related to conflicts with plans or policies addressing the circulation system, exceedance of VMT thresholds, roadway safety hazards, and inadequate emergency access. Criteria T-5 through T-7 are additional criteria derived from the CPUC's Additional CEQA Impact Questions for Transportation in the *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing and Proponent's Environmental Assessments* (PG&E, 2024a); these criteria further address potential hazardous conditions for various users of different transportation modes, interference with walking or biking accessibility, and delays in public transit.

The criteria are whether the proposed Project would:

- **T-1:** Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?
- **T-2:** Conflict or be inconsistent with State CEQA Guidelines Section 15064.3(b) regarding vehicle miles traveled?
- **T-3:** Substantially increase hazards due to a geometric design feature or incompatible uses?
- **T-4:** Result in inadequate emergency access?
- **T-5:** Create potentially hazardous conditions for residents, people walking, bicycling, or driving or for public transit operations?
- **T-6:** Interfere with walking or bicycling accessibility?
- **T-7:** Substantially delay public transit?

Impacts related to evacuation routes are addressed in Section 3.18 (Wildfire) under Impact WF-1 (Substantially impair an adopted emergency response plan).

According to Section 15002(g) of the CEQA Guidelines, "… a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. The potential significance of Project impacts on transportation were evaluated for each of the criteria listed above, as discussed in Section 3.15.3.3.

3.15.3.3. Impacts and Mitigation Measures

Construction Activities Applicable to All Impacts

As described in Chapter 2, *Description of the Proposed Project*, the proposed Project includes rebuilding the four PG&E existing 115 kV lines and structures, and minor modifications to Moraga and Oakland X substations. Approximately 4 miles of the existing 5 miles of overhead lines would be rebuilt overhead, and approximately 1 mile would be rebuilt underground in City streets. The 1-mile portion that would be rebuilt underground would replace an approximately 1-mile portion of existing overhead lines located to the west, which would be removed.

Construction Schedule

As defined in Section 2.2.4 (Project Description), construction of the proposed Project is expected to be completed in approximately 35 months (potentially beginning in the summer of 2028 and ending in the summer of 2031). Vegetation restoration activities would continue through 2032.

Construction is scheduled to begin with the underground segment along Park Boulevard and Park Boulevard Way. This construction is proposed to be done from August 2028 through February 2030.

The next construction phase, partly concurrent with the underground segment, would be rebuilding of the existing overhead lines (June 2029 to November 2030). The specific schedule for rebuilding of the overhead lines would be established by the timeframes within which the existing energized conductors could be deenergized to allow safe work on the installation of the adjacent new structures. This process is called "line clearances." Line clearances would be scheduled throughout the Project to deenergize one or more circuits to provide a safe work area or to move or remove line components. Installation of the new foundations and removal of the old foundations may be conducted outside of the clearance windows for the conductors. Line clearances are required because these lines provide electricity to customers at the Moraga and Oakland X Substations, and they can be deenergized only during limited timeframes: usually for approximately 10 calendar days during each of the cooler months when power demand is reduced. This seasonal requirement would result in overhead rebuilding occurring between October and April of 2029 and 2030. Work outside of this timeframe would be limited to weekends when demand typically is less and a line clearance can be scheduled. Scheduling of work may also be affected by constraints related to bird nesting, environmental concerns, scheduled line clearances/outages,[41] weather, red flag warnings, school hours, and other factors.

Substation construction is expected to occur between September 2029 and February 2030.

Except for the timeframe when weekend work would be required to schedule line clearances for the overhead rebuild, construction would typically occur Monday through Saturday between 7:00 a.m. and 8:00 p.m. or during times that would be set through coordination with relevant jurisdictions and property owners. For example, in the City of Orinda, construction is limited by City ordinance to 8:00 a.m. to 6:00 p.m., Mondays through Fridays, and 10:00 a.m. to 5:00 p.m. on Saturdays; no construction is to be performed on Sundays or major holidays; and no heavy construction equipment is to be used on Saturdays or Sundays, but an exemption to allow use may be granted (additional information on specific construction limits for each local jurisdiction is provided in Section 3.11 [Noise]).

Most construction trips are generally expected before 7:00 a.m. and after 4:00 p.m. (depending on local jurisdictions' daily construction limits, as discussed in Section 3.11 [Noise]) when traffic volumes are somewhat lower. If work activities or required clearances on the power lines would cause traffic congestion or necessitate work outside of normal working hours, the Project may require nighttime work or work on weekends. These work activities may include conductor stringing activities, conductor splicing, work associated with the underground cable, unanticipated schedule delays, or preparation for inclement weather.

Construction Access, Staging Locations, and Work Areas

Construction would require vehicle trips to, from, and within the Project area. The existing network of adjacent paved roads and dirt access roads is expected to be used for vehicle access to structure work areas, pull and tension sites, and staging areas. No new access roads are proposed for construction. Staging areas would temporarily generate daily construction-related traffic from workers traveling to and from their residences and staging areas, and from construction-related trucks transporting workers to and from staging areas and specific work areas. Specific staging area locations would be determined based on areas available at the time of construction. Figure 2.1-2 (Proposed Project Detail Map) in Appendix A includes the locations of currently proposed access roads, staging locations, and work areas.

Construction Within and Across Roadways

Construction would also occur within and across several roadways, which could temporarily disrupt existing transportation and circulation in the Project area. Figure 2.1-2 (Proposed Project Detail Map) in

[41] Line clearances would be scheduled throughout the Project to deenergize the one or more circuits to provide a safe work area or to move or remove line components. The overhead line construction schedule would be limited by line clearances, which are usually available for approximately 10 calendar days in cooler months with less power demand (end of October to March).

Appendix A includes the locations of currently proposed staging locations, work areas, and temporary road closures to allow construction within and across roadways.

Construction work areas would be required at each structure along the lines, at the substations, at pull and tension sites, and along the underground portion of the cables. Activities within construction work areas may include vehicle and equipment parking and operation; limited equipment and vehicle maintenance and fueling; material delivery, staging, and removal; and structure-specific activities associated with pull and tension/stringing or conductor removal. In addition, construction work areas would include excavation followed by installation of vaults, duct banks, conduits, and cable for the underground portion of the Project. Temporary road and lane closures (including rolling stops and one-way traffic control) would be required at various locations for public safety. Work areas may require a one-lane or a road closure of up to approximately 10 consecutive working days (2 calendar weeks) along some of the roads. Final lane closure plans would be determined following detailed investigations into existing utilities and final construction planning.

Temporary Road Closures for Crane Operation

Locations of temporary road closures (i.e., closure of all lanes along the roadway) are shown on Figure 2.1-2 (Proposed Project Detail Map) in Appendix A. These road closures would be primarily required during the use of cranes for the construction of the overhead power line rebuild and overhead power line removal, which would be completed from August 2029 through February 2030.

Temporary road closures for work areas, including temporary road closures to allow the use of cranes that would be set up within the road, would be required along portions of the following roadways:

- Manzanita Drive
- East Circle
- Saroni Court
- West Circle
- Scout Road
- Leimert Boulevard
- Saint James Drive
- Holman Road
- ~~Park Boulevard Way~~
- Skyline Boulevard
- Sayre Drive
- Balboa Drive
- Cortez Court
- Monterey Boulevard
- Park Boulevard
- Glendome Circle
- Bates Road
- Glendora Avenue

Full road closures would be required to establish crane staging areas during the use of cranes for up to approximately 10 consecutive working days (2 calendar weeks).

The cranes used are referred to as crane trucks; they would be permanently mounted on a truck chassis, which allows for the transport and use of the crane for moving and lifting heavy objects. Cranes would operate during the workday (approximately between 7:00 a.m. and 8:00 p.m.) or during times set through coordination with applicable jurisdictions. The cranes would not remain in roadways overnight or during non-working hours. The transport of crane trucks along roadways as they are traveling from staging areas to work areas would not block any traffic along the roadways. The cranes would be transported on standard flatbed trucks with no special permit required. After arriving at a work area, a crane truck would be set up within approximately 30 minutes.

The cranes themselves would be located within the crane staging area based on final engineering and would block the entire width of the roadway area, with a footprint measuring approximately 32 feet by 40 feet, and the crane staging areas may require blocking a longer portion of the roadway for safety. Cranes could be driven out of roadways, allowing full road access, in an emergency. However, up to 45 minutes would be required for crane truck removal if the crane is holding a load. Approximately 5 minutes would be required to mobilize a crane truck if the crane is not lifting a load.

Within residential neighborhoods, safe access to and from residential properties during road closures, including driveway ingress and egress, would be maintained with implementation of traffic control measures under APM TRA-1 (Temporary Traffic Controls). If residential access would be restricted during crane

use or other construction activities, PG&E would provide safe transport as defined in APM TRA-1 (Temporary Traffic Controls). This process would include PG&E team members transporting residents to their properties when residents are unable to drive to their residences or are required to park their vehicles on another street due to construction blockages during the workday. Table 2.3-6 in Chapter 2, *Description of the Proposed Project*, includes a list of alternate routes that could be used during temporary road closures during Project construction. However, the following four locations would have no secondary vehicle access during road closures because they are located at the end of a roadway, such as a court:

1. East Circle (Structures EN13/ES15/RN12/RS/12),
2. Saroni Court (Structures EN15/ES17/RN14/RS14),
3. West Circle (Structures EN17/ES19/RN16/RS16), and
4. Cortez Court (EN18/ES20/RN17/RS17).

Lane Closures

To construct the underground power line, temporary, short-term closures of one travel lane and one parking lane along Estates Drive, Park Boulevard, and Park Boulevard Way are expected at various locations on the roads for the placement of vaults, trenching, and duct bank installation, with one lane remaining open to allow through traffic in each direction. In front of any single property along the roadway, short-term lane closures would last up to a total of 8 weeks at intermittent times during the construction period for this portion of the Project area, which would be from August 2028 through February 2030.

Temporary Guard Structures and Netting

Temporary guard structures to protect vehicles and pedestrians would also be installed during installation of conductors. Guard structures (wood poles) would be installed on both sides of roads where conductors would cross over local roadways. A one-lane closure, lasting less than one day, would be required to install the guard structures. The following local roadways would be spanned by conductors and would require installation of temporary guard structures:

- Manzanita Drive
- Arrowhead Drive
- Saroni Drive
- Balboa Drive
- Scout Road
- SR-13
- Park Boulevard
- Saint James Drive
- Glendome Circle
- Creed Road
- Skyline Boulevard
- Gunn Drive
- Sayre Drive
- Saroni Court
- Shepherd Canyon Road
- Mountain Boulevard
- Monterey Boulevard
- Estates Drive
- Trestle Glen Road
- Norwood Avenue
- Paso Robles Drive

Netting would also be installed above roadways where needed, such as where the conductors cross SR-13. The netting would be installed beneath the transmission line and above the roadway to protect the public by preventing falling conductors or other components from reaching the ground, which could injure people or damage vehicles.

Construction of the Overhead Power Line Rebuild

The construction for the overhead power line rebuild would take place over 18 months (from June 2029 through November 2030). Construction would require vehicle trips to, from, and within the Project area during construction, as well as construction work within and across roadways. Existing access to the overhead lines would serve as primary construction access for the Project. During structure rebuild and removal, two crews would be working on various segments. One crew would be working at both Moraga and Oakland X substations to install new equipment. For conductor stringing, three crews would be in the field, working at pull and tension sites and using helicopters and drones, depending on location. Construction activities associated with the overhead power line rebuild would require the use of cranes

and would, therefore, require full road closures while cranes are in use. In addition, a one-lane closure, lasting less than one day, would be required to install the guard structures.

Specific impacts that are unique to certain portions of the overhead power line rebuild area are detailed below; these impacts are in addition to previously discussed impacts.

Construction Between Moraga Substation and Manzanita Drive

This area is mostly public park and open space. No transit routes overlap with this portion of the Project alignment. A road closure for crane use would be required along portions of Manzanita Drive (see Figure 2.1-2, Proposed Project Detail Map, in Appendix A for specific locations).

Within this area, light-duty and medium-duty helicopter use is expected to be used to support construction work for the following tasks: survey staking; lifting or transporting of structure components; crew transport to towers; potentially lifting equipment for installation of micropiles; and as part of the conductor stringing operation. Because helicopters would be used in this area, impacts on roadway access would not be as substantial as other portions of the Project alignment because fewer vehicles would use roadways for construction work. As described in Section 2.3.1.3 (Project Description, Helicopter Access), trails and roads used by the public would be managed with traffic control measures and flaggers to temporarily pause access and vacate the trail or road while helicopters fly loads over the trail or road.

Trails in this portion of the Project area include trails within Huckleberry Botanical Regional Preserve and Sibley Volcanic Regional Preserve, including the East Bay Skyline National Recreational Trail. Trail users are transient and may choose to avoid trails when construction is nearby. However, the closure of Manzanita Drive concurrently with Skyline Boulevard would require rerouting of pedestrians and bicyclists to other roadways (e.g., Arrowhead Drive and upper Shepherd Canyon Road) that may not be suitable for pedestrians and bicyclists because these roadways are more steep or narrow but serve as the only available alternative access routes.

The City of Orinda provided a scoping comment stating that Lost Valley Drive, a two-lane roadway (one lane in each direction), is the only road that provides access to Moraga Substation, and is also the primary entry and exit for the Lost Valley neighborhood; therefore, the City is concerned about street closures, access for emergency services and evacuation in the event of an emergency, and potentially hazardous conditions for people walking, bicycling, or driving. No staging areas, work areas, lane closures, or road closures would be required along Lost Valley Drive during construction, as shown on Figure 2.1-2 (Proposed Project Detail, Map 1) in EIR Appendix A. However, Moraga Substation and the Lost Valley neighborhood are located in a wildland area that could be susceptible to wildfire and is also adjacent to designated Very High Fire Hazard Severity Zones. Access for vehicles, pedestrians, bicyclists, and emergency service providers could be temporarily affected from the movement of Project-related construction vehicles and equipment along Lost Valley Drive, including potential delays due to large and/or slow-moving construction vehicles traveling along the roadways and safety hazards.

Construction Between Manzanita Drive and SR-13

This area is heavily residential with numerous small roads. Road closures for crane use would be required along portions of several roadways, which include Skyline Boulevard, Saroni Court, East Circle, Balboa Drive, Cortez Court, and Scout Road (see Figure 2.1-2, Proposed Project Detail Map, in Appendix A for specific locations). In addition, a one-lane closure, lasting less than one day, would be required to install the guard structures. For the SR-13 crossing, the California Highway Patrol and Caltrans would be contacted to organize 5-minute rolling stops, when vehicle traffic along this roadway would be stopped to allow for installation of temporary anchors, guy wires, and netting. No direct ingress or egress for homes is provided from SR-13.

Temporary lane closures during Project construction could temporarily result in the loss of access to the bikeways on Shepherd Canyon Road, Saroni Drive, and Skyline Boulevard; and the sidewalks along

Mountain Boulevard. In addition, within this area, full closures at several locations along the Montclair Railroad Trail would likely last up to 12 consecutive working days (2 calendar weeks). The Montclair Railroad Trail is a primary pedestrian/bicycle commute route from residential neighborhoods within the Oakland Hills, such as the Shepherd Canyon neighborhood, to the Montclair Village (Fehr & Peers, 2025). The Montclair Railroad Trail has several entry points (Friends of Montclair Railroad Trail, 2025). The closures would be required near three of these entry points: (1) Paso Robles Drive/Bishops Court, (2) City of Oakland Municipal Services Yard, and (3) Snake Road. It is assumed that one crew would move to each work location consecutively along the trail. The 2-week, or approximately 12-day closure, of the Montclair Railroad Trail would occur at one work location at a time. One work area would be located between the Paso Robles Drive/Bishops Court entry point and the City of Oakland Municipal Services Yard entry point. Three detour options at this location are as follows:

1. Close the trail only at the work area so that pedestrians and bicyclists could use the trail from each of the entry points and turn around upon reaching the work area, which would require using flagging, barriers, or other appropriate safety measures to identify the limits of the work area and trail closure.
2. Close the trail between the two entry points. Although it would be long, a detour could be marked along nearby residential roads including Paso Robles Drive, Balboa Drive, Drake Drive, and Snake Road to connect to the Snake Road entry point. This detour would have substantive grade variation in comparison to the relatively flat Montclair Railroad Trail. Closures would be indicated using flagging, barriers, or other appropriate measures.
3. Close the trail between the Paso Robles Drive/Bishops Court entry point and the Zinn Trail, which connects to the Montclair Railroad Trail to the north of the work area, near project milepost 2.7 (see Figure 2.1-2, Proposed Project Detail Map 16, in EIR Appendix A). The Zinn Trail is unpaved and has substantive changes in grade. A detour could be marked along nearby residential roads including Paso Robles Drive, Balboa Drive, and Asilomar Drive.

Two work areas would also be located between the City of Oakland Municipal Services Yard and the Snake Road entry point. Two detour options at this location are as follows:

1. Close the trail only at each work area so that pedestrians and bikes could use the trail from the two entry points and turn around upon reaching the marked work area.
2. Close the trail between the two entry points. A detour could be marked along Zinn Trail and nearby residential roads including Zinn Drive and Snake Road to connect to the Snake Road entry point.

Although detours could be provided, the closure and rerouting of pedestrian and bicycle travel routes could cause unsafe conditions if the alternative routes are longer or are not suitable for walking or biking, such as the residential areas along Balboa Drive and Sayre Drive that may lose their direct connections to the Montclair Railroad Trail and to the Montclair Village.

Temporary lane closures during Project construction could temporarily result in the loss of access to the AC Transit's lines V and ~~33~~ 18 and their bus stops along Park Boulevard, as well as AC Transit's line 642 and its bus stops along Snake Road, Shepherd Canyon Road, and Arrowhead Drive (see discussion under Impact T-7).

Construction Between SR-13 and the Estates Drive Underground Transition

For the SR-13 crossing, the California Highway Patrol and Caltrans would be contacted to organize 5-minute rolling stops, when vehicle traffic along this roadway would be stopped to allow for installation of temporary anchors, guy wires, and netting (no direct ingress or egress for homes is provided from SR-13). Road closures for crane use would be required along portions of several roadways, which include Monterey Boulevard, Leimert Boulevard, and Park Boulevard (see Figure 2.1-2, Proposed Project Detail Map, in Appendix A for specific locations). In addition, a one-lane closure, lasting less than one day, would be required to install the guard structures. Park Boulevard between SR-13 and I-580, including the

intersection at Park Boulevard/Estates Drive (transition location), experiences heavy traffic during peak periods, with an average AM/PM peak hour volume of 1,030/680 (westbound) and 570/770 (eastbound), as shown in Table 3.15-1.

The Sausal Creek Trail is located within this portion of the Project alignment but would not require any closures during construction. However, temporary lane closures during Project construction could temporarily result in the loss of access to the bikeway on Monterey Boulevard; and the sidewalks along local streets south of SR-13. In addition, temporary lane closures could also temporarily result in the loss of access to the AC Transit's lines V and ~~33~~ 18 and their bus stops along Park Boulevard (see discussion under Impact T-7).

Construction of the Overhead Power Line Removal

The construction for the overhead power line removal, west of Estates Drive, would occur over ~~18~~ 7 months (from ~~June 2029~~January 2031 through ~~November 2030~~July 2031). During structure rebuild and removal, two crews would be working on various segments. The overhead power line removal would require vehicle trips to, from, and within the Project area during construction, as well as construction work within and across roadways. Construction activities associated with the overhead power line removal would require the use of cranes, similar to the overhead power line rebuild. Road closures for crane use would be required along portions of several roadways, which include Saint James Drive, ~~Hollywood Avenue,~~ Glendora Avenue, Glendome Circle, Holman Road, and Bates Road (see Figure 2.1-2, Proposed Project Detail Map, in Appendix A for specific locations). Temporary road and lane closures (including rolling stops) are anticipated when certain sections of the PG&E lines are being removed at overhead crossings of roads.

Temporary lane closures during Project construction could temporarily result in the loss of access to the bikeways on Excelsior Avenue, Kingsley Street, and Saint James Drive; and the sidewalks along local streets ~~south of SR-13~~between the Estates Drive/Park Boulevard intersection and the Oakland X Substation. No transit routes overlap with this portion of the Project alignment.

Construction of the Underground Power Line

Construction of the underground power line would require vehicle trips to, from, and within the Project area during construction, as well as construction work within and across roadways. In this area, access would be from paved roads.

The construction would take place over 19 months (August 2028 to February 2030). Work would include 3 months for vault excavation, 6 months for duct bank trenching, 5 months for cable pulling, and 15 workdays for repaving. ~~Construction work areas would include excavation followed by installation of vaults (2 weeks for each vault), duct banks (6 days for a 240-foot length), cable pulling (12 days for each vault), cable splicing (20 days for each vault), and repaving and lane striping (2 days for each vault) for the underground portion of the Project.~~Durations for specific construction activities include 2 weeks for excavation and installation of each vault; 6 days of active construction progressing at 40 to 100 feet/day per crew for duct bank trenching and conduit installation; 6 days to pull cable between adjacent vaults; and 20 days for splicing at each vault.

Approximately 100 to 300 feet of trench would be open at any one time depending on the encroachment permitting requirements of the cities of Oakland and Piedmont. Two to three crews would be working in a linear fashion along the underground line route during trenching work. Up to 10 power line vaults may be required for each double-circuit duct bank, and up to 10 telecommunication vaults would be installed to access the telecommunication line in each double-circuit duct bank. Approximately 1,500 square feet of workspace for a power line vault would be required, including space for the smaller, adjacent telecommunication vault.

Short-term closures of one travel lane and one parking lane are expected at various locations on along Estates Drive, Park Boulevard, and Park Boulevard Way as construction is ongoing. Construction would include the placement of vaults, trenching, and duct bank installation, with one lane remaining open to allow through traffic in each direction. Vaults would require the use of cranes for installation; however, because Park Boulevard has the equivalent of three lanes in each direction (10 to 12 feet for each lane), the portion of the roadway not being used for construction is anticipated to be sufficient to accommodate at least one lane of traffic in each direction. Final lane closure plans would be determined following detailed investigations into existing utilities and final construction planning.

The Sausal Creek Trail is also located within this portion of the Project alignment but would not require any closures during Project construction. Temporary lane closures during Project construction could temporarily result in the loss of access to the bikeways on Excelsior Avenue, Kingsley Street, and Saint James Drive; and the sidewalks along Park Boulevard, Estates Drive, and Park Boulevard Way ~~and local streets south of SR-13~~. In addition, temporary lane closures during Project construction could temporarily result in the loss of access to the AC Transit's lines V and ~~33~~ 18 and their bus stops along Park Boulevard (see discussion under Impact T-7).

Impact T-1: Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

Construction

Overhead Power Line Rebuild

SIGNIFICANT AND UNAVOIDABLE. As shown in Table 3.15-3, local jurisdictions within this portion of the study area include the City of Orinda, Contra Costa County, Alameda County, City of Oakland, and the City of Piedmont. Road and lane closures would be required on designated evacuation routes, as listed in Table 3.15-3. In addition, road closures and other construction activities would restrict transit, roadway, bicycle, pedestrian, and emergency access, which would be inconsistent with the following plans and policies:

- **Orinda Fire Evacuation Guide:** Because of the narrow streets and steep topography in this area, alternative routes may increase evacuation and emergency response times, which would be inconsistent with evacuation planning provided in the Orinda Fire Evacuation Guide directing the public to use certain routes that may be ~~blocked~~impaired by the proposed Project from the movement of construction vehicles and equipment.
- **City of Orinda General Plan, Land Use and Circulation Element and Safety Element, Policy S-11:** Construction activities on roadways would restrict local roadway, bicycle, pedestrian, evacuation, and emergency access, which would be inconsistent with the roadway connections provided in the City of Orinda General Plan, Land Use and Circulation Element; and the directive under Safety Element, Policy S-11 to ensure adequate capacity, safety, and viability of evacuation routes.
- **Contra Costa General Plan, Transportation Element and Health and Safety Element, Policy HS-P7.3:** Closures and construction activities on roadways would restrict local roadway, bicycle, pedestrian, evacuation, and emergency access, which would be inconsistent with the overarching goals of the Contra Costa General Plan, Transportation Element of improving safety and enhancing mobility and connectivity for all roadway users; and the directive under Health and Safety Element, Policy HS-P7.3 of ensuring construction equipment or activities do not block roadways or interfere with evacuation plans during the construction period.
- ~~**Contra Costa Operational Area Emergency Operations Plan:** Because of the narrow streets and steep topography in this area, alternative routes may increase evacuation and emergency response times, which would be inconsistent with the intent of the Contra Costa Operational Area Emergency Operations Plan to prepare for and respond to emergencies.~~

- ~~**Alameda County General Plan, Mobility Element:** Closures and construction activities on roadways would restrict local roadway, bicycle, pedestrian, evacuation, and emergency access, which would be inconsistent with the general goal of the Alameda County General Plan, Mobility Element to provide a safe, multi-modal transportation system.~~
- **City of Oakland General Plan, Safety Element, Policies SAF-8.5 and 8.18:** Road and lane closures would be required on designated evacuation routes, which would be inconsistent with the directives under the City of Oakland General Plan, Safety Element, Policies SAF-8.5 and 8.18 to ensure that the evacuation routes network is interconnected with adequate capacity and to protect critical evacuation routes.
- **City of Oakland Pedestrian Master Plan:** Road closures and other construction activities would restrict pedestrian access, which would be inconsistent with the intent of Outcomes 1, 2, and 3 in the City of Oakland Pedestrian Master Plan related to increasing pedestrian safety, promoting walking, and improving walkability.
- ~~**City of Oakland Bicycle Master Plan:** Road closures and other construction activities would restrict bicycle access, which would be inconsistent with the goals of the City of Oakland Bicycle Master Plan related to supporting increased neighborhood access and providing a network of safe and comfortable bikeways.~~
- **City of Oakland Complete Streets Policy:** Road closures and other construction activities would restrict transit, bicycle, and pedestrian access, which would conflict with the purpose of the City of Oakland Complete Streets Policy of ensuring all streets can safely accommodate all users, including pedestrians, bicyclists, transit riders, and drivers, regardless of age or ability.
- **City of Piedmont General Plan, Environmental Hazards Element, Policies 19.20 and 19.30~~, and Transportation Element, Policy 10.4~~:** Road and lane closures would be required on designated evacuation routes. In addition, road closures and other construction activities would restrict transit, roadway, bicycle, pedestrian, and emergency access, which would be inconsistent with the directives of the City of Piedmont General Plan, Environmental Hazards Element, Policies 19.20 and 19.30~~, and Transportation Element, Policy 10.4~~ of ensuring that the Piedmont Fire Department has complete access to all locations in the City and~~;~~ ensuring that emergency access and evacuation routes are not inhibited~~; and accommodating bicycles and improving connectivity~~.

Permits issued by local jurisdictions would require compliance with policies and regulations of the jurisdictions, and therefore, would reduce the potential for the proposed Project to conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. Compliance with permit requirements would prevent excessive congestion or traffic hazards during construction, as required by applicable plans and policies, by ensuring that detailed site plans and traffic control plans for managing traffic flow and maintaining public safety during construction are submitted to local jurisdictions prior to construction. In addition, as defined in Table 3.15-2, APMs have been incorporated into the proposed Project that would reduce potential impacts as follows:

- APM TRA-1 would require: (1) compliance with permit requirements from Caltrans and local jurisdictions to prevent excessive congestion or traffic hazards during construction; (2) the development of traffic control plans that would detail road and lane closures, require notification of residents and emergency service providers, and discuss traffic control and other safety measures to maintain safe traffic flow during construction activities; and (3) compliance with the *California Temporary Traffic Control Handbook*, 2019 edition, and the *California Manual on Uniform Traffic Control Devices*, 2014 edition when working in state highway ROWs. Within residential neighborhoods, safe access to and from residential properties during lane closures, including driveway ingress and egress, would be maintained with implementation of traffic control measures under APM TRA-1.
- APM TRA-2 would require the restoration of roads and all removed or damaged curbs, gutters, and sidewalks, in compliance with locally issued ministerial permits.

APM TRA-1 states that a Traffic Management Plan (TMP) would be prepared if required for obtaining a local encroachment permit. However, APM TRA-1 does not provide an adequately detailed description of the following important components:

- APM TRA-1 does not require PG&E to prepare a TMP that would specify methods for minimizing construction effects on transportation facilities and services, or a minimum of 1-month advance coordination with the public, local jurisdictions, and agencies prior to construction. A traffic control plan focuses on specific, on-site measures to manage traffic flow and ensure safety during a particular activity or event, while a TMP takes a broader, strategic approach to manage traffic in a wider area, considering potential impacts and long-term solutions.
- APM TRA-1 states that "Where work areas will occupy the end of a street with no secondary access and residential access may be restricted, PG&E will implement residential safe transport." However, the APM does not explain how and when the safe transport system would be implemented, or document how it would be developed to serve the needs of all affected residents.

As defined above, Project construction would conflict with a transportation program, plan, or policy without adequate planning and notification, resulting in significant impacts. Therefore, to reduce these impacts, MM T-1a (see full text in Section 3.15.4) has been developed; this measure supplements APM TRA-1 by providing additional specific elements:

- MM T-1a would require PG&E to develop a TMP to reduce traffic impacts regardless of local encroachment permit requirements. The TMP would meet the requirements of jurisdictions and local agencies in the Project area. The TMP would establish methods for minimizing construction effects on roadways, transit services, pedestrian facilities, and bicycle facilities; and address haul routes, timing of heavy equipment and material deliveries, workers and equipment parking, potential street or lane closures, signing, lighting, and traffic control device placement.
- MM T-1a also defines details that are required associated with PG&E's "safe transport" provision. These requirements are intended to ensure that PG&E consults with each affected household to define transport needs and requirements and provides adequate information to affected households in advance of the start of construction.

In addition to MM T-1a, MM N-1b (see Section 3.11, Noise) would be required; this measure requires that at least 1-month advance notification be provided to the public and relevant agencies prior to construction. MM WF-1b would limit full road closures to December 15 through February 28 to minimize the risk of road closures substantially affecting evacuation in the event of a wildfire. MMs REC-3a and REC-5a would also require that alternative access routes be provided for pedestrians and bicyclists within trails and parks to minimize potential hazards from incompatible uses related to navigating around closures, as well as require PG&E to coordinate with recreation facility owners and managers to reduce the use of pedestrian and bicycle facilities and restore safe access. Finally, to ensure traffic conflicts between construction activities and school traffic are minimized (e.g., such as near Corpus Christi School in overhead to underground transition area for the rebuilt line), MM WF-1c would also be required, which would ensure that construction near schools occurs outside of school hours.

Upon the completion of Project construction, all construction-related impacts on the circulation system would cease. However, because of the narrow streets and steep topography within the overhead power line rebuild area, alternative routes may cause unsafe conditions for pedestrians, bicyclists, and transit riders and increase evacuation and emergency response times. As a result, even with implementation of MMs T-1a, N-1b, REC-3a, REC-5a, WF-1b, and WF-1c, construction of the overhead power line rebuild would conflict with the plans and policies listed above and as summarized in Table 3.15-3. Therefore, impacts would be significant and unavoidable.

Table 3.15-3. Summary of Consistency with Programs, Plans, Ordinances, or Policies Addressing the Circulation System

Project Alignment Section	County and City Jurisdiction(s)	Designated Evacuation Routes	Program, Plan, Ordinance, or Policy	Consistency
Overhead Power Line Rebuild	City of Orinda	Moraga Way, Miner Road, Orindawoods Drive, Glorietta Boulevard, Rheem Boulevard, Valley View Drive, La Cresta Drive, Crestview Drive, Lost Valley Drive, Wilder Road	Orinda Fire Evacuation Guide	**Inconsistent**. No road closures would be required along designated evacuation routes. However, construction activities on other roadways would restrict local evacuation and emergency access. Because of the narrow streets and steep topography in this area, alternative routes may increase evacuation and emergency response times, which would be inconsistent with evacuation planning provided in the Orinda Fire Evacuation Guide directing the public to use certain routes that may be ~~blocked~~ impaired by the proposed Project from the movement of construction vehicles and equipment. Therefore, even with implementation of MMs T-1a, N-1b, REC-3a, REC-5a, WF-1b, and WF-1c, the overhead power line rebuild would conflict with this guide.
			City of Orinda General Plan, Land Use and Circulation Element Safety Element, Policy S-11: Coordinate with emergency responders, engineers, and Caltrans to identify and maintain additional potential evacuation routes to ensure adequate capacity, safety, and viability of those routes in the event of an emergency, including making improvements to existing roads to support safe evacuations as needed.	**Inconsistent**. No road closures would be required along designated evacuation routes. However, construction activities on other roadways would restrict local roadway, bicycle, pedestrian, evacuation, and emergency access, which would be inconsistent with the roadway connections provided in the City of Orinda General Plan, Land Use and Circulation Element; and the directive under Safety Element, Policy S-11 to ensure adequate capacity, safety, and viability of evacuation routes. Because of the narrow streets and steep topography in this area, alternative routes may cause unsafe conditions and increase evacuation and emergency response times. Therefore, even with implementation of MMs T-1a, N-1b, REC-3a, REC-5a, WF-1b, and WF-1c, the overhead power line rebuild would conflict with this plan and policy.
	Contra Costa County	SR-24, SR-680, Pinehurst Road, San Pablo Dam Road, Moraga Way, Valley View Drive, and Woodland Road	Contra Costa County General Plan, Transportation Element Health and Safety Element, Policy HS-P7.3: Require new development within a Very High Fire Hazard Severity Zone in the LRA or SRA (as shown on Figure HS-10) or in areas that may be designated as the WUI, and on a residential parcel with evacuation constraints (as shown on Figure HS-21), to prepare a traffic control plan to ensure that construction equipment or activities do not block roadways or interfere	**Inconsistent**. No road closures would be required along designated evacuation routes. However, closures and construction activities on other roadways would restrict local roadway, bicycle, pedestrian, evacuation, and emergency access, which would be inconsistent with the overarching goals of the Contra Costa General Plan, Transportation Element of improving safety and enhancing mobility and connectivity for all roadway users; and the directive under Health and Safety Element, Policy HS-P7.3 of ensuring construction equipment or activities do not block roadways or interfere with evacuation plans during the construction period. Because of the narrow streets and steep topography in this area, alternative routes may cause unsafe

Project Alignment Section	County and City Jurisdiction(s)	Designated Evacuation Routes	Program, Plan, Ordinance, or Policy	Consistency
			with evacuation plans during the construction period. Work with the appropriate fire protection district to review and approve the traffic control plan prior to issuance of building permits.	conditions and increase evacuation and emergency response times, even with implementation of APM TRA-1 requiring a traffic control plan and additional mitigation measures. Therefore, even with implementation of MMs T-1a, N-1b, REC-3a, REC-5a, WF-1b, and WF-1c, the overhead power line rebuild would conflict with this plan and policy.
			~~Contra Costa Operational Area Emergency Operations Plan~~	~~**Inconsistent**. No road closures would be required along designated evacuation routes. However, closures and construction activities on other roadways would restrict local evacuation and emergency access. Because of the narrow streets and steep topography in this area, alternative routes may increase evacuation and emergency response times, which would be inconsistent with the intent of the Contra Costa Operational Area Emergency Operations Plan to prepare for and respond to emergencies. Therefore, even with implementation of MMs T-1a, N-1b, REC-3a, REC-5a, WF-1b, and WF-1c, the overhead power line rebuild would conflict with this plan.~~
	~~Alameda County~~	~~Bond Street, Main Street, Foothill Road, Railroad Avenue, I-580, I-880, Niles Canyon Road, Redwood Road, Palo Verde Road, Eden Canyon Road, Foothill Road, I-680, Arroyo Road~~	~~Alameda County General Plan, Mobility Element~~	~~**Inconsistent**. No road closures would be required along designated evacuation routes. However, closures and construction activities on other roadways would restrict local roadway, bicycle, pedestrian, evacuation, and emergency access, which would be inconsistent with the general goal of the Alameda County General Plan, Mobility Element to provide a safe, multi-modal transportation system. Because of the narrow streets and steep topography in this area, alternative routes may cause unsafe conditions and increase evacuation and emergency response times. Therefore, even with implementation of MMs T-1a, N-1b, REC-3a, REC-5a, WF-1b, and WF-1c, the overhead power line rebuild would conflict with this plan.~~
	City of Oakland	SR-13, Park Boulevard, Skyline Boulevard, ~~Manzanita Drive,~~ Thornhill Drive, Mountain Boulevard, Shepherd Canyon Road, Snake Road, Pinehurst Road,	City of Oakland General Plan, Safety Element Policy SAF-8.5 Cohesive Evacuation Routes Network. Ensure the evacuation routes network is interconnected with adequate capacity and reflects ability to evacuate for multiple threats. Policy SAF-8.18 Priority Route Coordination. Partner with Caltrans and neighboring jurisdictions on measures to protect critical evacuation routes and work with local agencies to develop contingency plans that address disconnected	**Inconsistent**. Road and lane closures would be required on designated evacuation routes, which would be inconsistent with the directives under the City of Oakland General Plan, Safety Element, Policies SAF-8.5 and 8.18 to ensure that the evacuation routes network is interconnected with adequate capacity and protect critical evacuation routes. In addition, road closures and other construction activities would restrict transit, roadway, bicycle, pedestrian, and emergency access. Because of the narrow streets and steep topography in this area, alternative routes may cause unsafe conditions and

Project Alignment Section	County and City Jurisdiction(s)	Designated Evacuation Routes	Program, Plan, Ordinance, or Policy	Consistency
		Ascot Drive, I-580, 14th Avenue, Foothill Boulevard, and Beaumont Avenue	routes and explore roadway improvements that can provide better emergency access under emergency evacuation scenarios. Work with emergency response teams and transit providers to identify and support Oakland residents without access to transportation in the event of an emergency. Create evacuation strategies for all residents, with a focus on low-income and unhoused residents	increase evacuation and emergency response times. Therefore, even with implementation of MMs T-1a, N-1b, REC-3a, REC-5a, WF-1b, and WF-1c, the overhead power line rebuild would conflict with this plan.
			City of Oakland Pedestrian Master Plan Outcome 1: Increase Pedestrian Safety Outcome 2: Create Streets and Spaces that Promote Walking Outcome 3: Improve Walkability to Key Destinations	**Inconsistent.** Road closures and other construction activities would restrict pedestrian access, which would be inconsistent with the intent of Outcomes 1, 2, and 3 in the City of Oakland Pedestrian Master Plan related to increasing pedestrian safety, promoting walking, and improving walkability. Because of the narrow streets and steep topography in this area, alternative routes may cause unsafe conditions for pedestrians if the only available alternative routes are longer or are not suitable for walking because the steep or narrow roadways make pedestrian travel more difficult or unsafe due to proximity to automobile traffic. Therefore, even with implementation of MMs T-1a, N-1b, REC-3a, REC-5a, WF-1b, and WF-1c, the overhead power line rebuild would conflict with this plan.
			~~City of Oakland Bicycle Master Plan~~ ~~Access Goal: *Let's Bike Oakland* will support increased access to neighborhood destinations such as grocery stores, libraries, schools, recreation centers, bus stops and BART.~~ ~~Health and Safety Goal: *Let's Bike Oakland* will empower Oaklanders to live a more active lifestyle by providing a network of safe and comfortable bikeways for everyone to enjoy.~~	~~**Inconsistent.** Road closures and other construction activities would restrict bicycle access, which would be inconsistent with the goals of the City of Oakland Bicycle Master Plan related to supporting increased neighborhood access and providing a network of safe and comfortable bikeways. Because of the narrow streets and steep topography in this area, alternative routes may cause unsafe conditions for bicyclists if the only available alternative routes are longer or are not suitable for biking because the steep or narrow roadways make bicycle travel more difficult or unsafe due to proximity to automobile traffic. Therefore, even with implementation of MMs T-1a, N-1b, REC-3a, REC-5a, WF-1b, and WF-1c, the overhead power line rebuild would conflict with this plan.~~
			City of Oakland Complete Streets Policy	**Inconsistent.** Road closures and other construction activities would restrict transit, bicycle, and pedestrian access, which would conflict with the purpose of the City of Oakland Complete Streets Policy of ensuring all streets can safely accommodate all users, including pedestrians, bicyclists, transit

Project Alignment Section	County and City Jurisdiction(s)	Designated Evacuation Routes	Program, Plan, Ordinance, or Policy	Consistency
				riders, and drivers, regardless of age or ability. Because of the narrow streets and steep topography in this area, alternative routes may cause unsafe conditions for pedestrians, bicyclists, and transit riders if the only available alternative routes are longer or are not suitable for biking or walking because the steep or narrow roadways make pedestrian and bicycle travel more difficult or unsafe due to proximity to automobile traffic. Therefore, even with implementation of MMs T-1a, N-1b, REC-3a, REC-5a, WF-1b, and WF-1c, the overhead power line rebuild would conflict with this plan.
	City of Piedmont	Moraga Avenue, LaSalle Avenue, Pleasant Valley Avenue, Highland Avenue, Wildwood Avenue, Hampton Avenue, SR-13, Oakland Avenue, Grand Avenue, Bayo Vista Avenue, Crocker Avenue, Mandana Avenue, Hampton Road, Estates Drive, Park Boulevard, LaSalle Avenue, Mountain Boulevard, Wildwood Avenue, Winsor Avenue, Grand Avenue, Blair Avenue, and Harbord Drive	City of Piedmont General Plan Environmental Hazards Element, Policy 19.20 Emergency Access: Ensure that the Piedmont Fire Department has complete access to all locations in the City, including gated residential communities and critical infrastructure. Environmental Hazards Element, Policy 19.30 Transportation Construction Plan: Projects developers shall be required to prepare and implement a Transportation Construction Plan (TCP), which shall be approved by the City. The plan shall include the locations of material and equipment storage, trailers, worker parking, a schedule of site operations that may block traffic, and provisions for traffic control. The TCP shall include procedures for stopping construction in the event of an emergency and ensuring that emergency access and evacuation routes are not inhibited. The TCP shall ensure adequate emergency access and consistency with the California Fire Code and other development requirements as part of the development review process. ~~Transportation Element, Policy 10.4 Bike Routes: Accommodate bicycles where feasible on Piedmont streets. Recognize that most streets are not wide enough to accommodate dedicated bike lanes, but that the designation of some streets as "bike routes" could improve connectivity to Oakland, Berkeley, and the greater~~	**Inconsistent.** Road and lane closures would be required on designated evacuation routes. In addition, road closures and other construction activities would restrict transit, roadway, bicycle, pedestrian, and emergency access, which would be inconsistent with the directives of the City of Piedmont General Plan, Environmental Hazards Element, Policies 19.20 and 19.30~~, and Transportation Element, Policy 10.4~~ of ensuring that the Piedmont Fire Department has complete access to all locations in the City~~;~~ and ensuring that emergency access and evacuation routes are not inhibited~~; and accommodating bicycles and improving connectivity~~. Because of the narrow streets and steep topography in this area, alternative routes may cause unsafe conditions and increase evacuation and emergency response times, even with implementation of APM TRA-1 requiring a traffic control plan and additional mitigation measures. Therefore, even with implementation of MMs T-1a, N-1b, REC-3a, REC-5a, WF-1b, and WF-1c, the overhead power line rebuild would conflict with this plan and the relevant policies.

Project Alignment Section	County and City Jurisdiction(s)	Designated Evacuation Routes	Program, Plan, Ordinance, or Policy	Consistency
			~~region and link Piedmont to nearby destinations, including shopping districts, Downtown Oakland, and BART.~~	
Overhead Power Line Removal	Cities of Oakland and Piedmont	See Above	See Above	**Consistent**. No road closures would be required along designated evacuation routes. However, closures and construction activities on other roadways would restrict local roadway, bicycle, pedestrian, evacuation, and emergency access, which would be inconsistent with the plans and policies listed above. This portion of the Project alignment is located near major roadways, including I-580 and SR-13. When considered in the context of the relatively lower risk presented by this Project segment, due to its proximity to major roadways, implementation of MMs T-1a, N-1b, WF-1b, and WF-1c would maintain consistency with these plans and policies.
Underground Power Line	Cities of Oakland and Piedmont	See Above	See Above	**Consistent**. Lane closures would be required on designated evacuation routes. In addition, lane closures and other construction activities would restrict transit, roadway, bicycle, pedestrian, and emergency access, which would be inconsistent with the plans and policies listed above. This portion of the Project alignment is located near major roadways, including I-580 and SR-13. When considered in the context of the relatively lower risk presented by this Project segment, due to its proximity to major roadways, implementation of MMs T-1a, N-1b, WF-1b, and WF-1c would maintain consistency with these plans and policies.

Source: Contra Costa County, 2024a and 2024b; City of Orinda, 2023a, 2023b, and 2024; Alameda County, 2022; City of Oakland, 2017b, 2019, and 2023b; City of Piedmont, 2024a and 2024b

Overhead Power Line Removal

LESS THAN SIGNIFICANT WITH MITIGATION. As shown in Table 3.15-3, local jurisdictions within this portion of the study area include the cities of Oakland and Piedmont. No road closures would be required along designated evacuation routes, as listed in Table 3.15-3. However, closures and construction activities on other roadways may restrict local roadway, bicycle, pedestrian, evacuation, and emergency access, which would be inconsistent with:

- The directives under the City of Oakland General Plan, Safety Element, Policies SAF-8.5 and 8.18 to ensure that the evacuation routes network is interconnected with adequate capacity and protect critical evacuation routes;
- The intent of Outcomes 1, 2, and 3 in the City of Oakland Pedestrian Master Plan related to increasing pedestrian safety, promoting walking, and improving walkability;
- ~~The goals of the City of Oakland Bicycle Master Plan related to supporting increased neighborhood access and providing a network of safe and comfortable bikeways;~~
- The purpose of the City of Oakland Complete Streets Policy of ensuring all streets can safely accommodate all users, including pedestrians, bicyclists, transit riders, and drivers, regardless of age or ability; and
- The directives of the City of Piedmont General Plan, Environmental Hazards Element, Policies 19.20 and 19.30, ~~and Transportation Element, Policy 10.4~~ of ensuring that the Piedmont Fire Department has complete access to all locations in the City and~~;~~ ensuring that emergency access and evacuation routes are not inhibited~~; and accommodating bicycles and improving connectivity~~.

Permits issued by local jurisdictions would require compliance with policies and regulations of the jurisdictions, and therefore, would reduce the potential for the proposed Project to conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. Compliance with permit requirements would prevent excessive congestion or traffic hazards during construction, as required by applicable plans and policies, by ensuring that detailed site plans and traffic control plans for managing traffic flow and maintaining public safety during construction are submitted to local jurisdictions prior to construction. In addition, APMs TRA-1 and TRA-2 provided in Table 3.15-2 would be implemented to reduce traffic impacts and require the restoration of roads and sidewalks, which would help to maintain the functioning of the circulation system as required by applicable plans and policies.

APM TRA-1, however, does not require a TMP that would specify methods for minimizing construction effects on transportation facilities and services, or a minimum of 1-month advance coordination with local jurisdictions and agencies prior to construction. A traffic control plan focuses on specific, on-site measures to manage traffic flow and ensure safety during a particular activity or event, while a TMP takes a broader, strategic approach to manage traffic in a wider area, considering potential impacts and long-term solutions. Potential conflicts with transportation programs and policies may not be avoided without adequate planning and notification, resulting in a significant impact without mitigation.

To reduce these impacts, MM T-1a requires that PG&E develop a TMP in accordance with the requirements of jurisdictions and local agencies in the Project area to reduce traffic impacts regardless of local encroachment permits. In addition, MM N-1b (see Section 3.11, Noise) would require that at least 1-month advance notification be provided to the public prior to construction. MM WF-1b would limit full road closures to December 15 through February 28 to minimize the risk of road closures substantially affecting evacuation in the event of a wildfire. Finally, to ensure traffic conflicts between construction activities and school traffic are minimized, MM WF-1c would also be required, which would ensure that construction near schools occurs outside of school hours.

This Project segment is located near major roadways, including I-580 and SR-13. When considered in the context of the relatively lower risk presented by this Project segment, due to its proximity to major roadways, implementation of MMs T-1a, N-1b, WF-1b, and WF-1c would reduce impacts to a less-than-significant level, thereby maintaining consistency with the plans and policies listed above. Therefore, with implementation of mitigation measures, impacts would be less than significant.

Underground Power Line

LESS THAN SIGNIFICANT WITH MITIGATION. As shown in Table 3.15-3, local jurisdictions within this Project segment include the cities of Oakland and Piedmont. Lane closures would be required on designated evacuation routes, as listed in Table 3.15-3. In addition, lane closures and other construction activities would restrict transit, roadway, bicycle, pedestrian, evacuation, and emergency access, which would be inconsistent with:

- The directives under the City of Oakland General Plan, Safety Element, Policies SAF-8.5 and 8.18 to ensure that the evacuation routes network is interconnected with adequate capacity and protect critical evacuation routes;
- The intent of Outcomes 1, 2, and 3 in the City of Oakland Pedestrian Master Plan related to increasing pedestrian safety, promoting walking, and improving walkability;
- ~~The goals of the City of Oakland Bicycle Master Plan related to supporting increased neighborhood access and providing a network of safe and comfortable bikeways;~~
- The purpose of the City of Oakland Complete Streets Policy of ensuring all streets can safely accommodate all users, including pedestrians, bicyclists, transit riders, and drivers, regardless of age or ability; and
- The directives of the City of Piedmont General Plan, Environmental Hazards Element, Policies 19.20 and 19.30, ~~and Transportation Element, Policy 10.4~~ of ensuring that the Piedmont Fire Department has complete access to all locations in the City and~~;~~ ensuring that emergency access and evacuation routes are not inhibited~~; and accommodating bicycles and improving connectivity~~.

Permits issued by local jurisdictions would require compliance with policies and regulations of the jurisdictions, and therefore, would reduce the potential for the proposed Project to conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. Compliance with permit requirements would prevent excessive congestion or traffic hazards during construction, as required by applicable plans and policies, by ensuring that detailed site plans and traffic control plans for managing traffic flow and maintaining public safety during construction are submitted to local jurisdictions prior to construction. In addition, APMs TRA-1 and TRA-2 provided in Table 3.15-2 would be implemented to reduce traffic impacts and require the restoration of roads and sidewalks, which would help to maintain the functioning of the circulation system as required by applicable plans and policies. Within residential neighborhoods, safe access to and from residential properties during lane closures, including driveway ingress and egress, would be maintained with implementation of traffic control measures under APM TRA-1.

APM TRA-1, however, does not require a TMP that would specify methods for minimizing construction effects on transportation facilities and services, or a minimum of 1-month advance coordination with local jurisdictions and agencies prior to construction. A traffic control plan focuses on specific, on-site measures to manage traffic flow and ensure safety during a particular activity or event, while a TMP takes a broader, strategic approach to manage traffic in a wider area, considering potential impacts and long-term solutions. Potential conflicts with transportation programs and policies may not be avoided without adequate planning and notification, resulting in a significant impact without mitigation.

To reduce these impacts, MM T-1a requires that PG&E develop a TMP in accordance with the requirements of jurisdictions and local agencies in the Project area to reduce traffic impacts regardless of local encroachment permits. In addition, MM N-1b (see Section 3.11, Noise) would require that at least 1-month advance notification be provided to the public prior to construction. MM WF-1b would limit full road closures to December 15 through February 28 to minimize the risk of road closures substantially affecting evacuation in the event of a wildfire. Finally, to ensure traffic conflicts between construction activities and school traffic are minimized, MM WF-1c would also be required, which would ensure that construction near schools occurs outside of school hours.

This Project segment is located near major roadways, including I-580 and SR-13. When considered in the context of the relatively lower risk presented by this Project segment, due to its proximity to major roadways, implementation of MMs T-1a, N-1b, WF-1b, and WF-1c would reduce impacts to a less-than-significant level, thereby maintaining consistency with the plans and policies listed above. Therefore, with implementation of mitigation measures, impacts would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. O&M activities would be conducted with existing staff using existing access. O&M activities would consist of routine inspection, repair, and maintenance activities. Inspections and routine patrols would be performed in accordance with PG&E's *Transmission Owner Maintenance Practices for Electrical Overhead Power Lines*, in the latest revision, as filed with the California Independent System Operator (PG&E, 2024b). PG&E inspections would not be conducted during the first 5 years following the in-service date but would typically be performed annually thereafter, by either vehicle or helicopter (as discussed in Section 2.6.3, infrared and corona inspections are completed on high fire threat district [HFTD] Tier 3 lines annually and on HFTD Tier 2 lines at least once every 3 years). Routine maintenance would be performed to correct conditions identified during inspections. For overhead lines, the same O&M activities would be used for the rebuilt lines, and therefore, no additional traffic generated from operational activities is expected. For underground lines, additional traffic generated from operational activities would be minimal and infrequent. The vehicle trips would be limited to current PG&E O&M personnel conducting periodic inspections and as needed maintenance/repair activities. No additional O&M personnel would be required. Therefore, any net increase in O&M vehicle trips would be negligible and would be consistent with the threshold in the *City of Oakland Transportation Impact Review Guidelines* (PG&E, 2024a).

Proposed O&M activities would not be expected to require lane or road closures or operation of heavy equipment within public roadways; however, if these activities were to be required (for example, because of a major repair to an underground vault), traffic control would be implemented, with adherence to requirements in any encroachment permits to reduce traffic impacts. Traffic impacts associated with staging O&M equipment in a lane to make necessary repairs and inspections would typically be infrequent and temporary in nature. Because of the negligible increase in vehicle trips and infrequent work required within roadways, which would include implementation of traffic control in accordance with encroachment permits, O&M activities would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Therefore, impacts would be less than significant.

Mitigation Measures for Impact T-1

MM N-1b **Construction Notification.** See full text in Section 3.11 (Noise).

MM REC-3a **Coordinate with Park and Open Space management and provide signage, barriers, and monitors to ensure safety of trail and park users.** See full text in EIR Section 3.14 (Recreation).

MM REC-5a **Coordinate with recreation facility owners or managers to identify feasible alternatives and address damage to recreation assets.** See full text in EIR Section 3.14 (Recreation).

MM T-1a **Traffic Management Plan and Safe Transport.** See full text in Section 3.15.4 (Mitigation Measures).

MM WF-1b **Limit Construction Requiring Full Road Closures.** See full text in EIR Section 3.18 (Wildfire).

MM WF-1c **School Session Construction Timing Restriction.** See full text in EIR Section 3.18 (Wildfire).

Even with implementation of mitigation measures, impacts related to conflicts with a program, plan, ordinance, or policy addressing the circulation system would remain ***significant and unavoidable*** for the overhead power line rebuild.

Impact T-2: Conflict or be inconsistent with State CEQA Guidelines Section 15064.3(b) regarding vehicle miles traveled.

In December 2018, the California Natural Resources Agency updated the CEQA Guidelines to incorporate Senate Bill 743. As a result, CEQA Guidelines Section 15064.3 shifts the focus of a CEQA analysis of transportation impacts away from quantification of automobile delay to focus on VMT to determine the significance. VMT refers to the amount and distance of automobile travel attributable to a project.

CEQA Guidelines Section 15064.3(b) focuses on applying VMT as the specific criterion for determining the significance of transportation impacts. Section 15064.3(b) is further divided into four subdivisions: (1) land use projects, (2) transportation projects, (3) qualitative analysis, and (4) methodology. The proposed Project would generate temporary construction-related traffic and an expected negligible net change in O&M traffic. Under subdivision (b)(3), qualitative analysis, lead agencies may not be able to quantitatively estimate VMT for every project type and a qualitative analysis of construction traffic may be appropriate. Because the Project would generate only temporary construction-related traffic, a qualitative analysis of transportation impacts related to VMT has been used.

Construction

The study area has a relatively high VMT value compared to the County VMT average, suggesting a high reliance on personal automobile travel in the study area in comparison to other modes of transportation (e.g., walking, bicycling, public transit) (see Section 3.15.1.3 above). Circulation within the Project area would be affected by a temporary increase in vehicle trips due to construction-related workforce traffic and equipment and material deliveries. Table 3.15-4 summarizes the peak construction vehicle trip generation for the proposed Project.

Table 3.15-4. Peak Construction Trip Generation

Trip Type		No. of Workers or Trucks	ADT	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Workers	Auto/Light Trucks (1.0 PCE)	109	218	109	0	109	0	109	109
	Medium/Heavy Trucks (2.0 PCE)	8	32	16	0	16	0	16	16
Light Trucks (1.0 PCE)		20	40	20	0	20	0	20	20
Medium/Heavy Trucks (2.0 PCE)		47	188	94	0	94	0	94	94
Total Construction Traffic in PCE			478	239	0	239	0	239	239

Source: PG&E, 2024a
No. = Number; ADT = average daily traffic; PCE = passenger-car equivalent

Worker Commute Trips. As shown in Table 3.15-4, the peak workforce is estimated to be up to 117 workers per day during the peak month of construction (August 2029), and the average daily workforce would consist of approximately 62 workers. On a typical workday, during August 2029, up to eight crews would be performing Project construction activities at different locations along the Project alignment, with one to two crews at each location. During the overhead power line rebuild and removal, two crews would be working on various segments of the Project alignment. One crew would be working at both Moraga and Oakland X substations to install new equipment. For conductor stringing, three crews would be in the field, working at pull and tension sites and using helicopters and drones, depending on location.

Haul Truck Trips. The primary offsite impacts from the movement of construction trucks would include short-term and intermittent effects on traffic operations along roadways because of slower movements and larger turning radii of haul trucks compared to passenger vehicles, resulting from the larger size of construction trucks, in addition to their weight and mechanical design (the greater mass of construction trucks requires more time and distance to accelerate and decelerate, and the longer wheelbase of the trucks necessitates wider turns). The additional trucks along roadways could affect the performance of the circulation system by decreasing roadway capacity, affecting emergency access, and increasing the potential for accidents.

As shown in Table 3.15-4, construction activities are estimated to generate up to 228 one-way truck trips per day during the peak month. Truck traffic would range between light-duty trucks to heavy-diesel trucks (dump trucks, haul trucks, flatbed trucks, concrete mixer trucks), depending on the needs of the construction activity.

During construction, some excavated soil would be stockpiled near a structure foundation excavation to be used as backfill; the retention of soil onsite would reduce the number of truck trips required to haul soil offsite. As discussed in Section 3.9, *Hazards, Hazardous Materials, and Public Safety*, and Section 3.17, *Utilities and Service Systems*, no known areas of contaminated soil overlap with the Project footprint; however, any potentially contaminated soil that is unexpectedly encountered during construction would be segregated, tested, and disposed of offsite at an appropriate waste facility if needed. Some haul trucks may transport contaminated soil or hazardous materials to the Kettleman Hills or Clean Harbors Buttonwillow waste facilities, located approximately 200 and 250 miles from the Project area, respectively. In addition, treated wood waste is expected to be taken to a suitable facility such as the Vasco Road Landfill in Livermore. However, a large volume of hazardous waste is not anticipated to be generated; therefore, these trips are not accounted for in Table 3.15-4. (The potential for any treated wood waste in the Project area to be considered hazardous waste is not currently known and would depend on the levels of certain chemicals in the wood, which would need to be classified prior to disposal, as discussed in Section 3.9 [Hazards and Hazardous Materials and Public Safety].)

Most roads leading out of the City's hills are one lane in each direction (total of two lanes) and, therefore, have limited egress with choke points in especially populated locations. For example, Ascot, Scout, and Colton Roads are very steep and narrow (20 feet) and have multiple sharp turns, especially in a half-mile portion of these roadways closest to the Hayward Fault. Numerous construction vehicles would have to traverse these roads every day, including back-hoes, dump trucks with soil and backfill material, worker vehicles, etc. This traffic would add to the existing commuting and school access traffic during the construction period, although as stated previously, the timing of most construction trips (before 7:00 a.m. and after 4:00 p.m.) would be when background traffic volumes are expected to be lower. In addition, not all trips would affect the same roads, as crews along with the necessary equipment would be working at multiple different locations.

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT. Construction of the overhead power line rebuild would result in a temporary increase in local traffic due to construction-related workforce traffic and equipment and material deliveries, as well

as construction within and across roadways. The primary offsite impacts from the movement of construction trucks would include short-term and intermittent effects on traffic operations because of slower movements and larger turning radii of the trucks compared to passenger vehicles.

As shown in Table 3.15-4, Project construction would generate a maximum of 478 one-way trips each day (includes both worker commute and haul truck trips), which is not substantial compared to the 1.2 million commute trips daily on Alameda County's transportation network (MTC, 2022). The VMT for Project construction-related vehicle trips would depend on several factors, including the origin of construction worker commute trips (for example, distance from their homes or temporary lodging to the construction site), origin of materials and equipment deliveries to the construction site, and distance to landfills or other disposal sites from the construction site. Road closures during the use of cranes would require detours that would route vehicles to other roadways, which could also increase VMT because of the additional distance traveled. Any construction-related increases in VMT would be temporary and would not cause any significant impacts in the context of the regional transportation network, which is located in an urbanized area with several transportation options (roads, rails, buses, trails, and pathways). When construction is complete, construction-related traffic would cease, and VMT levels would return to pre-existing conditions. Construction of the overhead power line rebuild would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). Therefore, impacts would be less than significant.

Overhead Power Line Removal

LESS THAN SIGNIFICANT. Impacts on VMT for power line removal would be similar to the overhead power line rebuild, which would be temporary and would not cause any significant impacts in the context of the regional transportation network, which is located in an urbanized area with several transportation options (roads, rails, buses, trails, and pathways). When construction is complete, construction-related traffic would cease, and VMT levels would return to pre-existing conditions. Construction of the overhead power line removal would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). Therefore, impacts would be less than significant.

Underground Power Line

LESS THAN SIGNIFICANT. Impacts on VMT would be similar to the overhead power line rebuild and overhead power line removal; however, the use of cranes would not require any road closures, and only temporary lane closures would be required. Construction-related VMT would be temporary and would not cause any significant impacts in the context of the regional transportation network, which is located in an urbanized area with several transportation options (roads, rails, buses, trails, and pathways). When construction is complete, construction-related traffic would cease, and VMT levels would return to pre-existing conditions. Construction of the underground power line would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). Therefore, impacts would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. O&M activities would not require additional staff. The vehicle trips generated by O&M activities would be limited to PG&E personnel conducting periodic inspections and as-needed maintenance/repair activities and would be nominally the same as VMT for O&M on the existing power lines. Any net increase in O&M VMT would be negligible and well below the daily 110 vehicle trips threshold provided in the 2018 Governor's Office of Planning and Research's *Technical Advisory on Evaluating Transportation Impacts in CEQA*; and the daily 100 vehicle trips threshold in the *City of Oakland Transportation Impact Review Guidelines* (PG&E, 2024a). O&M activities would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). Therefore, impacts would be less than significant. No mitigation is required.

Impact T-3: Substantially increase hazards due to a geometric design feature or incompatible uses.

Construction

Project construction would not alter the road geometry of any public roadways or intersections, including access roads to power lines, towers or poles, and substations. However, construction would involve the operation of heavy equipment adjacent to or within a roadway, which could increase the risk of crashes and interference with bicyclist and pedestrian access because of incompatible uses of the roadway for construction activities. Temporary road closures for work areas, including the use of cranes, would reduce the risk of hazards to pedestrians, bicyclists, and vehicles. The roads with temporary closures for crane use are Manzanita Drive, Skyline Boulevard, East Circle, Sayre Drive, Saroni Court, Balboa Drive, West Circle, Cortez Court, Scout Road, Monterey Boulevard, Leimert Boulevard, Park Boulevard, Saint James Drive, Glendome Circle, Holman Road, Bates Road, and Glendora Avenue~~Park Boulevard Way~~.

To reduce hazards from incompatible uses, temporary guard structures to protect vehicles and pedestrians would also be installed where construction activities would cross over local roadways. A brief one-lane closure is required to install the guard structures. The local roadways that would be spanned by the temporary guard structures are Manzanita Drive, Skyline Boulevard, Arrowhead Drive, Gunn Drive, Saroni Drive, Saroni Court, Paso Robles Drive, Sayre Drive, Balboa Drive, Shepherd Canyon Road, Scout Road, Mountain Boulevard, SR-13, Monterey Boulevard, Park Boulevard, Estates Drive, Saint James Drive, Trestle Glen Road, Glendome Circle, Norwood Avenue, and Creed Road.

Under APM TRA-1, PG&E would obtain all necessary road encroachment permits prior to construction and would comply with all applicable conditions of approval, including roadside safety protocols, to reduce the risk of crashes or interference with access. APM TRA-1 requires PG&E to provide a Traffic Control Plan if required for permits from the cities of Oakland, Piedmont, and Orinda. To ensure that a TMP is developed even if not required to obtain permits, MM T-1a would require PG&E to develop a TMP in accordance with the requirements of jurisdictions and local agencies in the Project area; and MM N-1b would require that at least 1-month advance notification be provided to the public and relevant agencies prior to construction. PG&E would use traffic controls and other traffic safety measures to maintain safe traffic flow during construction activities, minimizing the potential for collisions or disruption to access because of incompatible uses. In addition, MM WF-1c would require that construction near schools occurs outside of school hours to avoid any hazards from incompatible uses of the roadway within 0.25 miles of a school during construction.

The existing overhead power lines to be rebuilt within the existing alignment cross SR-13. Netting would be installed at the SR-13 crossing beneath the transmission line but above the roadway to protect public safety by preventing falling conductors or other components from reaching the ground, which could injure people or damage vehicles. When working on SR-13, PG&E would plan traffic control operations to be compliant with both the *California Temporary Traffic Control Handbook*, 2019 edition, and the *California Manual on Uniform Traffic Control Devices*, 2014 edition. The installation of crossing guard structures would further ensure that impacts would be avoided. Any road closures that would be required on private or city roads would be short-term, consistent with applicable regulations and in coordination with the City or property owner(s).

During construction, some excavated soil would be stockpiled near a structure foundation excavation to be used as backfill. The best management practices (BMPs) for sediment and erosion control would be implemented to minimize and control erosion and movement of sediment, including use of gravel bags, silt fences, and straw wattles. Post-construction stabilization would also be conducted, including the restoration of sites and reseeding where appropriate. In accordance with FP-12, stockpiled soils would be covered prior to precipitation events. The stabilization of soils would prevent this material from slipping onto roadways and causing potential safety hazards. After construction activities are complete, APM

TRA-2 would require the restoration of roads and all removed or damaged curbs, gutters, and sidewalks, in compliance with locally issued ministerial permits, which would ensure that no roadway safety hazards would result from the Project and the functioning of the roadway would be restored.

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT WITH MITIGATION. The following discussion is focused on the potential for Project construction to create incompatible uses related to transportation.

As described under "Construction Activities Applicable to All Impacts," the overhead power line rebuild would require the use of cranes; therefore, road closures may last up to approximately 10 consecutive working days (2 calendar weeks) primarily for the crane work activities on surface streets. Additional shorter road closures would be required for installation of guard structures. These closures, even short-term, require uses incompatible with the purposes of the roadways.

During consultation, EBMUD stated that any helicopter landing zones that would be located on EBMUD land would require coordination with EBMUD to obtain approval on the proposed location of the landing zones (EBMUD, 2025). As shown on Figure 2.1-2 (Proposed Project Detail Map 4) in Appendix A, a portion of one helicopter landing zone may be potentially located on EBMUD lands. The remaining portion of the helicopter landing zone, plus two additional helicopter landing zones, would be located on EBRPD lands. EBRPD also submitted a scoping comment stating that a proposed helicopter landing zone within a future campground area in the Sibley Volcanic Regional Preserve would not be feasible because the campground would be constructed prior to Project construction. EBRPD stated that the campground parking lot could potentially be used as a helicopter landing and staging area; however, PG&E would need to confirm that a 50-foot-by-50-foot space would be large enough for the helicopter's blade span. If the area is not able to accommodate the helicopter's blade span, the proposed use of the area as a helicopter landing zone would be incompatible, resulting in safety hazards if the blades come in contact with vegetation causing flying debris that could potentially injure individuals on the ground; this would be a significant impact without mitigation.

The City of Orinda provided a scoping comment stating that Lost Valley Drive, a two-lane roadway (one lane in each direction), is the only road that provides access to Moraga Substation and is also the primary entry and exit for the Lost Valley neighborhood; therefore, the City is concerned about street closures and potentially hazardous conditions for people walking, bicycling, or driving. No staging areas, work areas, lane closures, or road closures would be required along Lost Valley Drive during construction, as shown on Figure 2.1-2 (Proposed Project Detail Map 1) in Appendix A. However, access for vehicles, pedestrians, and bicyclists could be temporarily affected by the movement of Project-related construction vehicles and equipment along Lost Valley Drive, including potential delays and safety hazards, which would be a significant impact without mitigation.

APMs TRA-1 and TRA-2, and FP-12 (see Table 3.15-2) would be implemented to reduce traffic impacts, ensure that soil would not slip onto roadways, and require restoration of roads and sidewalks. However, APM TRA-1 does not require a TMP that would specify methods for minimizing construction effects on transportation facilities and services, or a minimum of 1-month advance coordination with local jurisdictions and agencies prior to construction. Potential hazards from incompatible uses of the roadway during construction may not be avoided without adequate planning and notification regarding how to safely navigate around closures and find safe alternative access routes, resulting in significant impacts without mitigation. Therefore, MMs T-1a and N-1b are required in order for the impact to be mitigated to less than significant. In compliance with MM T-1a, PG&E would develop a TMP and would provide at least 1-month advance notification to the public prior to construction to ensure potential hazards from incompatible uses are minimized related to safely navigating to alternative access routes.

MM N-1b also requires coordination with EBMUD and EBRPD to obtain approval for any helicopter landing zones that would be located on EBMUD or EBRPD lands, thereby eliminating areas that are not large

enough to accommodate the helicopter's blade span and thus avoiding hazards from potential incompatible uses. In addition, MMs REC-3a and REC-5a would also require that alternative access routes be provided for pedestrians and bicyclists within trails and parks to minimize potential hazards from incompatible uses related to navigating around closures, as well as require PG&E to coordinate with recreation facility owners and managers to reduce the use of pedestrian and bicycle facilities and restore safe access.

The City of Orinda has also stated that Wilder Road between Dairy Creek Lane and Edgewood Court is shown as an existing access road to the Moraga Substation in Figure 2.1-2 (Maps 5 & 6) and notes that this portion of Wilder Road is for Emergency Vehicle Access (EVA) only. Wilder Road is a one-lane roadway and is designated as an evacuation route in the Orinda Fire Evacuation Guide (City of Orinda, 2024). The designation of Wilder Road for EVA only is not identified in the Orinda Fire Evacuation Guide; however, this restricted access is noted as a potential construction constraint that will require further coordination with the City during the encroachment permit process.

Wilder Road is intended to provide access from Edgewood Court to a landing zone/staging area (LZ03). Section 2.3.1.3 states that landing zones would be used for staging and landing light- and medium-duty helicopters that would be required for conductor-stringing and to support construction survey staking; lifting or transporting of structure components; crew transport to structures; and potentially lifting of equipment for installation of micropile foundations. If the landing zone is being used primarily for helicopter landing and staging, then Wilder Road may not require extensive vehicle use during the construction of the proposed Project. However, to minimize the potential for access constraints and conflicts, the extent of the projected use of Wilder Road for the proposed Project and the road's ability to handle significant construction traffic will require further coordination with the City during the encroachment permit process, as well as during the development of the TMP required under MM T-1a.

Corpus Christi School, located at 1 Estates Drive in Piedmont, is within the overhead to underground transition area for the rebuilt line. This school serves kindergarten to 8th grade. Because the school is located within a residential neighborhood, some students may walk or bike to the school, and vehicle traffic may be heavy during school drop-off and pick-up. The operation of heavy equipment near the school, as well as road closures on Park Boulevard and Saint James Drive required for crane use and other construction activities, could result in safety hazards. To minimize impacts, the City of Piedmont has stated that time of day and/or time of year restrictions (e.g., summer construction) would be necessary so that Project-related construction traffic does not overlap with students walking or biking to and from the school, as well as vehicle traffic during student pick-up and drop-off; based on consultation with the City of Piedmont, these restrictions could potentially be included in locally issued ministerial permits, which may include an encroachment permit for work in the public ROW, and potentially a building and/or demolition permit for tower removal (City of Piedmont, 2025). If these restrictions are not implemented during Project construction, the Project could substantially increase hazards due to incompatible uses, which would be significant without mitigation. Therefore, to ensure traffic conflicts between construction activities and school traffic are minimized thereby reducing potentially hazardous conditions for students walking or bicycling to schools, MM WF-1c (see Section 3.18, Wildfire) would require that construction near schools occurs outside of school hours.

Currently, the school uses a dirt lot adjacent to the proposed transition pole as auxiliary parking. Existing towers would be replaced at this location under the Proposed Project. This existing dirt lot is a property that is owned in fee by PG&E. The level of safety and compatibility of the continued use of the lot for parking by the school during Project construction and operation would depend on the Project's final design. PG&E has stated that it would communicate with the school concerning future parking at this property when information is available that reflects the final engineering and associated land rights review of an approved Project (PG&E, 2025).

With implementation of mitigation measures, construction of the overhead power line rebuild would not substantially increase hazards due to a geometric design feature or incompatible uses. Therefore, impacts would be less than significant with mitigation.

Overhead Power Line Removal

LESS THAN SIGNIFICANT WITH MITIGATION. The overhead power line removal would require the use of cranes; therefore, road closures may last up to approximately 10 consecutive working days (2 calendar weeks), primarily for the crane work activities on surface streets. In addition, a one-lane closure, lasting less than one day, would be required to install the guard structures. APMs TRA-1 and TRA-2, and FP-12 provided in Table 3.15-2 would be implemented to reduce traffic impacts, ensure that soil would not slip onto roadways, and require the restoration of roads and sidewalks.

APM TRA-1 does not require a TMP that would specify methods for minimizing construction effects on transportation facilities and services, address safety and access around schools, or require a minimum of 1-month advance coordination with local jurisdictions and agencies prior to construction. Potential hazards from incompatible uses of the roadway during construction may not be avoided without adequate planning and notification regarding how to safely navigate around closures and find safe alternative access routes, resulting in significant impacts without mitigation. Therefore, MMs T-1a and N-1b would require PG&E to develop a TMP and provide at least 1-month advance notification to the public prior to construction to ensure potential hazards from incompatible uses are minimized related to safely navigating to alternative access routes. In addition, to ensure traffic conflicts between construction activities and school traffic are minimized thereby reducing potential hazards from incompatible uses for students walking or bicycling to schools, MM WF-1c would be required to ensure that construction near schools occurs outside of school hours. With implementation of these mitigation measures, construction of the overhead power line removal would not substantially increase hazards due to a geometric design feature or incompatible uses. Therefore, impacts would be less than significant with mitigation.

Underground Power Line

LESS THAN SIGNIFICANT WITH MITIGATION. In addition to the impacts discussed above, construction of the underground power line would require temporary, short-term closures of one travel lane and one parking lane along Estates Drive, Park Boulevard, and Park Boulevard Way at various locations on the roads for the placement of vaults, trenching, and duct bank installation, with one lane remaining open to allow through traffic in each direction. Final lane closure plans would be determined following detailed investigations into existing utilities and final construction planning. APMs TRA-1 and TRA-2, and FP-12 provided in Table 3.15-2 would be implemented to reduce traffic impacts, ensure that soil would not slip onto roadways, and require the restoration of roads and sidewalks. Park Boulevard is concrete, and therefore, restoration of the entire street would be required after excavation (City of Oakland, 2025). For the restoration of concrete, the roadway would need to be closed for up to 3 days thereby requiring safe alternative access routes where potentially hazardous conditions would be minimized for people walking, bicycling, or driving or for public transit operations.

APM TRA-1 does not require a TMP that would specify methods for minimizing construction effects on transportation facilities and services, address safety and access around schools, or require a minimum of 1-month advance coordination with local jurisdictions and agencies prior to construction. Potential hazards from incompatible uses of the roadway during construction may not be avoided without adequate planning and notification regarding how to safely navigate around closures and find safe alternative access routes, resulting in significant impacts without mitigation. Therefore, MMs T-1a and N-1b would require PG&E to develop a TMP and provide at least 1-month advance notification to the public prior to construction to ensure potential hazards from incompatible uses are minimized related to safely navigating to alternative access routes. In addition, to ensure traffic conflicts between construction activities and school traffic are minimized thereby reducing potential hazards from incompatible uses for students walking or

bicycling to schools, MM WF-1c would require that construction near schools occurs outside of school hours. With implementation of these mitigation measures, construction of the underground power line would not substantially increase hazards due to a geometric design feature or incompatible uses. Therefore, impacts would be less than significant with mitigation.

Operations and Maintenance

LESS THAN SIGNIFICANT. O&M activities would not involve any new permanent design features or alterations that could be hazardous or incompatible because the overhead lines and structures would be in a similar configuration and alignment as the existing lines, with part of the lines being installed underground. Vault covers for the underground portion of the Project would be flush with the repaved roadway and would not present any substantial hazards. As discussed under Impact T-1, the negligible increase in vehicle trips and infrequent work required within roadways, which would include implementation of traffic control and notification procedures in accordance with encroachment permits, O&M activities would not substantially increase hazards due to a geometric design feature or incompatible uses. Therefore, impacts would be less than significant.

Mitigation Measures for Impact T-3

MM N-1b **Construction Notification.** See full text in Section 3.11 (Noise).

MM REC-3a **Coordinate with Park and Open Space management and provide signage, barriers, and monitors to ensure safety of trail and park users.** See full text in EIR Section 3.14 (Recreation).

MM REC-5a **Coordinate with recreation facility owners or managers to identify feasible alternatives and address damage to recreation assets.** See full text in EIR Section 3.14 (Recreation).

MM T-1a **Traffic Management Plan and Safe Transport.** See full text in Section 3.15.4 (Mitigation Measures).

MM WF-1c **School Session Construction Timing Restriction.** See full text in EIR Section 3.18 (Wildfire).

Impacts related to hazards due to a geometric design feature or incompatible uses would be reduced to a less-than-significant level with implementation of the above mitigation measures.

Impact T-4: Result in inadequate emergency access.

Construction

Potential Project effects on emergency access for each portion of the Project alignment are discussed in the sections below for the overhead power line rebuild, overhead power line removal, and underground power line construction.

Overhead Power Line Rebuild

SIGNIFICANT AND UNAVOIDABLE. Most roads within the Oakland Hills are narrow; many roads are wide enough for only one vehicle at a time. Other roads have widths that would allow one lane in each direction (total of two lanes). As a result, there is limited emergency egress. For example, Ascot Drive, Scout Road, and Colton Road are very steep and narrow (as narrow as 20 feet in places) and have multiple sharp turns, especially in the half-mile portion of these roadways closest to Montclair Village and the Hayward Fault. Numerous construction vehicles would have to traverse these roads every day, including back-hoes, dump trucks with soil and backfill material, worker vehicles, etc. This traffic would add to the existing commuting and school access traffic during the construction period, which could cause delays in emergency access.

Construction activities associated with the overhead power line rebuild would also require the use of cranes, as discussed under "Construction Activities Applicable to All Impacts." The cranes would not remain in roadways overnight or during non-working hours, but while cranes are being used, their work areas may block entire roadways. The roads that would be affected by closures for crane use are discussed in the section entitled "Construction Activities Applicable to All Impacts" (Temporary Road Closures for Crane Operation). The specific locations of these road closures are shown on Figure 2.1-2 (Proposed Project Detail Map) in Appendix A. In addition, a one-lane closure, lasting less than one day, would be required to install the guard structures.

To restore full roadway access in the event of an emergency, up to 45 minutes would be required for crane truck removal if the crane is holding a load. As little as five minutes would be required to move a crane truck if the crane is not lifting a load. During this timeframe, emergency access may be affected if a crane truck is blocking a road or travel lane, resulting in inadequate emergency access.

Two fire stations are located near the portion of the Project alignment in the Oakland Hills: Oakland Fire Station 6 (7080 Colton Boulevard, approximately 0.4 mile from the Project alignment) and Oakland Fire Station 24 (at 5900 Shepard Canyon Road, adjacent to the Project alignment; see Figure 3.13-1 in Appendix A). Because road closures would not be required at the same time in both areas of the Oakland Hills, emergency access from either one of these stations would generally continue to be feasible during Project construction. However, temporary road closures during construction could prevent emergency vehicles from reaching all neighborhoods, and may substantially increase response times for Fire Station 6 and Fire Station 24. In addition, full and temporary closures of roadways may increase the time for emergency vehicles to access locations along Manzanita Drive, particularly during concurrent closures of Skyline Boulevard. Therefore, emergency access may not be adequate for all locations and at all times during the construction period.

Construction specifications or measures to be included in PG&E's traffic control plan would be dictated by transportation and encroachment permits issued by local jurisdictions. When PG&E is applying for these local permits, PG&E's application would include identification of alternate emergency access where a temporary road closure is proposed. This alternative access would be reviewed and adjusted by the local jurisdiction as appropriate to align with the jurisdiction's emergency response plan. Permits issued by local jurisdictions would require compliance with policies and regulations of the jurisdictions, and therefore, would reduce the proposed Project's impacts related to inadequate emergency access as much as feasible. Detailed requirements for providing access to construction areas during use of cranes would be determined in coordination with local jurisdictions.

OakDOT has stated that at least 1-month advance notification to the community is required prior to construction (City of Oakland, 2025); this notice requirement is not included in APM TRA-1.

The City of Orinda submitted a scoping comment stating that Lost Valley Drive, a two-lane roadway (one lane in each direction), is the only road that provides access to Moraga Substation and is also the primary entry and exit for the Lost Valley neighborhood; therefore, the City is concerned about street closures and access for emergency services. No staging areas, work areas, lane closures, or road closures would be required along Lost Valley Drive during construction, as shown on Figure 2.1-2 (Proposed Project Detail Map 1) in Appendix A. However, Moraga Substation and the Lost Valley neighborhood are located in a wildland area that could be susceptible to wildfire and is also adjacent to designated Very High Fire Hazard Severity Zones. Access for emergency service providers could be temporarily affected from the movement of Project-related construction vehicles and equipment along Lost Valley Drive and other nearby roadways, such as Wilder Road, which is intended to be used as an access road to a landing zone/staging area (LZ03) but the City has stated is for EVA only.

As shown in Table 3.15-4, worker commute and haul truck trips would total 478 one-way trips each day during the 35-month construction period. Staging areas would temporarily generate daily construction-

related traffic from workers traveling to and from their residences and staging areas, and from construction-related trucks transporting workers to and from staging areas and specific work areas. While these trips would not likely all be going to Moraga Substation, the additional construction trips on Lost Valley Drive could result in delays affecting the adequacy of emergency access along the two-lane roadway, as well as along other nearby roadways such as Wilder Road.

The following APMs (see full text in Table 3.15-2) would also support the Project's ability to provide emergency response:

- **APM TRA-1** includes both notification to residents and emergency service providers of upcoming road closures, including emergency vehicle access routes, in the Project area at least one week in advance of construction.
- **APM WFR-1** includes coordination of procedures with federal, state, and local fire officials and emergency responders, including notifications of temporary lane or road closures, as part of the Construction Fire Prevention Plan.
- **APM WFR-2** includes suspending all planned work during an R5-Plus fire rating. PG&E defines R5-Plus fire rating as: The greatest level of fire danger where rapidly moving catastrophic wildfires are possible.

While these APMs would improve emergency access during construction, they would not provide the notification and planning that would be required to lessen the severity of impacts related to inadequate emergency access to less than significant levels. For example, APM TRA-1 does not require a TMP that would specify methods for minimizing construction effects on transportation facilities and services, address safety and access around schools, or require a minimum of 1-month advance coordination with the public, local jurisdictions, and agencies prior to construction. Emergency access may not be adequate without appropriate planning and notification, resulting in significant impacts without mitigation.

MMs T-1a and N-1b would require that PG&E develop a TMP and provide at least 1-month advance notification to the public prior to construction, which would ensure that adequate emergency access is provided in consultation with applicable jurisdictions and agencies. In addition, MM N-1b is required to ensure that traffic conflicts between construction activities and school traffic are minimized. MM WF-1c would require that construction near schools occurs outside of school hours so that Project construction does not result in inadequate emergency access near schools.

Because of the narrow streets and steep topography within the overhead power line rebuild area, delays associated with rerouting traffic through alternative access routes may increase emergency response times. As a result, even with implementation of MMs T-1a, N-1b, and WF-1c, construction of the overhead power line rebuild would result in inadequate emergency access because of the need for temporary road closures during construction. Therefore, impacts would be significant and unavoidable.

Overhead Power Line Removal

LESS THAN SIGNIFICANT WITH MITIGATION. The roads that would be affected by closures for crane use are discussed in the section entitled “Temporary Road Closures for Crane Operation.” The specific locations of these road closures are shown on Figure 2.1-2 (Proposed Project Detail Map) in Appendix A. In addition, a one-lane closure, lasting less than one day, would be required to install the guard structures. Two fire stations are located near this portion of the Project alignment: Oakland Fire Station 24 (5900 Shepard Canyon Road and adjacent to the Project alignment) and Oakland Fire Station 16 (3600 13th Avenue and adjacent to the Project alignment near Oakland X Substation; see Figure 3.13-1 in Appendix A). Temporary closures of roadways may increase the response time for emergency vehicles from these fire stations, particularly during concurrent closures along multiple roadways. However, because this segment of the Project alignment is located closer to major roadways and offers alternate routes for each work area, emergency access could be rerouted without resulting in inadequate emergency access.

APMs TRA-1, WFR-1, and WFR-2 provided in Table 3.15-2 would be implemented to reduce traffic impacts, require coordination with agencies and emergency responders, and ensure that planned work is suspended during an R5-Plus fire rating. However, as described above, APM TRA-1 does not provide adequate notice for pre-construction planning, resulting in a significant impact. Therefore, MMs T-1a and N-1b are required in order to ensure that PG&E would develop an adequate TMP that provides at least 1-month advance notification to the public prior to construction. These mitigation measures would ensure that adequate emergency access is provided in consultation with applicable jurisdictions and agencies. In addition, to ensure traffic conflicts between construction activities and school traffic are minimized, MM WF-1c would require that construction near schools occurs outside of school hours so that Project construction does not affect emergency access near schools. Therefore, impacts would be less than significant with mitigation.

Underground Power Line

LESS THAN SIGNIFICANT WITH MITIGATION. Crane use in the underground segment would not require road closures. Temporary, short-term closures would be limited to one travel lane and one parking lane along Estates Drive, Park Boulevard, and Park Boulevard Way at various locations on the roads. Two fire stations are located near this portion of the Project alignment: Oakland Fire Station 24 (5900 Shepard Canyon Road and adjacent to the Project alignment) and Oakland Fire Station 16 (3600 13th Avenue and adjacent to the Project alignment near Oakland X Substation; see Figure 3.13-1 in Appendix A). Temporary lane closures may increase the response time for emergency vehicles from these fire stations. However, because this portion of the Project alignment is located closer to major roadways compared to the overhead power line rebuild, emergency vehicles could be rerouted without resulting in inadequate emergency access.

APMs TRA-1, WFR-1, and WFR-2 provided in Table 3.15-2 would be implemented to reduce traffic impacts, require coordination with agencies and emergency responders, and ensure that planned work is suspended during an R5-Plus fire rating. However, APM TRA-1 does not provide for adequate notice of pre-construction planning, resulting in a significant impact. Therefore, MMs T-1a and N-1b are required in order to ensure that PG&E would develop an adequate TMP that provides at least 1-month advance notification to the public prior to construction. These mitigation measures would ensure that adequate emergency access is provided in consultation with applicable jurisdictions and agencies. In addition, to ensure traffic conflicts between construction activities and school traffic are minimized, MM WF-1c would require that construction near schools occurs outside of school hours so that Project construction does not affect emergency access near schools. Therefore, impacts related to emergency access during underground construction of the proposed Project would be less than significant with mitigation.

Operations and Maintenance

LESS THAN SIGNIFICANT. O&M activities would not be expected to require lane or road closures or operation of heavy equipment within public roadways; however, if these activities were to be required (for example, because of a major repair to an underground vault), traffic control would be implemented, with adherence to requirements in any required permits to reduce traffic impacts. Traffic impacts associated with staging O&M equipment in a lane to make necessary repairs and inspections would typically be infrequent and temporary in nature (minor repairs to underground vaults would take a few days, and more complex repairs could take several weeks or months). During repairs of underground vaults, a maximum of 1,500 square feet of work area would be required, which would affect a relatively small portion of a roadway with a lane or road closure. The nature of this work would be consistent with typical utility maintenance activities that are completed within the public ROW, and standard traffic control procedures would ensure that adequacy emergency access is maintained. Because of the negligible increase in vehicle trips and infrequent work required within roadways, which would include implementation of traffic control, O&M activities would not result in inadequate emergency access. Therefore, impacts would be less than significant.

Mitigation Measures for Impact T-4

MM N-1b **Construction Notification.** See full text in Section 3.11 (Noise).

MM T-1a **Traffic Management Plan and Safe Transport.** See full text in Section 3.15.4 (Mitigation Measures).

MM WF-1c **School Session Construction Timing Restriction.** See full text in EIR Section 3.18 (Wildfire).

Even with implementation of the above mitigation measures, impacts on emergency access remain ***significant and unavoidable*** for the overhead power line rebuild for the reasons explained above.

Impact T-5: Create potentially hazardous conditions for residents, people walking, bicycling, or driving or for public transit operations.

Construction

People Walking, Bicycling, or Driving. Construction traffic would be temporary and would result in changes to walking, bicycling, and driving conditions for a limited duration as the construction vehicles travel on roads during construction. Temporary road and lane closures where work areas would be located on or adjacent to roads would reduce the risk of hazards to pedestrians, bicyclists, and vehicles. Work areas may require a one-lane road closure of up to approximately 10 consecutive working days (2 calendar weeks) along some of the roads (see "Temporary Road Closures for Crane Operation" (above) for a list of roadways affected by road closures). Temporary guard structures would also be installed where construction activities would cross over local roadways to protect vehicles and pedestrians. A brief one-lane closure is required to install the guard structures (see "Temporary Guard Structures and Netting", above for a list of affected roadways).

Transit, Pedestrian, and Bicycle Facilities. Temporary lane closures during Project construction could temporarily result in the loss of, or modifications to, access to the AC Transit's lines V and ~~33~~ 18 and their bus stops along Park Boulevard, as well as AC Transit's line 642 and its bus stops along Snake Road, Shepherd Canyon Road, and Arrowhead Drive (see discussion under Impact T-7); the bikeways on Excelsior Avenue, Monterey Boulevard, Shepherd Canyon Road, Skyline Boulevard, Beaumont Avenue, Kingsley Street, and Saint James Drive; and the sidewalks along Park Boulevard, Mountain Boulevard, local streets south of SR-13, and recreational hiking trails. Full trail closures at several locations along the Montclair Railroad Trail would likely last up to 12 consecutive working days (2 calendar weeks).

Temporary bus stops could be set up in coordination with AC Transit if stops adjacent to the construction area would not be safely accessed during construction. Road and lane closures would require vehicle and bicycle detours. Sidewalk, trail, and lane closures may require temporary detours for pedestrians. For pedestrian trails in open space areas, traffic controls or flaggers may be used in place of physical structures. Impacts on the use of recreational trails by pedestrians or bicyclists are discussed in Section 3.14, *Recreation*.

Residents. Table 2.3-6 in Section 2.3.8.2 of the Project Description identifies ~~six~~ four road segments where no secondary vehicle access is available because construction would occur on dead-end streets. For times when these roads are temporarily closed due to construction activity, PG&E's APM TRA-1 commits to providing "safe transport" for residents to their homes if they cannot drive there. This APM does not explain the "safe transport" process that would be employed, so it would not adequately reduce the severity of the impact related to hazardous conditions for residents during construction. MM T-1a includes detailed provisions defining the "safe transport" process.

Traffic Safety. With incorporation of APM TRA-1 into the proposed Project, PG&E would obtain all necessary road encroachment permits prior to construction and would comply with all applicable conditions of

approval, including roadside safety protocols to reduce the risk of crashes. Under APM TRA-1, PG&E would provide a Traffic Control Plan only if required for any permits required by the cities of Oakland, Piedmont, and Orinda. Under MM T-1a, PG&E would develop a TMP in accordance with the requirements of jurisdictions and local agencies in the Project area even if not required under permit requirements; and MM N-1b would require that adequate notification be provided to the public and relevant agencies prior to construction. PG&E would use traffic controls and other traffic safety measures to maintain safe traffic flow during construction activities, minimizing the potential for collisions or disruption to access.

The existing overhead power lines to be rebuilt within the existing alignment cross SR-13. Netting would be installed at the SR-13 crossing to ensure public safety by preventing accidental falls of conductors or other components, which could injure people or damage vehicles. When working on SR-13, PG&E would ensure traffic control operations are compliant with both the *California Temporary Traffic Control Handbook*, 2019 edition, and the *California Manual on Uniform Traffic Control Devices*, 2014 edition. Any road closures that would be required on private or city roads would be short-term, consistent with applicable regulations and in coordination with the City or property owner(s). In addition, in accordance with FP-12, stockpiled soils would be covered prior to precipitation events. The stabilization of soils would prevent this material from slipping onto roadways and causing potential safety hazards. Finally, roadways and sidewalks would be returned to preconstruction conditions after construction is complete with implementation of APM TRA-2.

Business Access. During construction, business access would be maintained by communicating with local businesses to develop an access plan during preparation for construction in areas where access may be affected. For example, signage would identify detours around construction areas to enable business access. Residents may also plan their parking needs upon receiving advanced notification of temporary parking restrictions. Additionally, signage would be placed in advance of construction identifying areas where on-street parking would be temporarily prohibited to enable public safety and a safe construction work area. Residents would be able to plan for alternate parking options such as parking across the street, on a nearby street, or off the street as available. All open trenches would be plated outside of work hours to allow access to driveways and street parking areas. If residences or businesses require access during construction and an open trench is blocking their driveways, temporary plating would be available upon request when there is no active work in that section of the trench, and it is safe to plate the trench. If situations arise where personal vehicles cannot safely traverse a driveway, safe transport would be provided as an option.

The following discussion describes the severity of impacts in each Project segment.

Overhead Power Line Rebuild

SIGNIFICANT AND UNAVOIDABLE. The overhead power line rebuild would require the use of cranes, which require temporary road closures that may last up to approximately 10 consecutive working days. In addition, a one-lane closure, lasting less than one day, would be required to install the guard structures.

As discussed under Impact T-3, Lost Valley Drive is the only road that provides access to Moraga Substation and is also the primary entry and exit for the Lost Valley neighborhood. No staging areas, work areas, lane closures, or road closures would be required along Lost Valley Drive during construction, as shown on Figure 2.1-2 (Proposed Project Detail Map) in Appendix A.

As also discussed under Impact T-3, to reduce potential safety hazards from the operation of heavy equipment near Corpus Christi School, as well as road closures on Park Boulevard and Saint James Drive required for crane use and other construction activities, the City of Piedmont has stated that time of day and/or time of year restrictions (e.g., summer construction) would be necessary so that Project-related construction traffic does not overlap with students walking or biking to and from the school, as well as vehicle traffic during student pick-up and drop-off; based on consultation with the City of Piedmont, these restrictions could potentially be included in locally issued ministerial permits (City of Piedmont, 2025). If

these restrictions are not implemented during Project construction, the Project could create potentially hazardous conditions for people walking, bicycling, or driving in the area, which would be significant without mitigation. Therefore, to ensure traffic conflicts between construction activities and school traffic are minimized, MM WF-1c would require that construction near schools occurs outside of school hours.

Currently, the school uses a dirt lot adjacent to the proposed transition pole as auxiliary parking. Existing towers would be replaced at this location under the Proposed Project. This existing dirt lot is a property that is owned in fee by PG&E. The level of safety and compatibility of the continued use of the lot for parking by the school during Project construction and operation would depend on the Project's final design. PG&E has stated that it would communicate with the school concerning future parking at this property when information is available that reflects the final engineering and associated land rights review of an approved Project (PG&E, 2025).

APMs TRA-1 and TRA-2, and FP-12 provided in Table 3.15-2 would be implemented to reduce traffic impacts, ensure that soil would not slip onto roadways, and require the restoration of roads and sidewalks. However, APM TRA-1 does not require a TMP that would specify methods for minimizing construction effects on transportation facilities and services, or a minimum of 1-month advance coordination with local jurisdictions and agencies prior to construction. Potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations may not be avoided without adequate planning and notification regarding how to safely navigate around closures and find safe alternative access routes, resulting in significant impacts without mitigation. Therefore, MMs T-1a and N-1b would require PG&E to develop a TMP and provide at least 1-month advance notification to the public prior to construction to ensure potentially hazardous conditions are minimized related to safely navigating to alternative access routes.

APM TRA-1 also does not explain how the "safe transport" process would be employed to transport residents to their homes if they are unable to drive to them. As a result, this APM would not adequately reduce the severity of the impact related to hazardous conditions for residents during construction. MM T-1a is required because it includes detailed provisions defining the "safe transport" process, including identifying affected residences, defining outreach efforts to coordinate with property owners, identifying the special needs of each household (need for car seats, pet carriers, accommodations for disabilities or other special needs), and providing a written communication plan for each affected household detailing daily construction activities prior to the start of each week's construction. These provisions would reduce the potential that residents would experience hazardous conditions trying to access their homes during the Project construction period.

MMs REC-3a and REC-5a would also require that alternative access routes be provided for pedestrians and bicyclists within trails and parks to minimize potentially hazardous conditions with navigating around closures, as well as require PG&E to coordinate with recreation facility owners and managers to reduce the use of pedestrian and bicycle facilities and restore safe access. In addition, to ensure traffic conflicts between construction activities and school traffic are minimized thereby reducing potentially hazardous conditions for students walking or bicycling to schools, MM WF-1c would require that construction near schools occurs outside of school hours.

Because of the narrow streets and steep topography in this area, the closure and rerouting of pedestrian and bicycle travel routes could still cause unsafe conditions if the alternative routes are longer or are not suitable for walking or biking because of more steep or narrow roadways, such as the residential areas along Balboa Drive and Sayre Drive that may lose their direct connections to the Montclair Railroad Trail and to the Montclair Village. As a result, even with implementation of these mitigation measures, construction of the overhead power line rebuild could still create potentially hazardous conditions for residents, people walking or bicycling, or driving or for public transit operations; therefore, impacts would be significant and unavoidable.

Overhead Power Line Removal

LESS THAN SIGNIFICANT WITH MITIGATION. In addition to the impacts discussed above, the overhead power line removal would require the use of cranes; therefore, road closures may last up to approximately 10 consecutive working days (2 calendar weeks) primarily for the crane work activities on surface streets. In addition, a one-lane closure, lasting less than one day, would be required to install the guard structures. APMs TRA-1 and TRA-2, and FP-12 provided in Table 3.15-2 would be implemented to reduce traffic impacts, ensure that soil would not slip onto roadways, and require the restoration of roads and sidewalks.

Relative to other Project segments such as the overhead power line rebuild, this portion of the Project alignment is located closer to major roadways, allowing residents, pedestrian, and bicycle access to be rerouted without creating potentially hazardous conditions. However, APM TRA-1 does not require a TMP that would specify methods for minimizing construction effects on transportation facilities and services, address safety and access around schools, or require a minimum of 1-month advance coordination with local jurisdictions and agencies prior to construction. Potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations may nevertheless not be avoided without adequate planning and notification regarding how to safely navigate around closures and find safe alternative access routes, resulting in significant impacts without mitigation.

To reduce these impacts, MMs T-1a and N-1b would require PG&E to develop a TMP and provide at least 1-month advance notification to the public prior to construction to ensure potentially hazardous conditions are minimized related to safely navigating to alternative access routes. In addition, to ensure traffic conflicts between construction activities and school traffic are minimized thereby reducing potentially hazardous conditions for students walking or bicycling to schools, MM WF-1c would require that construction near schools occurs outside of school hours.

When considered in the context of the relatively lower risk presented by this Project segment, due to its proximity to major roadways, MMs T-1a, N-1b, and WF-1c would reduce impacts to a less-than-significant level. Therefore, with implementation of these mitigation measures, impacts would be less than significant.

Underground Power Line

LESS THAN SIGNIFICANT WITH MITIGATION. In addition to the impacts discussed above, construction of the underground power line would require temporary, short-term closures of one travel lane and one parking lane along Estates Drive, Park Boulevard, and Park Boulevard Way at various locations on the roads for the placement of vaults, trenching, and duct bank installation, with one lane remaining open to allow through traffic in each direction. Final lane closure plans would be determined following detailed investigations into existing utilities and final construction planning. APMs TRA-1 and TRA-2, and FP-12 provided in Table 3.15-2 would be implemented to reduce traffic impacts, ensure that soil would not slip onto roadways, and require the restoration of roads and sidewalks. Park Boulevard is concrete, and therefore, restoration of the entire street would be required after excavation (City of Oakland, 2025). For the restoration of concrete, the roadway would need to be closed for up to 3 days thereby requiring safe alternative access routes where potentially hazardous conditions would be minimized for people walking, bicycling, or driving or for public transit operations.

Relative to other Project segments such as the overhead power line rebuild, this portion of the Project alignment is located closer to major roadways, allowing residents, pedestrian, and bicycle access to be rerouted without creating potentially hazardous conditions. However, APM TRA-1 does not require a TMP that would specify methods for minimizing construction effects on transportation facilities and services, or a minimum of 1-month advance coordination with local jurisdictions and agencies prior to construction. Potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations may nevertheless not be avoided without adequate planning and notification regarding how to safely navigate around closures and find safe alternative access routes, resulting in significant impacts without mitigation.

To reduce these impacts, MMs T-1a and N-1b would require PG&E to develop a TMP and provide at least 1-month advance notification to the public prior to construction to ensure potentially hazardous conditions are minimized related to safely navigating to alternative access routes. In addition, to ensure traffic conflicts between construction activities and school traffic are minimized thereby reducing potentially hazardous conditions for students walking or bicycling to schools, MM WF-1c would require that construction near schools occurs outside of school hours.

When considered in the context of the relatively lower risk presented by this Project segment, due to its proximity to major roadways, MMs T-1a, N-1b, and WF-1c would reduce impacts to a less-than-significant level. Therefore, with implementation of these mitigation measures, impacts would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. O&M activities would not involve any new permanent design features or geometric alteration that could be hazardous for people walking, bicycling, or driving or for public transit operations because the overhead lines and structures would be in a similar configuration and alignment as the existing lines, with part of the lines being installed underground. Vault covers for the underground portion of the Project would be flush with the repaved roadway and would not present any hazards. As discussed under Impact T-1, because of the negligible increase in vehicle trips and infrequent work required within roadways, which would include implementation of traffic control and notification procedures, O&M activities would not create potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations. Therefore, impacts would be less than significant.

Mitigation Measures for Impact T-5

MM N-1b **Construction Notification.** See full text in Section 3.11 (Noise).

MM REC-3a **Coordinate with Park and Open Space management and provide signage, barriers, and monitors to ensure safety of trail and park users.** See full text in EIR Section 3.14 (Recreation).

MM REC-5a **Coordinate with recreation facility owners or managers to identify feasible alternatives and address damage to recreation assets.** See full text in EIR Section 3.14 (Recreation).

MM T-1a **Traffic Management Plan and Safe Transport.** See full text in Section 3.15.4 (Mitigation Measures).

MM WF-1c **School Session Construction Timing Restriction.** See full text in EIR Section 3.18 (Wildfire).

Evan with implementation of the above mitigation measures, impacts related to potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations would be ***significant and unavoidable*** for the overhead power line rebuild for the reasons explained above.

Impact T-6: Interfere with walking or bicycling accessibility.

Construction

Additional information about impacts on specific transportation facilities within each Project segment is provided under "Construction Activities Applicable to All Impacts."

Overhead Power Line Rebuild

SIGNIFICANT AND UNAVOIDABLE. Impacts on the use of recreational trails by pedestrians or bicyclists are discussed in Section 3.14, *Recreation*. As discussed under Impact T-5, construction of the overhead power line rebuild would require temporary road and/or lane closures, which would affect walking and bicycling accessibility. Construction would result in minor interference with walking or bicycling accessibility at

limited locations and for limited durations. However, APM TRA-1 does not require a TMP that would specify methods for minimizing construction effects on pedestrian and bicycle facilities, address safety and access around schools, or require a minimum of 1-month advance coordination with local jurisdictions prior to construction. Without appropriate detours and adequate notification, members of the public who rely on walking and bicycling for transportation (e.g., students at surrounding schools) could be substantially affected by this interference by having to navigate around closures and find alternative access routes, resulting in significant impacts without mitigation.

With implementation of MMs T-1a and N-1b, detours and adequate notification to the public would be required to minimize disruptions to pedestrian and bicycle access. MMs REC-3a and REC-5a would also require that alternative access routes be provided for pedestrians and bicyclists within trails and parks to minimize interference with accessibility in these areas, as well as require PG&E to coordinate with recreation facility owners and managers to reduce the use of pedestrian and bicycle facilities and restore access. In addition, to ensure traffic conflicts between construction activities and school traffic are minimized thereby reducing interference with access for students walking or bicycling to schools, MM WF-1c would require that construction near schools occurs outside of school hours.

Even with implementation of these mitigation measures, the closure and rerouting of pedestrian and bicycle travel routes could still cause unsafe conditions. Alternate routes would be longer and less suitable for walking or biking because of more steep or narrow roadways. This is especially true of the residential areas along Balboa Drive and Sayre Drive, which may lose their direct connections to the Montclair Railroad Trail and to Montclair Village. As a result, even with implementation of mitigation measures, construction of the overhead power line rebuild could still interfere with walking or bicycling accessibility; therefore, impacts would be significant and unavoidable.

Overhead Power Line Removal

LESS THAN SIGNIFICANT WITH MITIGATION. Relative to other Project segments such as the overhead power line rebuild, this portion of the Project alignment is located closer to major roadways, allowing residents, pedestrian, and bicycle access to be rerouted without creating potentially hazardous conditions. However, APM TRA-1 does not require a TMP that would specify methods for minimizing construction effects on pedestrian and bicycle facilities, address safety and access around schools, or require a minimum of 1-month advance coordination with local jurisdictions prior to construction. Without appropriate detours and adequate notification, members of the public who rely on walking and bicycling for transportation (e.g., students at surrounding schools) could be substantially affected by this interference by having to navigate around closures and find alternative access routes, resulting in significant impacts without mitigation.

When considered in the context of the relatively lower risk presented by this Project segment, due to its proximity to major roadways, MMs T-1a, N-1b, and WF-1c would reduce impacts to a less-than-significant level. Therefore, with implementation of these mitigation measures, impacts would be less than significant.

Underground Power Line

LESS THAN SIGNIFICANT WITH MITIGATION. Relative to other Project segments such as the overhead power line rebuild, this portion of the Project alignment is located closer to major roadways, allowing residents, pedestrian, and bicycle access to be rerouted without creating potentially hazardous conditions. However, APM TRA-1 does not require a TMP that would specify methods for minimizing construction effects on pedestrian and bicycle facilities, address safety and access around schools, or require a minimum of 1-month advance coordination with local jurisdictions prior to construction. Without appropriate detours and adequate notification, members of the public who rely on walking and bicycling for transportation (e.g., students at surrounding schools) could be substantially affected by this interference by having to navigate around closures and find alternative access routes, resulting in significant impacts without mitigation.

When considered in the context of the relatively lower risk presented by this Project segment, due to its proximity to major roadways, MMs T-1a, N-1b, and WF-1c would reduce impacts to a less-than-significant level. Therefore, with implementation of these mitigation measures, impacts would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. Overhead lines and structures would be in a similar configuration and alignment as the existing lines, with part of the lines being installed underground. Vault covers for the underground portion of the Project would be flush with the repaved roadway and would not present any hazards that could affect the safety and quality of pedestrian and bicycle infrastructure, thereby maintaining the public's ability to access and utilize this infrastructure. Sidewalks affected by construction would be repaired or replaced. As discussed under Impact T-1, because of the negligible increase in vehicle trips and infrequent work required within roadways, O&M activities would result in infrequent minor interference with walking or bicycling accessibility at limited locations. Therefore, impacts would be less than significant.

Mitigation Measures for Impact T-6

MM N-1b **Construction Notification.** See full text in Section 3.11 (Noise).

MM REC-3a **Coordinate with Park and Open Space management and provide signage, barriers, and monitors to ensure safety of trail and park users.** See full text in EIR Section 3.14 (Recreation).

MM REC-5a **Coordinate with recreation facility owners or managers to identify feasible alternatives and address damage to recreation assets.** See full text in EIR Section 3.14 (Recreation).

MM T-1a **Traffic Management Plan and Safe Transport.** See full text in Section 3.15.4 (Mitigation Measures).

MM WF-1c **School Session Construction Timing Restriction.** See full text in EIR Section 3.18 (Wildfire).

Even with implementation of mitigation measures, impacts on walking and biking accessibility would remain ***significant and unavoidable*** for the overhead power line rebuild for the reasons explained above.

Impact T-7: Substantially delay public transit.

Construction

SIGNIFICANT AND UNAVOIDABLE. Temporary lane closures during Project construction could temporarily result in the loss of access to the AC Transit's Lines V and ~~33~~ 18 and their bus stops along Park Boulevard, as well as AC Transit's Line 642 and its bus stops along Snake Road, Shepherd Canyon Road, and Arrowhead Drive. To address the loss of access to these bus stops, temporary bus stops could be set up in coordination with AC Transit when the stops could not be safely accessed during construction. If full closures are necessary, detour routes using nearby roadways suitable for bus turning movements would be required to be identified in coordination with AC transit.

As discussed under Impact T-5, construction of the Project would result in additional vehicle traffic and require temporary road and/or lane closures, which would affect some public transit operations. Temporary lane closures during Project construction could temporarily result in the loss of access to the AC Transit's Lines V and ~~33~~ 18 and their bus stops along Park Boulevard, as well as AC Transit's line 642 and its bus stops along Snake Road, Shepherd Canyon Road, and Arrowhead Drive. If full closures are necessary, detour routes using nearby roadways suitable for bus turning movements would be required to be identified in coordination with AC transit.

Temporary bus stops could be set up in coordination with AC Transit if stops adjacent to the construction area could not be safely accessed during construction. Construction details are not known at this time to determine specific temporary bus stop locations or durations. However, bus stops may need to be moved temporarily up to several hundred feet and the duration would be up to approximately 2 weeks during vault installation and approximately 1 week during duct bank installation. If cable pulling or cable splicing requires a temporary work area at an existing bus stop location, the temporary relocation of the bus stop would be approximately 12 days and 20 days, respectively. It is anticipated that bus stop locations can be avoided for these construction activities. Paving would require temporary relocation for approximately 2 days. Detailed measures for temporary bus stop relocation would be developed in coordination with transit agencies but could include postings of notices and appropriate signage of construction activities with construction schedule, the exact location and duration of activities at each bus stop, and a tollfree telephone number for receiving questions or complaints.

~~As described in Section 3.15.1.4, p~~Potential bus stop closures or relocations on Park Boulevard could affect up to 11 buses per hour that use Park Boulevard during the weekday peak commute periods and 385 riders that use the bus stops on this segment of Park Boulevard to board or alight Lines ~~33~~ 18 or V on a typical weekday. During potential bus stop closures, these riders may need to use other existing or relocated bus stops. In addition, up to 2,180 riders on Lines ~~33~~ 18 or V could be affected by increased bus travel times due to potential lane closures, bus route detours, equipment moving across the roadway, or other construction events. Buses traveling along the affected segment of Park Boulevard would directly experience the delay and increased travel time. However, the delay along Park Boulevard could also affect the schedule for the entire bus line and affect all riders on these bus lines during the construction period.

Potential bus stop closures or relocations on Snake Road, Shepherd Canyon Road, and Arrowhead Drive could affect up to 50 riders of Line 642. During potential bus stop closures, these riders may need to board or alight at other existing or relocated bus stops. Considering that Line 642 operates only one bus at the end of the school day on weekdays, potential delays are expected to have minimal impacts on overall bus schedules and travel times.

Impacts would be temporary and would be reduced through implementation of APM TRA-1, which requires obtaining all necessary road permits, including encroachment permits, complying with applicable conditions of approval, providing a Traffic Control Plan to and applying for any permits required by the cities of Oakland, Piedmont, and Orinda, and consulting with AC Transit and other affected transit agencies to reduce potential interruption of transit services. However, because APM TRA-1 does not require a TMP specifying methods for minimizing construction effects on public transit services, or a minimum of 1-month advance coordination with local jurisdictions and transit agencies prior to construction, delays in public transit operations may not be avoided, resulting in significant impacts without mitigation. To reduce these impacts, as required by MM T-1a, PG&E would develop a TMP in accordance with the requirements of jurisdictions and local agencies in the Project area; and MM N-1b would require that at least 1-month advance notification be provided to the public and relevant agencies prior to construction. The implementation of MMs T-1a and N-1b would reduce the magnitude of the impact. However, construction details are not known at this time to determine the locations, duration, or feasibility of specific bus stop closure or relocation or bus rerouting. As a result, Project construction could interfere with transit operations and substantially delay public transit services. Therefore, impacts would be significant and unavoidable.

Operations and Maintenance

LESS THAN SIGNIFICANT. Overhead lines and structures would be in a similar configuration and alignment as the existing lines, with part of the lines being installed underground. O&M activities may require occasional lane closures along Park Boulevard (for example, because of a major repair to an underground vault, if needed). As discussed under Impact T-1, because of the negligible increase in vehicle trips and infre-

quent work required within roadways, which would include implementation of traffic control and notification procedures, O&M activities would not substantially delay public transit services. Therefore, impacts would be less than significant.

Mitigation Measures for Impact T-7

MM N-1b **Construction Notification.** See full text in Section 3.11 (Noise).

MM T-1a **Traffic Management Plan and Safe Transport.** See full text in Section 3.15.4 (Mitigation Measures).

Even with implementation of mitigation measures, impacts on public transit would remain ***significant and unavoidable*** during construction.

3.15.4. Mitigation Measures

MM N-1b **Construction Notification.** See full text in EIR Section 3.11 (Noise).

MM REC-3a **Coordinate with Park and Open Space management and provide signage, barriers, and monitors to ensure safety of trail and park users.** See full text in EIR Section 3.14 (Recreation).

MM T-1a **Traffic Management Plan and Safe Transport.** PG&E shall prepare a Traffic Management Plan (TMP) for ~~approval~~ review by local jurisdictions and agencies within the Project area at least 3 months prior to any construction activities requiring heavy vehicle and equipment traffic on public roadways or full or partial closure of public streets. Documentation of coordination with local jurisdictions and agencies issuing encroachment or traffic control permits will be provided to the CPUC at least 1 month prior to construction associated with the permit. Local jurisdictions and agencies may include ~~but are not limited to~~ Contra Costa County, Alameda County, City of Orinda, City of Piedmont, City of Oakland, EBMUD, EBRPD, ~~and~~ AC Transit, Caltrans, or others where appropriate. The TMP must be ~~approved~~ reviewed by local jurisdictions and agencies ~~at least 1 month~~ prior to construction, ~~with~~ which may occur separately from the approval process ~~expected to occur through~~ associated with the issuance of road encroachment or traffic control permits prior to construction. The TMP shall establish methods for minimizing construction effects on roadways, transit services, pedestrian facilities, and bicycle facilities; and address staging areas, haul routes, types of equipment anticipated to be used, timing of heavy equipment and material deliveries, workers and equipment parking, potential street or lane closures, alternative routes and detours, signing, lighting, temporary relocation or closure of bus stops, and traffic control device placement to minimize disruption and ensure safe and efficient traffic flow. The TMP shall include measures for directing delivery and haul trucks away from sensitive receptor locations (e.g., residential neighborhoods, schools) and congested intersections during construction, where reasonably feasible. The TMP shall identify routes that minimize driving of delivery and haul trucks through sensitive receptor locations as feasible. The TMP shall also establish the timing and method for notifying emergency service providers regarding Project activities and notifying the public, including wayfinding signage, regarding full or partial closure of public streets, detours, and alternative routes for various travel modes including relocated or closed bus stops.

The Traffic Management Plan shall include a separate section entitled "Safe Transport." This section shall define the following components:

- A list of all residences (by street address) that could have access blocked by construction equipment or activities and that have no alternate or secondary routes for entry or egress (see EIR Table 2.3-6).
- A defined outreach effort (stating the frequency, method, and intended audience for outreach, such as the general public or a targeted community) that identifies one or more contacts within each household to define likely transport needs during the construction timeline, including consideration of family size and age (and whether car seats or pet carriers are needed), disability or special needs, and timing of typical daily ingress and egress needs. Based on the result of the outreach efforts, PG&E shall prepare transport plan and provide all requested transport during the construction activity.
- A written communication plan to be provided to each affected household prior to the start of each week's construction that describes the anticipated daily construction activities, the specific location and type of activity, and the resulting constraints on household vehicle use.

MM WF-1c **School Session Construction Timing Restriction.** See full text in EIR Section 3.18 (Wildfire).

3.15.5. References

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_____, 2024b. *Transmission Owner Maintenance Practices for Electrical Overhead Power Lines*.

3.16. Tribal Cultural Resources

This section provides information on Tribal Cultural Resources (TCRs), a defined class of resources under state law Public Resources Code section 21074. TCRs include sites, features, places, cultural landscapes, and sacred places or objects that have cultural value or significance to a California Native American Tribe. To qualify as a TCR, the resource must either: (1) be listed on, or be eligible for listing on, the California Register of Historical Resources (CRHR) or other local historic register as defined in Public Resources Code section 5020.1 subdivision (k); or (2) be 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 Section 5024.1.. Native American tribes that are traditionally and culturally affiliated with a geographic area can provide lead agencies with expert knowledge of TCRs.

This section of the EIR also describes the Assembly Bill (AB) 52 consultation process, the results of that process, and potential impacts of the Project related to TCRs. Assembly Bill (AB) 52 (Gatto) requires that the CEQA Lead Agency send a formal notice and invitation to consult about a proposed project to all California Native American tribes who have requested such notice and are traditionally and culturally affiliated with the geographic area of a proposed project. The purpose of this consultation is to obtain tribal information and direction related to the potential significant effects on TCRs that may result from a project (PCR §21080.3.1(d)). Consultation must include discussion of specific topics or concerns identified by Tribes.

The following discussion is based on the Proponent's Environmental Assessment (PG&E, 2024), the cultural resources technical report prepared for PG&E for the Project, titled Cultural Resource Identification and Evaluation Report for the Moraga-Oakland X 115 kV Rebuild Project (Jacobs, 2024), and the results of AB 52 consultation efforts.

The scoping effort conducted by CPUC from February 25 through March 27, 2025, resulted in several public comments and concerns relating to Tribal Cultural Resources. Concerns communicated in the scoping process that are related to Tribal Cultural Resources and were considered in the analysis below include:

- Must provide Notice of Completion of an application/decision to undertake the project to a tribal representative of California Native American tribes that have requested notice.
- Must begin consultation process within 30 days of receiving a request for consultation from a California Native American tribe.
- Require discussion of mandatory topics of consultation if requested by a tribe.
- Recommend discussion of discretionary topics of consultation.
- Require confidentiality of information submitted by a tribe during the environmental review process.
- Require discussion of impacts to Tribal Cultural Resources in the environmental document.
- Conclude consultation with a tribe when parties agree to measures to mitigate or avoid a significant effect, or a party acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.
- Recommend mitigation measures agreed upon in consultation.
- Require feasible mitigation pursuant to Public Resources Code section 21084.3(b).
- Recommend mitigation measures that may be considered to avoid or minimize significant adverse impacts to Tribal Cultural Resources.
- Require meeting prerequisites for certifying an EIR or adopting a Mitigated Negative Declaration/ Negative Declaration with a significant impact on a Tribal Cultural Resource.
- Require consulting with the appropriate tribes identified by the NAHC by requesting a Tribal Consultation List.

- Conclude SB 18 tribal consultation when parties come to a mutual agreement concerning mitigation measures or the local government or tribe concludes that mutual agreement cannot be reached.

The above comments are addressed through CPUC's AB 52 and Tribal outreach process, which is described in more detail below. Please note that SB 18 does not apply to this Project.

3.16.1. Environmental Setting

Precontact Setting

The following is based on the PEA (PG&E, 2024) and the cultural resources technical study prepared by Jacobs Engineering (Jacobs, 2024) unless otherwise cited.

Early archaeological investigations in the Bay Area began in the early 20th century with Nels Nelson's work in 1907 and 1908, during which he identified over 400 sites, including shell heaps, earth mounds, and temporary camp locations. His research documented more than 100 shellmounds along the Alameda and Contra Costa County shorelines and mapped 18 sites in San Francisco County. Among the most significant sites for studying cultural change, the transformation over time in the material culture, behavior, social organization, or belief systems of a human group, as inferred from the archaeological record, were the Emeryville Shellmound in Alameda County and the Ellis Landing and Fernandez sites in Contra Costa County.

Around the same time, archaeologist Llewellyn L. Loud surveyed and mapped several mounds in the northern Santa Clara Valley. Many of these sites, located within Rancho Posolmi, had already been damaged or destroyed due to farming and construction. His excavation of the Castro Mound, also known as the Ponce site, was among the most extensive in the area, uncovering a large midden, two house floors, and 61 burials, many of which contained mortuary offerings. His findings also revealed differences in the types and quantities of shellfish remains compared to other Bay Area mounds.

These early studies along the northern, eastern, and southern shores of the Bay Area laid the foundation for understanding cultural change in the region, including the Sacramento–San Joaquin Delta. They contributed to the development of the Central California Taxonomic System (CCTS), which classifies cultural history into three broad periods—Early, Middle, and Late—based on distinct artifact types, subsistence strategies, and settlement patterns. Over time, this classification system has been refined to reflect regional cultural traditions more accurately.

Early Period (11,000-5,500 years Before Present)

Archaeological evidence of human occupation in the Bay Area prior to 6,000 years ago is limited, as sea levels during the Early Holocene were significantly lower than they are today. Many prehistoric sites may have been buried beneath rising sea levels and thick Holocene alluvial deposits, which in some areas reach depths of up to 33 feet (10 meters). One of the oldest known cultural deposits in the region was discovered in the Coyote Narrows, near the Metcalf Road and U.S. Highway 101 overcrossing at Tulare Hill in Santa Clara County. The Metcalf site, found more than 10 feet below the surface at the mouth of Metcalf Creek, contains an occupation layer dating back more than 11,000 years.

Another significant early site, known as CA-SCL-65, contained two flexed burials beneath cairns of millingstones, dating back approximately 7,500 to 7,000 years ago. Along the coast of Santa Cruz County, the Sand Hill Bluff Shellmound and other sites associated with the Millingstone Pattern are characterized by large quantities of handstones, milling slabs, and flake tools, suggesting a subsistence strategy focused on plant processing.

In contrast, sites associated with the Windmiller Pattern, commonly found in the Sacramento Valley and Sacramento–San Joaquin Delta, contain a variety of distinctive artifacts, including grinding stones, mortars, large obsidian projectile points, rectangular shell beads, charmstones, and burials with a characteristic

westerly orientation. Artifacts from sites in the South Bay peninsula, such as projectile points and shell beads from a site in the Los Altos foothills, suggest that elements of the Windmiller Pattern were also present in the region. Some researchers propose that around 4,500 years ago, migrations into the Bay-Delta region may have introduced the Windmiller cultural tradition, potentially displacing earlier inhabitants.

Middle Period (5,500 – 1,000 years BP)

The Berkeley Pattern was widespread across the Bay Area during the Late Holocene. Some of the earliest sites associated with this cultural pattern, the recurring, identifiable set of material traits, behaviors, technologies, and practices shared by a human group across time and space, date to the same period as the Windmiller Pattern, including the lower levels of the West Berkeley site in Alameda County and the University Village site in San Mateo County. Artifacts characteristic of the Berkeley Pattern include spire-lopped Olivella shell beads, bone tubes and beads, bird-bone whistles, quartz crystals, serrated mammal scapulas, and ground bone awls. Projectile points are commonly contracting stemmed and lanceolate in shape, with some crafted from obsidian. Burial practices varied, with flexed and semi-flexed interments lacking a consistent orientation. Compared to earlier periods, there was an increase in mortuary offerings, particularly during the late Middle Period.

Milling tools from this period include large and small boulder or cobble mortars and various types of pestles, suggesting that acorns and small seeds were dietary staples. In the South Bay, the processing of hard seeds remained an essential practice, as evidenced by the abundance of milling slabs and handstones recovered from archaeological sites. Other important plant resources included hazelnuts, cattail seeds, grasses, and soaproot bulbs, which were often roasted in earth ovens. Faunal remains indicate a diverse diet, consisting of small and large mammals, fish, birds, and shellfish such as mussels, oysters, and clams. The types of shellfish utilized varied by location, with bay mussels, oysters, and clams more common along the West and East Bay shorelines, while horn snails, oysters, and bay mussels were predominant in the South Bay.

Over centuries, the accumulation of shellfish remains led to the formation of large shellmounds at village sites along the Bay. These mounds, built up over hundreds or even thousands of years, served as seasonal or permanent habitation sites and were often used for burials and ceremonies. Many contain numerous burials, ceremonial artifacts, house floors, hearths, and storage pits, indicating their significance in both daily life and ritual practices.

Later Period (1,000 years BP – Historic Contact)

The Augustine Pattern follows the peak of the Berkeley Pattern, often referred to as the "golden age of shell mound communities." This period is marked by significant changes in subsistence strategies, foraging practices, and land use, beginning to resemble those of Native American groups documented in the Historic Period. Key technological advancements include the introduction of the bow and arrow, the use of harpoons, and the appearance of tubular tobacco pipes. As populations grew, subsistence practices became more intensive, with an increased emphasis on the collection and processing of plant foods, particularly acorns. This shift is reflected in the widespread use of milling tools, especially mortars and pestles. Both coiled and twined basketry were common, serving both practical and ceremonial purposes.

During this time, population levels and the number of settlements increased, but the large shellmound villages characteristic of the Berkeley Pattern were largely abandoned as primary residential sites. This transition may be linked to the Medieval Climatic Anomaly, a period of prolonged droughts between approximately A.D. 650–850 and A.D. 1150–1250, which likely influenced settlement patterns. In response, habitation strategies shifted to a more dispersed model, with communities occupying both coastal and inland sites to take advantage of seasonally available resources.

Trade goods such as magnesite, steatite, Olivella shell beads, and obsidian circulated more widely. Compared to earlier periods, the presence of shell beads in burial contexts increased significantly, suggesting their growing importance in social and economic systems. The high concentration of non-dietary Olivella shells in coastal sites, along with their increased presence in burial sites across Central California, reflects the development of extensive trade networks, with coastal groups supplying these valuable materials to interior communities.

Ethnographic Setting

The following is based on the PEA (PG&E, 2024) and the technical study prepared by Jacobs Engineering (Jacobs, 2024) unless otherwise cited. The Project site lies at the boundary between the ethnographic territories of the Ohlone- (also known as Costanoan) and the Bay Miwok- speaking tribal groups, with the Ohlone inhabiting the western portion of the bay area and the Bay Miwok residing in the eastern portion of the bay area, including the project area. The following subsections provide ethnographic backgrounds for both groups.

Ohlone (Costanoan)

The western section of the Project area falls within the traditional territory of the Ohlone, also known as Costanoan people. More specifically, this land was historically occupied by the Huchiun subgroup of the Costanoans, who resided in the Huchiun-Southern tribal region. At the time of initial European contact, the Huchiun-Southern tribal region is estimated to have supported a population of approximately 360 individuals. Despite the profound disruptions caused by introduced diseases and the Spanish mission system, followed by displacement due to non-native settlers, the Ohlone people persist in their traditional lands within Contra Costa and Alameda counties. Many continue to practice their cultural traditions and play active roles in local planning and development projects, serving as consultants and construction monitors to safeguard their cultural heritage and sacred resources.

Knowledge of traditional Ohlone life has been preserved through early European accounts, Spanish mission records, linguistic studies, and archaeological research. Historical sources suggest that the Ohlone traditionally lived in approximately 40 independent tribelets, each consisting of multiple villages. These tribelets were led by a chief and a council of elders, with villages composed of extended family households averaging around 15 people. Social organization was primarily patrilineal, and interactions between tribelets were complex.

Ohlone religious beliefs center on ceremonial offerings and shamanic practices, with supernatural mediation conducted by tribal spiritual leaders. Their mythology, which parallels that of neighboring Coast Miwok, Pomo, Wappo, and Patwin peoples, positions Coyote as a central figure responsible for the creation of the world and the guidance of tribal members in the afterlife. The landscape itself is imbued with spiritual significance, reinforcing local sovereignty through myth and ritual.

The Ohlone traditionally constructed thatched, domed shelters using laurel branches, tule, grass, willow boughs, and ferns. They also built sweathouses dug into creek banks and circular dance floors for ceremonial activities. Basketry, both coiled and twined, played an essential role in daily life, serving as storage containers, cooking tools, and fish traps, often adorned with feathers, shell beads, mica, and ocher. Stones were used to line fire pits and craft tools such as pestles and scrapers. Chert was a common material for sharp-edged tools, supplemented by obsidian obtained through trade.

Distinct technological differences existed between the Ohlone groups in the San Francisco Bay Area and those in the Monterey region, with variations in lithic tool types being particularly notable. Feathered ceremonial items, including robes, staffs, and weaponry, were crafted for both spiritual and secular uses. Tule canoes (balsas) enabled navigation through marshland channels, facilitating trade and resource gathering. Gender roles shaped daily tasks: women were primarily responsible for harvesting plant resources and weaving baskets, while men focused on hunting, fishing, and constructing animal traps.

The Ohlone first encountered Spanish explorers in 1602 when Sebastián Vizcaíno landed in Monterey. More sustained contact with the San Francisco Bay Ohlone began with the Portolá Expedition of 1769, followed by expeditions led by Fages, Anza, Rivera, and Moraga. Although these early interactions were likely brief, they soon became permanent and deeply impactful with the establishment of the California mission system. Between 1769 and 1797, seven Catholic missions were founded in Ohlone territory, including those in San Francisco, San Jose, and Santa Clara. By 1810, most indigenous people in the Bay Area had been forcibly integrated into the missions, resulting in the widespread abandonment of traditional lifestyles.

The mission system severely impacted the Ohlone population, leading to an 80% decline from an estimated 10,000 individuals in 1770 to just 2,000 by 1832. This decline was driven by factors including decreased birth rates and exposure to foreign diseases against which indigenous Californians had little immunity. The California missions forcibly assimilated indigenous northern Californian peoples from different linguistic and cultural backgrounds, fracturing tribal identities and traditions and disrupting the preservation of distinct cultural practices. By the time the mission system was dismantled in 1834, only 37 of the 190 Native Americans registered at Mission Dolores were identified as descendants of the original Ohlone inhabitants of the San Francisco Peninsula.

Despite these hardships, thousands of indigenous people today trace their ancestry to the Ohlone and other San Francisco Bay Costanoan-speaking groups. The resilience of the Ohlone people is reflected in their continued cultural presence and participation in efforts to preserve and honor their heritage.

Bay Miwok

The eastern side of the project area is in the ethnographic territory of the Bay Miwok (also spelled Miwuk) who historically occupied the eastern portion of Contra Costa County near Mount Diablo, from Walnut Creek in the west, to the Sacramento–San Joaquin Delta in the east. They are one of five Eastern Miwok tribes (Bay, Plains, Northern Sierra, Central Sierra, and Southern Sierra) whose Eastern Miwok language derives from the Miwokan branch of the Utian language family, a subgroup of Penutian linguistic group. Specifically, the eastern portion of the project was occupied by the Saclan subgroup, constituted of roughly 250 individuals at the time of European contact.

The Eastern Miwok social structure was organized around language and ethnicity, with villages divided into “tribelets.” These tribelets controlled specific territories and their natural resources. The total Bay Miwok population at the time of contact is estimated to have been around 1,700. Each tribelet was an independent political unit with a defined territory, where they set up seasonal camps for hunting and gathering activities. Villages typically consisted of thatched structures with conical frames, along with acorn granaries, winter grinding houses, and sweathouses.

The Eastern Miwok primarily relied on gathering wild foods and hunting mammals for sustenance. They practiced controlled burning to ensure sufficient forage for species like mule deer, tule elk, and antelope. Plant foods, particularly acorns, were crucial to their diet, with several varieties of acorns being used. Other collected nuts included buckeye, laurel, hazelnut, digger pine, and sugar pine. Oak trees, from which acorns were gathered, were carefully preserved by the Eastern Miwok. In addition to acorns, they hunted rabbits, fished for salmon, and gathered other resources such as valley quail and live oak acorns. Shellfish like California mussel, Olympia oyster, and bent-nose clam were gathered from the Bay estuary.

The Eastern Miwok traditionally used a variety of tools and implements for hunting, fishing, and gathering. They employed bows and arrows, snares, traps, and nets for hunting land mammals and birds. For fishing, they crafted canoes from tule, balsa, or logs, and used harpoons, hooks, nets, and basketry traps. For gathering plants, they used sharpened digging sticks, long poles for dislodging acorns and pinecones, and woven tools such as seed beaters and carrying nets.

Foods were traditionally processed using tools like bedrock mortars, cobblestone pestles, anvils, and portable stone or wooden mortars to grind acorns and seeds. Additional tools included knives, leaching baskets, woven parching trays, strainers, and winnowers. Acorns were stored in village granaries before processing, and earth ovens were used to bake acorn bread. The Eastern Miwok also traditionally participated in a vast trade network between the coast and the Great Basin, exchanging marine shells like Olivella and abalone.

The Bay Miwok was the earliest of the Eastern Miwok groups to be missionized, arriving at Mission San Francisco beginning in 1794. Many Bay and Plains Miwok tribelets died or relocated as a result of encroachment, conversion, and epidemic disease. Population decline and disruption of cultural practices were exacerbated by the 1848 discovery of gold in the western Sierra Nevada foothills and the ensuing Gold Rush, which led to a flood of non-indigenous peoples into Miwok territory. During the first half of the 1900s, the federal government established reservations, or rancherias, which Eastern Miwok were relocated to.

Despite these hardships, many indigenous people today trace their ancestry to the Bay Miwok and other Eastern Miwok tribes. The resilience of the Bay Miwok people is reflected in their continued cultural presence and participation in efforts to preserve and honor their heritage.

Historic Context

For detailed information on the historic period setting, please refer to Section 3.5, Cultural Resources.

Record Search and Survey Results

A search of PG&E's California Cultural Resource Database (CCRD) was conducted in November 2023. The CCRD includes PG&E's in-house records and California Historical Resources Information System records on file at the Northwest Information Center, Sonoma State University in Rohnert Park (PG&E, 2024). The records search covered a 0.25-mile buffer area on the archaeological area of potential impact (API or Project area). The API is defined as all proposed locations of ground disturbance including laydown areas and staging areas, aboveground usage areas along the power lines, and access roads proposed as part of the Project and includes a 150-foot radius beyond all Project elements and areas of ground disturbance. The entire archaeological Project area encompasses 636.98 acres, and the vertical limits extend up to approximately 30 feet below the existing ground surface for new structure foundations. Excavation for utility installation will extend up to approximately 13 feet below surface (PG&E, 2025; Jacobs, 2024).

The CCRD search indicates that 109 cultural resource investigations have been previously conducted within 0.25 mile of the Project area. Twenty-two of these past investigations are regional or thematic studies that did not include focused surveys. Of the 87 remaining cultural resource studies, 59 included surveys or other focused investigations of portions of the Project alignment, covering approximately 60 percent of the total Project area. They were completed between 1974 and 2023 (PG&E, 2024).

The CCRD records search also indicates that 97 cultural resources have been previously recorded within the 0.25-mile record search radius. Most are historic age structures. Of these, 31 are plotted within the Project area. They include two PG&E substations (Oakland X Substation [(P-01-000861] and Moraga Substation [P-07-004686]), the Moraga Substation Transformer House (P-07-004687), the Sibley Volcanic Regional Preserve Historic District (P-07-004486), the Contra Costa-Moraga Transmission Line (P-07-004688), an abandoned railroad segment (TSP-01H), and numerous private residences, commercial properties, and other utilities. Of the 66 resources outside the direct Project area but within 0.25 mile, all but one resource are historic age built environment resources. The exception is an informally recorded bedrock mortar on an agate rock formation (PG&E, 2024; Jacobs, 2024). Background research finds that no TCRs designated for local listing in the City of Orinda, Contra Costa County, the City of Oakland, or the City of Piedmont, are present with the Project area (PG&E, 2024).

An archaeological survey of the Project area was conducted by Jacobs archaeologist, Katie Jacobson, between December 11 and 13, 2023. Since a portion of the Project area is hardscaped, the survey targeted East Bay Regional Park District (EBRPD) lands on the northeastern side of the Project area where the ground surface is exposed. Approximately 93 percent (78.98 acres) of the total survey area (85.4 acres) was intensively surveyed. These areas were surveyed using transects spaced no greater than 15 meters apart. Approximately 7 percent (6.36 acres) of the survey area was surveyed at a reconnaissance level due to dense vegetation and steep slopes. Less than 1 percent (0.06 acre) of the survey area was not surveyed because of fencing around private property that prevented access (PG&E, 2024; Jacobs, 2024).

No previously unrecorded archaeological or other cultural resources were identified within the survey area during the field survey (PG&E, 2024; Jacobs, 2024).

Buried Archaeological Sensitivity

Review of recent geologic maps and data produced by the Dibblee Geological Foundation (Dibblee and Minch 2005) finds that the Project area is underlain primarily by a mix of surficial sediments (Qa) from the Holocene (present day to 10,000 years ago), material from the Orinda Formation (Tor/Tbm) from the Pliocene (2.6 to 5.3 million years ago [mya]), material from the Monterey Formation (Tm) dating to the Miocene (5.3 to 23 mya), and marine clastic material (Tes) from the Eocene (33 to 56 mya).

The Soil Survey Geographic Database maintained by the United States Department of Agriculture, Natural Resources Conservation Service indicates that soils of Early Pleistocene age (1.9 million to 25,000 years ago) or older have formed on the underlying geology. These include soils of the Diablo, Los Osos, and Millsholm Complexes, Urban Land, and Xerorthents (PG&E, 2024).

As noted in recent geoarchaeological studies completed for Caltrans District 4, which includes Alameda and Contra Costa counties, as well as other studies, discovery of buried sites depends on numerous factors, not just the age of the underlying landform. These include distance from watercourses, micro-topographic variations (for example, the presence of buried stream channels, former sloughs, springs, or natural levees), proximity to known archaeological sites, and the extent and severity of past disturbances (PG&E, 2024; Jacobs, 2024). Currently, the Project area spans five named creeks, and one Native American resources was identified via the record search within the 0.25-mile study area buffer. Water courses in general, including current and historic creeks, are considered highly sensitive for Tribal Cultural Resources. In addition, roughly three-quarters of the southwestern Project area has been partially cleared, leveled, and developed for residential and commercial uses, roadway construction, and utility installation (PG&E, 2024). Lastly, PG&E has indicated that the closest ground disturbing activity to a creek (Cobbledick Creek) will be approximately 40 feet away for one rebuilt powerline structure (PG&E, 2025). Based on this information, the likelihood of encountered unknown buried Native American archaeological resources is considered moderate.

NAHC Sacred Lands File Search

On behalf of CPUC, Aspen Environmental Group submitted a Sacred Lands File (SLF) request to the NAHC on December 3, 2024. A response was received from the NAHC on January 7, 2025, which stated the results of the SLF search were negative. Additionally, the NAHC provided a list of tribal contacts for Alameda and Contra Costa counties, which included individuals for the following 18 tribes:

- Amah Mutsun Tribal Band
- Amah Mutsun Tribal Band of Mission San Juan Bautista
- Buena Vista Rancheria of Me-Wuk Indians
- Calaveras Band of Mi-Wuk Indians
- Chicken Ranch Rancheria of Me-Wuk Indians
- Confederated Villages of Lisjan Nation
- Costanoan Rumsen Carmel Tribe
- Guidiville Rancheria of California
- Indian Canyon Mutsun Band of Costanoan
- Ione Band of Miwok Indians
- Jackson Rancheria Band of Miwuk Indians

- Muwekma Ohlone Tribe of the SF Bay Area
- Nashville Enterprise Miwok-Maidu-Nishinam Tribe
- Northern Valley Yokut / Ohlone Tribe
- Pakan'yani Maidu of Strawberry Valley Rancheria
- The Ohlone Indian Tribe
- Wilton Rancheria
- Wuksachi Indian Tribe/Eshom Valley Band

Applicant's Outreach to Tribes

Previously, Jacobs' Senior Archaeologist, Tim Spillane, contacted the NAHC requesting a SLF search of the Project area on December 1, 2023. The NAHC's response, dated December 4, 2023, stated that no Native American sacred sites are documented within the Project area. The NAHC also provided a list of 25 individual Native American contacts who may have knowledge about archaeological resources and TCRs in the area (PG&E, 2024).

On behalf of PG&E Senior Cultural Resource Specialist, Christophe Descantes, Jacobs sent an initial outreach letter on January 9, 2024, to the contacts listed by the NAHC in 2023. This letter included information about the proposed Project, cultural resource findings to date, and a map showing the Project location. The letter also invited comments or questions relating to the Project. Hard copies were sent to the addresses provided by the NAHC, along with electronic copies sent via email. To date, two responses have been received (PG&E, 2024). Additional information on tribal outreach completed in support of the Project is provided in Table 3.16-1.

Table 3.16-1. Summary of the Native American Outreach Efforts by Applicant

Native American Tribes	Contact	Date of Letter	Response/Date
Amah Mutsun Tribal Band of Mission San Juan Bautista	Irene Zwierlein	January 9, 2024	No response
Chicken Ranch Rancheria of Me-Wuk Indians	Lloyd Mathiesen	January 9, 2024	No response
Confederated Villages of Lisjan Nation	Corrina Gould	January 9, 2024	Tribal Chair, Corrina Gould, replied via email on 01/10/2024 requesting record search results, SLF search results, project archaeological reports, and the final environmental document for the project. Mr. Spillane replied via email on 01/11/2024 providing the SLF results and a summary of cultural resource findings to date. Ms. Gould was told that the other cultural documenta-tion would be sent when finalized.
	Cheyenne Gould	January 9, 2024	Tribal Cultural Resource Manager, Cheyenne Gould, replied via email on 04/10/2024, to confirm whether the cultural resource documents had been finalized. Mr. Spillane replied via email on the same day, confirming that they were still being drafted but would be provided when complete.
	Deja Gould	January 9, 2024	No response
Guidiville Rancheria of California	Bunny Tarin	January 9, 2024	No response
	Michael Derry	January 9, 2024	No response
Indian Canyon Mutsun Band of Costanoan	Kanyon Sayers-Roods	January 9, 2024	No response
	Ann Marie Sayers	January 9, 2024	No response
Muwekma Ohlone Indian Tribe of the San Francisco Bay Area	Monica Arellano	January 9, 2024	No response

Native American Tribes	Contact	Date of Letter	Response/Date
Nashville Enterprise Miwok-Maidu-Nishinam Tribe	Leland Valdez	January 9, 2024	No response
	Cosme Valdez	January 9, 2024	No response
Northern Valley Yokut / Ohlone Tribe	Timothy Perez	January 9, 2024	No response
	Jessica Murga	January 9, 2024	No response
	Erolinda Perez	January 9, 2024	No response
	John Murga	January 9, 2024	No response
The Ohlone Indian Tribe	Vincent Medina	January 9, 2024	No response
	Andrew Galvan	January 9, 2024	Chairperson, Andrew Galvan, responded via email on 01/09/2024 requesting the cultural resources assessment, any related documentation when completed, and final archaeological recommendations for the project. He also requested the NAHC's response letter and list of tribal contacts. Mr. Spillane replied via email on 01/10/2024, providing the requested NAHC response letter and tribal contact list, as well as a summary of cultural resource findings to date. Mr. Galvan was told that the other cultural documentation would be sent when finalized.
	Desiree Vigil	January 9, 2024	No response
Wilton Rancheria	Herbert Griffin	January 9, 2024	No response
	Dahlton Brown	January 9, 2024	No response
	Cultural Preservation Department	January 9, 2024	No response
Wuksachi Indian Tribe/Eshom Valley Band	Kenneth Woodrow	January 9, 2024	No response

Project Notification

AB 52 Notification

CEQA requires lead agencies to consult with all California Native American tribes that have traditional and cultural affiliation with the geographic area of a project, and that have previously requested consultation. To invoke an agency's requirement to consult under CEQA, a tribe must first send the lead agency a written request for formal notification of any projects within the geographic area with which they are traditionally and culturally affiliated. (Pub. Resources Code, § 21080.3.1(b)). To date, one tribe, the Costoanoan Rumsen Carmel Tribe, has requested formal notification from the CPUC for projects within the counties the Project spans. The CPUC mailed a hard copy letter via USPS Certified Mail, and emailed a copy of the AB 52 request letter, to the Costoanoan Rumsen Carmel Tribe on December 13, 2024, indicating the tribe had 30-days to respond in writing to request to consult under AB 52.

Courtesy Tribal Outreach Notification

Additionally, per CPUC's Tribal Consultation Policy, courtesy tribal outreach letters were sent to the individual contacts listed in the NAHC contact list provided by the NAHC on January 7, 2025. Courtesy tribal outreach letters were emailed to those contacts where an email address was provided on January 13, 2025. On January 14, 2025, a hard copy of the outreach letter was sent via USPS Certified Mail to those contacts where an email address was not provided. Tribes were asked to provide a response within 30 days of receipt of the outreach letter if they wished to meet or provide information to the CPUC.

Summary of CPUC Tribal Consultation

AB 52 Consultation

The CPUC did not receive any request for formal AB 52 consultation from the Costoanoan Rumsen Carmel Tribe within the 30-day response period. As a courtesy, the CPUC sent a follow up email on January 15, 2025, asking if the tribe would like to consult, to which no response was received.

Courtesy Tribal Outreach

The CPUC received one response to its courtesy tribal outreach effort from the Confederate Villages of Lisjan Nation. The tribe requested project description information, a copy of cultural resources data and reporting, ground disturbance information, and requested a meeting with CPUC. The CPUC provided the information requested to the tribe and held a meeting with the tribe on February 19, 2025, during which the tribe emphasized that all water courses in the proposed Project's API are considered high sensitivity for buried Tribal Cultural Resources. Tribal outreach and confidential information exchange is ongoing with the Confederate Villages of Lisjan Nation and CPUC. To date, no Tribal Cultural Resources have been identified. On May 15, 2025, Lisjan Nation provided recommended mitigation measures to ensure impacts to Tribal Cultural Resources are less than significant. These mitigation measures have been incorporated into the following analysis. On June 6, 2025, the Lisjan Nation stated that it has no further comments on the Project. On December 1, 2025, the CPUC emailed a letter to the Lisjan Nation summarizing tribal consultation and formally concluding consultation.

3.16.2. Applicable Regulations, Policies, and Standards

Federal

No federal regulations related to tribal cultural resources are applicable to the Project.

State

California Native American Tribes, Lead Agency Tribal Consultation Responsibilities, and Tribal Cultural Resources

CEQA provides definitions for California Native American tribes, lead agency responsibilities to consult with California Native American tribes, and tribal cultural resources. Assembly Bill 52 establishes a formal role for California Native American tribes in the CEQA process. If consultation is requested, CEQA lead agencies are required to consult with tribes about potential TCRs, a recognized category of "historical resources" within the Survey Area and immediately surrounding area, the potential significance of project impacts, the development of project alternatives, and the type of environmental document that should be prepared.

A "California Native American tribe" is a "Native American tribe located in California that is on the contact list maintained by the Native American Heritage Commission (NAHC) for the purposes of Chapter 905 of the Statutes of 2004" (Pub. Resources Code, § 21073). Lead agencies implementing CEQA are responsible for consultation with California Native American tribes about tribal cultural resources within specific timeframes, observant of tribal confidentiality, and if tribal cultural resources could be impacted by a CEQA-reviewed project, are to exhaust the consultation to points of agreement or termination.

Tribal cultural resources are either of the following:

1. Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
    a. Included or determined to be eligible for inclusion in the CRHR.
    b. Included in a local register of historical resources as defined in the Public Resources Code, section 5020.1(k).

2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in the Public Resources Code, section 5024.1(c). In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe. (Pub. Resources Code, § 21074[(a]).

To qualify as a TCR, it must be: 1) listed on or eligible for listing on the CRHR or a local historic register, or 2) a resource that the lead agency, at its discretion and supported by substantial evidence, determines should be treated as a TCR (PRC § 21074). TCRs include "non-unique archaeological resources" that, instead of being important for "scientific" value as a resource, can also be significant because of the sacred and/or cultural tribal value of the resource. Tribal representatives are considered experts for purposes of providing substantial evidence regarding the locations, types, and significance of TCRs within their traditionally and cultural affiliated geographic area (PRC § 21080.3.1(a)). A cultural landscape that meets the criteria of Public Resources Code, section 21074(a), is a tribal cultural resource to the extent that the landscape is geographically defined in terms of its size and scope (Pub. Resources Code, § 21074(b)). Historical resources, unique archaeological resources, and non-unique archaeological resources, as defined at Public Resources Code, sections 21084.1, 21083.2(g), and 21083.2(h), may also be tribal cultural resources if they conform to the criteria of Public Resources Code, section 21074(a).

A project that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment (Pub. Resources Code, § 21084.2).

California Public Utilities Commission

The California Public Utilities Commission (CPUC) adopted its **Tribal Consultation Policy** in April 2018 to formalize its commitment to respectful and meaningful engagement with California Native American Tribes. This policy is consistent with Executive Order B-10-11 and supports a government-to-government relationship to protect tribal sovereignty and cultural heritage (California Public Utilities Commission, 2018).

Key aspects of the policy include:

- **Recognition of Sovereignty**: The CPUC acknowledges the sovereign status of California's Tribal governments and commits to working collaboratively and respectfully in all regulatory and procedural matters.
- **Meaningful Consultation**: The policy requires the CPUC to consult Tribes early and throughout processes where projects or programs may affect tribal interests. Consultation is intended to be timely, effective, and informed, ensuring that Tribal voices are meaningfully incorporated into decision-making (California Public Utilities Commission, 2018).
- **Cultural Resource Protection**: The CPUC incorporates Tribal perspectives in decisions that could impact cultural resources, including sacred sites and traditional landscapes. This proactive approach promotes CEQA compliance by considering tribal concerns from the outset (California Public Utilities Commission, 2018).
- **Facilitation of Tribal Participation**: The policy promotes the inclusion of Tribes in CPUC-approved utility programs and regulatory proceedings to ensure equitable access and representation.
- **Transparency and Information Sharing**: Tribes are kept informed about relevant CPUC activities, including technical assistance opportunities, hearings, and public meetings (California Public Utilities Commission, 2018).

Local

CPUC General Order 131-D, Section XIV.B states that "local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the Commission's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." As a public utility

project that is subject to the jurisdiction of the CPUC, the proposed Project is exempt from local regulation and discretionary permits. As such, the regional and local regulatory standards are provided in this analysis for informational purposes only and to assist with the CEQA review process. Please refer to Section 3.5, Cultural Resources, for a full description of local regulations.

3.16.3. Environmental Impacts

Impact Analysis Approach

The Applicant Proposed Measures (APMs) listed in Table 3.16-2 would be implemented as part of the proposed Project to reduce potential impacts to tribal cultural resources.

Table 3.16-2. Applicant Proposed Measures – Tribal Cultural Resources

APM	Description
Tribal Cultural Resources	
APM TCR-1	Undiscovered Potential Tribal Cultural Resources. After stopping work and following the procedure for determining eligibility in APM CUL-2, in the event that a prehistoric or protohistoric site is identified and cannot be avoided, PG&E will contact the CPUC to identify an appropriate tribe with whom to consult on treatment. If no agreement can be reached for mitigation after discussions with the California Native American tribe(s) or it is determined that the tribe(s)' preferred mitigation is not feasible, PG&E will implement one of the example mitigation measures listed in Public Resources Code Section 21084.3(b), or other feasible mitigation.
Cultural Resources	
APM CUL-3	**Unanticipated Discovery of Human Remains**. If human remains or suspected human remains are discovered during PG&E construction, work within 100 feet of the find will stop immediately and the construction supervisor will contact the PG&E cultural resources specialist, who meets the Secretary of Interior's Standards for archaeology. Upon disco-very, the Coroner Division of the Alameda County Sheriff's Office will be contacted for identification of human remains. The Coroner has 2 working days to examine the remains after being notified. If the remains are Native American, the Coroner must notify the NAHC of the discovery within 24 hours. The NAHC then will identify and contact a Most Likely Descendant (MLD). The MLD may make recommendations to the landowner or representative for the treatment or disposition, with proper dignity, of the remains and grave goods. When proper consultation has occurred, a procedure that may include the preservation, excavation, analysis, and curation of artifacts and/or reburial of those remains and associated artifacts will be formulated and implemented. If the remains are not Native American, the Coroner will consult with the archaeological research team and the lead agency to develop a procedure for the proper study, documentation, and ultimate disposition of the remains. If a determination can be made as to the likely identity – either as an individual or as a member of a group – of the remains, an attempt should be made to identify and contact any living descendants or representatives of the descendant community. As interested parties, these descendants may make recommendations to the owner or representative for the treatment or disposition, with proper dignity, of the remains and grave goods. Final disposition of any human remains or associated funerary objects will be determined in consultation between the landowner and the MLD.

Impact Significance Criteria

The following significance criteria for TCRs are derived from Appendix G of the State CEQA Guidelines. Impacts to TCRs are considered significant if the proposed Project would:

- *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:

- *Listed or eligible for listing in the California Register of Historical Resources (CRHR), or in a local register of historical resources as defined in Public Resources Code section 5020.1(k); or,*
- *A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the significance to a California Native American tribe.*

In making a finding that a resource is a Tribal cultural resource, the CPUC may consider, among other evidence, elder testimony, oral history, tribal archival information, testimony of an archaeologist or other expert certified by the tribe, official declarations or resolutions adopted by the tribe, formal statements by the tribe's historic preservation officer, or other historical notes and anthropological records (OPR, 2017).

Adverse changes are considered, but not limited to, the following:

- Physical, visual, or audible disturbances resulting from construction and development that would affect the integrity of a resource or the qualities that make it eligible for the CRHR;
- Exposure of resources to vandalism or unauthorized collecting;
- A substantial increase in the potential for erosion or other natural processes that could affect resources; or
- Neglect of a resource that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious or cultural significance to a Native American tribe.

Project impacts related to TCRs were evaluated against the CEQA significance criteria and are discussed in the following sections. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance(O&M) phase.

Significance Criteria

- **TCR-1:** Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 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 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 section5020.1(k).
- **TCR-2**: Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 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 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 § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting.

Impacts and Mitigation Measures

Impact TCR-1: Cause a substantial adverse change in the significance of a Tribal Cultural Resource 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 section5020.1(k).

Construction

NO IMPACT. To date, no Tribal Cultural Resources that are listed or eligible for the CRHR or local register have been identified through either formal AB 52 consultation or tribal outreach. Therefore, no impacts to Tribal Cultural Resources that are listed or eligible for the CRHR or local register would occur.

Operations and Maintenance

NO IMPACT. Ground-disturbing activities are not part of the standard operational or maintenance profile of the proposed Project. Impacts on Tribal Cultural Resources are therefore not expected during normal operation and maintenance.

Impact TCR-2: Cause a substantial adverse change in the significance of a Tribal Cultural 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 § 5024.1.

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. To date, no Tribal Cultural Resources have been identified within the Project area through either formal AB 52 consultation or tribal outreach. As with any project that involves ground disturbing activity, there is the potential to encounter unknown buried cultural resources that could be considered Tribal Cultural Resources. As discussed above in Section 3.16.1.3 Buried Archaeological Sensitivity, the potential to encounter buried cultural resources is moderate, and impacts to unknown resources could be considered significant without proper procedures in place.

PG&E has proposed APM TCR-1: Undiscovered Potential Tribal Cultural Resources, which require work to stop in the vicinity of a cultural resource discovery until it can be inspected and evaluated by a cultural resources specialist in coordination with the CPUC and the appropriate California Native American tribe(s). If no agreement can be reached for mitigation after discussions with the tribe(s) or it is determined that the tribe(s)' preferred mitigation is not feasible, PG&E will implement one of the example mitigation measures listed in Public Resources Code Section 21084.3(b), or other feasible mitigation, to avoid or minimize adverse impacts. Additionally, during consultation with Lisjan Nation, MM TCR-2a, establishment of a Native American Monitoring program, MM TCR-2b, Unanticipated Discovery of Tribal Cultural Resources, and MM TCR-2c Unanticipated Discovery of Human Remains, have been recommended for implementation and CPUC concurs with this recommendation. Therefore, with the implementation of APM TCR-1, MM TCR-2a, MM TCR-2b and MM TCR-2c impacts to unknown buried resources would be less than significant.

Operations and Maintenance

NO IMPACT. Ground-disturbing activities are not part of standard operational or maintenance of the proposed Project. Impacts on Tribal Cultural Resources are therefore not expected during normal operation and maintenance.

Mitigation Measures

MM TCR-2a Native American Monitoring. See full text in Section 3.16.4 (Mitigation Measures).

MM TCR-2b **Unanticipated Discovery of Tribal Cultural Resources.** See full text in Section 3.16.4 (Mitigation Measures).

MM TCR-2c **Unanticipated Discovery of Human Remains.** See full text in Section 3.16.4 (Mitigation Measures).

With implementation of mitigation measures, impacts to unknown buried tribal cultural resources would be less than significant.

3.16.4. Mitigation Measures

MM TCR-2a **Native American Monitoring.** Prior to ground disturbing activities, a Confederated Villages of Lisjan Nation (CVLN) Tribal monitor(s) shall be retained to monitor all ground disturbing construction activity within 500 feet of a current or historic creek channel. Confederated Villages of Lisjan Tribal monitor(s) will have the authority to halt and redirect work should any archeological or tribal cultural resources be identified during monitoring. If archeological or Tribal cultural resources are encountered during ground disturbing activities, work within 100 feet of the find must halt ~~and the find must be evaluated for listing in the CRHR and NRHP~~so that a qualified archaeologist can assess its potential significance. Monitoring may be reduced or ~~halted~~ discontinued at the discretion of the CVLN monitor, in consultation with the lead agency, as warranted by soil conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 50 percent of the entire area of ground disturbance. If monitoring is reduced to spot checking, spot checking shall occur when ground disturbing activities moves to a new location within the Project site and/or when ground disturbance will extend to depths not previously reached (unless those depths are within bedrock).

MM TCR-2b **Unanticipated Discovery of Tribal Cultural Resources.** If cultural resources of Native American origin are identified during grading or excavation of the proposed Project, all ground disturbing activities within 100 feet shall cease until an archeologist has evaluated the nature and significance of the find as a cultural resource and a representative from the Confederated Villages of Lisjan Nation is consulted by the government agency. The archeologist will stake the area of discovery, placing stakes no more than 10 feet apart, forming a circle having a radius of no less than 100 feet from the point of discovery. If the entity in consultation with the consulting Tribe(s), determines that the resource is a tribal cultural resource and thus significant under CEQA and/or the Tribe, the entity shall retain a qualified archeologist and a Tribal monitor, at the Applicant's expense, to prepare a mitigation plan, which shall be implemented by the entity in accordance with state guidelines and in consultation with the consulting Tribe. The mitigation plan shall include avoidance of the resource or, if avoidance of the resource is not feasible, the plan shall outline appropriate treatment of the resource in coordination with the consulting Tribe and, if applicable, a qualified archeologist. Examples of appropriate mitigation for tribal cultural resources include, but are not limited to, protecting the cultural character and integrity of the resources, protecting traditional use of the resources, protecting the confidentiality of the resources, or heritage recovery.

MM TCR-2c **Unanticipated Discovery of Human Remains.** If human remains are encountered during construction and/or other ground disturbing activities, all work within 100 feet of the remains should be redirected and the County Coroner notified immediately. At the same time, an archaeologist shall be contacted to assess the situation. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission (NAHC) within 24 hours of this identification. The NAHC will identify a Native

American Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and any associated funerary objects. There shall be no pictures taken or testing done on the Native American human remains. All bone, if not identifiable as human or animal, shall be treated as human remains and the appropriate protocols followed. The archaeologist shall record information, as appropriate and in accordance with the recommendations of the MLD and/or Tribal representative. Upon completion of the archeologist's assessment, a report should be prepared documenting methods and results, as well as recommendations regarding the treatment of the human remains and any associated archaeological materials. The report should be submitted to CPUC, the project proponent, the NWIC and the consulting Tribe. Tribal representatives will rebury the Native American human remains and associated funerary objects with the appropriate dignity, either; in accordance with the recommendations of the MLD if available or in the Project vicinity at a location agreed upon between the Tribe and the consultant, where the reburial would be accessible to Tribal members in perpetuity and would not be subject to further disturbance. The discovery and reburial is to be kept confidential and secure to prevent any further disturbance.

3.16.5. References

CPUC (California Public Utilities Commission), 2018. Tribal Consultation Policy. California Public Utilities Commission. https://www.cpuc.ca.gov/about-cpuc/divisions/office-of-the-tribal-advisor/tribal-consultation-policy/.

Dibblee, T.W., and Minch, J.A., 2005. Geologic map of the Oakland East quadrangle, Contra Costa and Alameda Counties, California: Dibblee Geological Foundation, Dibblee Foundation Map DF-160, scale 1:24,000. Accessed March 25, 2025, from https://ngmdb.usgs.gov/ngm-bin/pdp/zui_viewer.pl?id=34376

Jacobs Engineering, Inc. (Jacobs), 2024. Cultural Resources Identification and Evaluation Report for the Moraga-Oakland X 115 kV Rebuild Project. Prepared for Pacific Gas and Electric Company.

OPR (California's Office of Planning and Research), 2017. Technical Advisory- AB 52 and Tribal Cultural Resources in CEQA.

PG&E (Pacific Gas and Electric Company), 2024. Proponent's Environmental Assessment for Pacific Gas and Electric Company's Moraga–Oakland X 115 kV Rebuild Project. Application A.24-11-005. November 15.

_____, 2025. PG&E Response Letter to CPUC's Data Request #5 for PG&E's Moraga to Oakland X 115 Kilovolt Rebuild Project (A.24-11-005). March 20.

3.17. Utilities and Service Systems

This section describes existing conditions and potential impacts on utilities and service systems from construction, operation, and maintenance of the Project. The analysis concludes that, although these resource areas would be temporarily affected by project construction, project-related impacts to utilities and service systems would be less than significant. Under CEQA, utilities and service systems include water, wastewater, and solid waste collection and treatment. This section also addresses potential impacts on power, natural gas, telecommunication facilities, and adjacent utility lines. The Project's potential effects on utilities were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines.

The scoping effort conducted by CPUC from February 25 through March 27, 2025, resulted in several public comments and concerns related to utilities and service systems. Concerns communicated in the scoping process that are related to utilities and service systems and were considered in the analysis below include:

- Coordinate construction activities with the East Bay Municipal Utility District (EBMUD). Provide 18 months advance notification for street improvement projects to allow for reasonable time to perform water pipeline relocations.
- EBMUD's water distribution pipelines and valves must always be accessible to EBMUD staff to maintain high-quality domestic water and fire flow services and mitigation for pipeline outages.
- PG&E is responsible for protecting in-place pipeline valves and ensuring they are accessible during and after construction. PG&E should review EBMUD as-built drawings and identify potential utility conflicts between the Project and existing EBMUD pipelines.
- Review EBMUD's Design Standards and Specifications for mains 20-inches and smaller when evaluating the need and method for relocating or adjusting EMBUD infrastructure.
- Share locations of utility conflicts with EBMUD pipeline valve covers as well as existing and final pavement grade elevations.
- EBMUD supports PG&E in street improvements by relocating water meters to meet project goals and design standards and mitigate utility conflict. Once the new meter location is ready, PG&E must relocate the customer's private water service line to the new meter location.
- Ensure that there are no conflicts with existing EBMUD fire hydrants, new curb ramps, or sidewalks. Ensure that fire hydrants are located 5 feet from the edge of curb ramps and 20 to 24 inches from the face of street curbs.
- Invite EBMUD's Central Area Service Center Superintendent, Central Area Assistant Superintendent, and East Area Assistant Superintendent to all pre-construction meetings.

Impacts to existing utilities are addressed in the impacts and mitigation section (Section 3.17.3.3) under Impact US-1.

3.17.1. Environmental Setting

The study area for utilities and system services includes the cities and counties located along the right-of way where the proposed Project would be implemented. The Project is within Contra Costa and Alameda Counties. Incorporated cities within the study area are the cities of Oakland, Piedmont, and Orinda. Regional and local utilities are described in this section. Information about utilities and system services for the environmental setting was provided in PG&E's Proponent's Environmental Assessment (PEA, PG&E, 2024) and has been reviewed and updated in this section. The PEA is not further cited in this section.

3.17.1.1. Utility Providers

Electricity and Natural Gas

PG&E and Ava Community Energy provide electricity to the Project area. PG&E delivers electricity to customers through its transmission and distribution systems[41] in Contra Costa and Alameda County. Ava Community Energy is a not-for-profit public agency that procures electric energy for residents and communities in Alameda County that opt to participate in the service; the electricity is delivered through PG&E-owned and operated infrastructure. PG&E provides natural gas service to the Project area.

Stormwater Drainage

Along the Project route, stormwater flows through pipes and culverts into creeks, then to San Francisco Bay. The Contra Costa County Public Works Department maintains unincorporated county public drainage facilities. The *Contra Costa Watershed Stormwater Resource Plan* developed for the County and its municipalities (including the City of Orinda) was created to help manage the stormwater system and associated facilities in Contra Costa County. The County has been divided into five watershed planning units. The Project falls within the West County Planning Unit.

Both the City of Oakland and the City of Piedmont stormwater drainage systems are managed by their respective Public Works departments. Oakland is rehabilitating its stormwater infrastructure and has assigned priority areas throughout the city. The Project falls within the lowest priority zones for storm-water infrastructure replacement. Refer to Section 3.11, Hydrology and Water Quality, for further discussion of area drainage.

Telecommunications

A variety of telecommunications companies provide phone, television, and Internet services in Contra Costa County, the City of Oakland, the City of Orinda, and the City of Piedmont. The companies include AT&T, Xfinity by Comcast, Verizon, Viasat, HughesNet, Unwired, Always on, Google Fiber Webpass, Sonic, Starlink, Earthlink, and other companies.

Water Supply

The East Bay Municipal Utility District (EBMUD) provides water to approximately 1.4 million people in a 332-square-mile area extending from Crockett on the north, south to San Lorenzo (encompassing the major cities of Oakland and Berkeley), east from San Francisco to Walnut Creek, and south through the San Ramon Valley. EBMUD manages water system operations and maintenance and delivers water from its reservoir system in the Sierra foothills and locally to customers in the East Bay.

EBMUD can deliver up to a maximum of 325 million gallons per day (mgd) from the Mokelumne River, subject to availability and flow releases. The system has two major dams and reservoirs, Pardee and Camanche, with a capacity of 209,905 and 431,500 acre-feet (AF), respectively. EBMUD's secondary water supply source is local runoff from the East Bay area watersheds, which is stored in the terminal reservoirs within EBMUD's service area. The local terminal reservoir system has a total capacity of 151,670 AF. The total system storage (from both the main and secondary water supply sources) is 771,980 AF with a total operational storage of 697,480 AF. EBMUD recycles water for irrigation, industrial cooling, and toilet flushing. EBMUD has infrastructure with the capability to provide more than 9 mgd of recycled water. The current demand for water is 238 mgd with a projected demand of 297 mgd by the year 2050.

There are no known water wells within the Project area.

[41] The distribution system is the substations, transformers, and power lines that delivery electricity from high-power transmission lines to the customer's homes and businesses. Distribution lines are low voltage.

Wastewater Collection and Treatment Services

EBMUD provides wastewater treatment within part of its water service area, including the Cities of Oakland and Piedmont. EBMUD is responsible for collection, treatment, and disposal of wastewater in its service area.

Wastewater in the City of Orinda is managed through the Central Contra Costa Sanitary District. Some rural residential developments in unincorporated Contra Costa County as well as some residences in the Oakland hills area are not served by centralized wastewater systems and rely on individual septic systems.

East Bay Regional Parks District is responsible for wastewater management within its parks; facilities in Sibley Volcanic Regional Preserve are connected to septic systems.

Waste and Recycling Providers

Contra Costa County Conservation and Development's Solid Waste and Recycling Section oversees the collection of garbage, recycling, and organics in portions of the unincorporated County and implements programs to reduce solid waste disposal and promote reuse and recycling.

The City of Oakland Department of Public Works provides waste collection services while implementing programs to reduce waste and increase the amount of recycling and compost processed.

Within the City of Orinda, solid waste is managed by the Central Contra Costa Solid Waste Authority doing business as RecycleSmart, including solid waste reduction, recycling, and refuse programs.

The City of Piedmont Department of Solid Waste oversees the collection of garbage, recycling, and organics and implements programs to reduce solid waste disposal and to promote reuse and recycling.

3.17.1.2. Existing Underground Utilities

The City of Piedmont and the City of Oakland have buried sanitary sewer and stormwater facilities within the Project area along Estates Drive, Park Boulevard, and Park Boulevard Way based on storm drain inlets observed during aerial map review. Refer to Figure 3.17-1 (Sewer and Storm Drain Facilities) in Appendix A for an overview of existing buried sewer and stormwater facilities in Estates Drive, Park Boulevard, and Park Boulevard Way where the underground portion of the Project is proposed.

Telecommunication companies with aerial and buried lines in the Project area include AT&T, Sonic, and Xfinity by Comcast. Aerial telecommunication lines typically are co-located on utility poles supporting PG&E electric distribution lines.

EBMUD also is expected to have underground water and sewer line facilities in Estates Drive, Park Boulevard, and Park Boulevard Way. Water line facilities typically include a main line in the street with lateral lines connecting to customers and fire hydrants.

PG&E infrastructure in the Project area includes natural gas distribution and electric distribution, and transmission lines and substations. PG&E natural gas distribution lines may be in the project area where the power lines are proposed to be installed underground in Estates Drive, Park Boulevard, and Park Boulevard Way.

Multiple existing PG&E overhead and underground electric distribution lines cross the project area. Existing PG&E overhead electric power lines connect to Moraga Substation and underground to Oakland X Substation. Existing PG&E overhead electric power lines connect to Moraga Substation.

PG&E would make a final determination on the need to relocate buried utilities during final engineering. Local underground utilities would be identified during final design and would be avoided or relocated in coordination with the facility owner.

3.17.1.3. Solid Waste, Landfills, and Recycling

Waste-handling facilities that could accept construction or operation waste from the Project, their capacities, and estimated closure dates are presented in Table 3.17-1. Treated wood waste and any contaminated soil or hazardous materials are expected to be taken to Kettleman Hills or Clean Harbors Buttonwillow. Materials that would be recycled include wood guard poles, replaced substation fence sections, damaged steel from pole assemblies, conductor segments, conductor reels, pallets, and broken hardware.

Table 3.17-1. Landfills and Recycling Facilities

Landfill Name	Remaining Total Landfill Capacity (yd3)	Landfill Average Daily Volume or Capacity	Estimated Closure Date	Takes Construction Waste?
Bee Green Recycling	Recycling only	Recycling only	Recycling only	Yes
Contra Costa Transfer & Recovery Station	Recycling only	Recycling only	Recycling only	Yes
Davis Street Transfer Station	Recycling only	Recycling only	Recycling only	Yes
Keller Canyon Landfill (Pittsburg)	63,408,410	3,500 tons per day	2050	Yes
Waste Management Altamont	65,400,000	11,150 tons per day	2070	Yes
Waste Management Redwood	26,000,000	2,310 tons per day	2036	Yes – limited
Safety Kleen of California – oil recycling services (not a landfill)	N/A	N/A	N/A	No
Newby Island Sanitary Landfill	16,400,000	4,000 tons per day	2041	Yes
Potrero Hills Landfill	13,872,000	4,330 tons per day	2048	Yes
Neal Road Recycling and Waste	20,847,970	1,500 tons per day	2048	Yes (recycling)
Forward Landfill (Manteca)	24,720,669	8,668 tons per day	2036	Yes
Chemical Waste Management – Kettleman Hills (Unit B18) (Kettleman Hills)	15,600,000	9,000 cubic yards per day	2042	Yes (hazardous)
Clean Harbors Buttonwillow (Buttonwillow)	13,250,000 (maximum capacity)	10,500 tons per day	2040	Yes (hazardous)

yd3 = cubic yard(s)

3.17.1.4. Pipeline Corrosion

High voltage power lines generate electromagnetic fields that can induce electric current in nearby metallic pipelines. The induced current causes electricity to flow between the pipeline and surrounding soil. This current flow can lead to corrosion of the pipeline. Corrosion of pipelines can be reduced through cathodic protection. Cathodic protection connects galvanic anodes made of a metal alloy to the pipeline. The anodes direct the electric current flow away from the pipeline and into the anodes which causes that anode to corrode instead of the pipeline. The proposed Project could potentially impact nearby water, stormwater, and gas distribution pipelines.

3.17.2. Applicable Regulations, Policies, and Standards

3.17.2.1. Federal

Federal Solid Waste Disposal Act and Resource Conservation and Recovery Act

The Solid Waste Disposal Act of 1965 (as amended and revised by the Resource Conservation and Recovery Act [RCRA] of 1976) establishes requirements for the management of solid waste. The RCRA sets forth a framework for the management of nonhazardous solid wastes. The RCRA's key provisions include:

- Management for solid waste, including landfills
- Applicability of Federal, State, and local laws to Federal agencies
- Procurement (recycling) provisions
- Citizen suits, judicial review, and enforcement authority
- Management, replacement, and monitoring of underground storage tanks

Clean Water Act

The CWA gives EPA the authority to regulate the discharge of pollutants and hazardous materials into the waters of the United States. As part of the CWA, EPA oversees and enforces the oil pollution prevention regulation (40 CFR Part 112). The regulations describe the requirements for facilities to prepare, amend, and implement SPCC plans to describe a comprehensive spill prevention program that minimizes the potential for discharges from specific sources, such as oil-containing transformers.

Safe Drinking Water Act

The SDWA authorizes the EPA to set national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants that may be found in drinking water. The regulations cover all public water systems, but do not regulate private wells serving fewer than 25 individuals. Direct oversight of water systems is conducted by state drinking water programs.

3.17.2.2. State

California Urban Water Management (UWMP) Act

The California UWMP Act requires urban water suppliers that supply more than 3,000 acre feet annually or serve more than 3,000 urban water connections to submit an urban water management plan every five years to the Department of Water Resources. The plans include an assessment of existing and planned water sources, water demand forecasting, conservation efforts, and water shortage contingency plans.

California Safe Drinking Water (SDW) Act

The California SDW Act establishes primary drinking water standards that are at least as stringent as those established under the federal SDW Act, and to establish a program that is more protective of public health than the minimum federal requirements. The SDW Act authorizes the California State Department of Public Health to oversee implementation of the standards and programs established by the SDW Act.

California Water Conservation Act

The California Water Conservation Act requires all water supplies to increase their efficiency. The Act authorized the Department of Water Resources to oversee 18 actions to achieve efficiency gains. These actions include a 20 percent reduction in urban water use.

State Water Resources Control Board (SWRCB) Sanitary Sewer Management Plan (SSMP)

The SWRCB requires public agencies that own or operate sanitary sewer systems to develop and implement a SSMP. The goal of a SSMP is to provide a plan and schedule to properly manage, operate, and maintain all parts of an agency's sanitary sewer system, reduce and prevent spill, and contain and mitigate spill that do occur. The plan must also include a general description of the local sewer system management program and plan implementation and updates.

Natural Gas Pipeline Safety (NGPS) Act

The NGPS Act designates the CPUC as the authority for regulating and enforcing safety standards for intrastate gas pipeline transportation and facilities. The NGPS Act requires that California's safety regulation align with the federal standards set by the Pipeline and Hazardous Materials Safety Administration and the development and administration of state pipeline safety program.

Assembly Bill 341

Assembly Bill 341 requires that all commercial business and public entities that generate four cubic yards or more of waste per week to have a recycling program in place.

Senate Bill 1374

California Senate Bill 1374 requires that jurisdictions include in their annual Assembly Bill 939 report a summary of the progress made in diverting construction and demolition waste. The bill also requires that CalRecycle adopt a model ordinance for diverting 50 to 75 percent of all construction and demolition waste from landfills.

CPUC General Order 95

Under Section 35 of General Order (GO) 95, the California Public Utilities Commission (CPUC) regulates all aspects of design, construction, operation, and maintenance of electrical power lines and fire safety hazards for utilities subject to its jurisdiction, including PG&E.

CPUC General Order 112-E

Under GO 112-E, the CPUC regulates the design, construction, testing, operation, and maintenance of gas gathering transmission, and distribution systems in California.

California Green Building Standards Code (CALGreen)

The 2022 California Green Building Standards Code requires that at least 65 percent of nonhazardous construction and demolition waste generated by projects 5,000 square feet or more be recycled, reused, or otherwise diverted from landfill disposal and 100 percent of non-contaminated excavated soil and land clearing debris must be recycled. The Applicant must submit a Construction Waste Management Plan prior to the issuance of a building permit. Additionally, the Applicant must submit a Construction Waste Management Final Report prior to the final inspection that documents the quantity of weight of each materials type diverted or disposed of by providing receipts or written certification from all facilities and waste management companies utilized to divert or dispose waste generated by the project.

California Government Code

Section 4216 of the California Government Code protects underground structures during excavation. Under this law, excavators must contact a regional notification center at least 2 days before excavation of any subsurface installations. In the project area, the Underground Service Alert (USA) is the regional notification center. The USA notifies utility providers with buried lines within 1,000 feet of the excavation,

and those providers must mark the specific location of their facilities before excavation. The code also requires excavators to probe for and expose existing utilities, in accordance with state law, before using power equipment.

California Water Code

California Water Code Division 6, Part 2.10, Sections 10910 to 10915, requires that a city or county undertaking CEQA review for a project identify public water systems that may supply water to the project.

California Water Code Division 7 lays out the requirements for a statewide program for the control of the quality of all the waters of the state. Section 13140 of Division 7 states that the California State Water Resources Control Board will formulate and adopt state policy for water quality control. Section 13172 of Division 7 includes requirements for waste management facilities, both hazardous and nonhazardous, as defined in Section 13173, to protect water quality.

California Hazardous Waste Fee Health and Safety Code

The Hazardous Waste Fee Health and Safety Code (California Health and Safety Code [CA HSC] Chapter 6.5, Section 25143 et seq.) provides definition and guidance on wood waste and its disposal. Wood waste is defined in part as poles, crossarms, pilings, and fence posts that have been previously treated with a preservative. Wood waste materials removed from electric, gas, or telephone service are exempt from the requirements for disposal provided certain conditions are met, including the following:

- If the wood waste is not subject to regulation as a hazardous waste under a federal act and it is disposed of in a composite-lined portion of a municipal solid waste landfill that meets any requirements imposed by the state policy adopted pursuant to Section 13140 of the Water Code and regulations adopted pursuant to Sections 13172 and 13173 of the Water Code.
- If the solid waste landfill used for disposal is authorized to accept the wood waste under waste discharge requirements issued by the RWQCB pursuant to Division 7 (commencing with Section 13000) of the Water Code.

California Integrated Waste Management Act of 1989

(Public Resources Code 40050 et seq. or Assembly Bill (AB) 939, codified in PRC 40000), administered by the California Integrated Waste Management Board (CIWMB), requires all local and county governments to adopt a Source Reduction and Recycling Element to identify means of reducing the amount of solid waste sent to landfills. This law set reduction targets at 25% by the year 1995 and 50% by the year 2000. To assist local jurisdictions in achieving these targets, the California Solid Waste Reuse and Recycling Access Act of 1991 requires all new developments to include adequate, accessible, and convenient areas for collecting and loading recyclable and green waste materials.

CalRecycle is under the umbrella of the California EPA and is responsible for the implementation of AB939.

3.17.2.3. Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E is not subject to local (city and county) discretionary regulations except for air districts and Certified Unified Program Agencies with respect to air quality and hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

EBMUD Water Shortage Contingency Plan (WSCP)

The WSCP provides a framework to address potential future water shortages under a range of potential future scenarios. The plan also conducts a water supply analysis and includes actions to manage water supply and demand during shortages.

Contra Costa County

In 2023, Contra Costa County adopted County Ordinance 2022-35 in accordance with the 2022 California Green Building Standards (CALGreen) code to provide a single set of construction waste management requirements that will apply to projects in the unincorporated County area effective 1/1/2023. The ordinance requires that at least 65 percent of nonhazardous construction and demolition waste generated by projects 5,000 square feet or more be recycled, reused, or otherwise diverted from landfill disposal and 100 percent of non-contaminated excavated soil and land clearing debris must be recycled. County permit applicants must submit a Construction Waste Management Plan prior to the issuance of a building permit. Additionally, the Applicant must submit a Construction Waste Management Final Report prior to the final inspection that documents the quantity of weight of each materials type diverted or disposed of by providing receipts or written certification from all facilities and waste management companies utilized to divert or dispose waste generated by the project.

City of Orinda

City of Orinda Code of Ordinances. Chapter 15.10 of the City of Orinda Code of Ordinance requires the recycling or salvage for reuse of a minimum of 65 percent of nonhazardous construction and demolition waste.

City of Orinda General Plan – Safety Element. The City of Orinda adopted a Safety Element in January of 2023. The Safety Element identifies potential natural and human-created hazards that could affect the City of Orinda's (City's) residents, businesses, and services. Additionally, the element conveys the City's goals, policies, and actions to minimize the hazards to safety in and around Orinda. The following policies are included in the Safety Element:

- **Policy S-36**. Coordinate with the East Bay Municipal Utilities District to maintain an adequate, long term water supply for fire suppression needs for the community.
- **Policy S-41.** Continue to coordinate with PG&E to underground power lines throughout the community, especially in the wildland-urban interface and fire hazard severity zone areas where wildfire risk is greatest.
- **Policy S-51**. Prepare for a reduced long-term water supply resulting from more frequent and severe drought events, including working with regional water providers to implement extensive water conservation measures and ensure sustainable water supplies, including for fire suppression needs.
- **Policy S-53**. Coordinate with East Bay Municipal Utilities District to explore ways to improve and increase energy storage capacity and generation efficiency.

City of Oakland Ordinance No. 13672

Section 15.34.010 through Section 15.34.090 of Ordinance No. 13672, known as the City of Oakland Construction and Demolition Debris Collection, Transportation, Waste Reduction, and Recycling Requirements, requires that applicants for construction permits recycle and/or reuse 100 percent of asphalt and concrete and recycle 65 percent of the remaining material generated. All plant and tree debris will be separated from the other material and 100 percent of the plant and tree material will be composted.

The following sections of the City of Oakland Municipal Code apply to the proposed Project.

12.12.220 - Excavations—Supervision of Director of Public Works. All excavations, filling of excavations, and repairing of street surfaces, pursuant to the provisions of this title, shall be made under the supervision and direction of the Director of Public Works to supervise and direct all such making and filling of excavations, and repairing of street surfaces, and to require that all such excavations filling and repairing comply with the requirements of the provisions of this code and of the ordinances City.

12.12.190 - Street Maintenance. After the completion of the work, the permittee shall exercise reasonable care in inspecting for and immediately repairing and making good any injury or damage to any portion of the street which occurs as a result of work done under the permit, including any and all injury or damage to the street which would not have occurred had such work not been done.

The permittee shall, upon notice from the Director of Public Works or his or her authorized representative, immediately repair any injury or damage in any portion of the street which occurs as a result of the work done under the permit, including any and all damage to the street which would not have occurred had such work not been done, and which, in the opinion of the Director of Public Works or his or her authorized representative, constitutes a public hazard. In the event such repairs are not made by the permittee within 24 hours after notice, the Director of Public Works is authorized to make such repairs.

12.12.210 - Defects Appearing after Completion—Duty to repair. If the pavement or surface of the street over said excavation should become depressed or broken at any time after the work has been completed—natural wear of the surface or improper work of some other party excepted—the permittee shall, upon written notice from and an opportunity to be heard by the Director of Public Works or his or her authorized representative, make immediate repairs to the satisfaction of Public Works. If said pavement is not completely restored within 30 days after such notice has been given, Public Works shall have the authority to perform the restoration work at the expense of the permittee.

City of Oakland General Plan – Safety Element

The City of Oakland adopted the Oakland Safety Element in September of 2023. The element provides a framework for minimizing risks posted by natural and human-caused hazards that may impact residents' health and welfare. The following policies are included in the Safety Element:

- **Policy SAF-2.8 Water Infrastructure.** In partnership with EBMUD, plan for the ongoing maintenance and long-term integrity of planned and existing water supply infrastructure, including peak load water supply.
- **Policy SAF-3.1 Minimize Storm-Induced Flooding**. Continue or strengthen city programs that seek to minimize the storm-induced flooding hazard.
- **Policy SAF-3.2 Storm-Induced Flooding Structural Risk**. Enforce and update local ordinances, and comply with regional orders, that would reduce the risk of storm-induced flooding.

City of Piedmont General Plan

The Piedmont General Plan is a State-mandated document containing the city's official long-range policies for land use and development. Its policies affect a wide range of topics, including transportation, housing, natural resources, parks, public services, community design, and infrastructure. The General Plan includes the following goals and policies:

Goal 1. Minimize risk and vulnerability of the City of Piedmont to the impacts of natural hazards and protect lives and reduce damage and losses to property, public health, economy, and the environment.

- **Policy 1.4**. Protect/harden critical facilities from natural hazards and minimize interruption of essential infrastructure, utilities, and services.

Goal 15 Actively participate in efforts to improve air and water quality in the San Francisco Bay Area.

- **Policy 15.4 Countywide Clean Water Program Participation**. Participate in the Alameda Countywide Clean Water Program and continue to be a co-permittee on the NPDES permit for urban runoff. This will require ongoing measures to monitor stormwater pollution, regulate construction runoff, sweep local streets and clean storm drain inlets, promote education and outreach programs (such as storm drain stenciling), enforce regulations and penalties for illicit discharges, and participate in County meetings to discuss water quality issues.

Goal 16 Encourage building and construction practices that minimize environmental impacts and natural resource consumption.

- **Policy 16.3 Water Conservation**. Maintain development standards and building requirements that encourage the efficient use of water. These requirements should include the use of plumbing fixtures designed for water efficiency, irrigation systems designed to minimize water waste, and allowances for graywater use in residential construction, where feasible.

Goal 17 Conserve non-renewable resources for future generations through solid waste reduction and energy management.

- **Policy 17.1 Solid Waste Reduction**. Actively promote recycling, composting, and other programs that reduce the amount of solid waste requiring disposal in landfills. The City of Piedmont will strive to exceed the waste diversion targets set by State and County waste management agencies.
- **Action 17.B Moving Beyond 75 Percent Waste Diversion**. Implement programs to increase the city's solid waste diversion rate to and beyond 75 percent, including bulk waste pick-up, e-waste pick-up, construction and debris recycling, food waste recycling, and yard waste composting. Periodically review the city's solid waste collection rate structure to ensure that it supports the city's waste reduction goals.

Goal 33. Provide and maintain high-quality community facilities that allow the efficient delivery of City services.

- **Policy 33.7 Mitigating Development Impacts**. Ensure that major development plans are reviewed by appropriate City agencies, including Police, Fire, and Public Works. Consult with other affected agencies such as the School District, EBMUD, Ava, and PG&E as needed. Recommendations for additional equipment, facilities, and improvements may be incorporated as conditions of approval based on this review.

Goal 37. Provide water, sewer, storm drainage, energy, and telecommunication services in the most efficient, cost-effective, and environmentally sound manner possible.

- **Policy 37.1 Water and Sewer Investments**. Provide sustained capital investment in Piedmont's water, sewer and storm drainage facilities to replace deteriorated components, enhance system performance and efficiency, ensure public safety, and improve environmental quality.
- **Policy 37.2 Coordination with Other Utilities**. Work with other infrastructure service providers, particularly EBMUD and PG&E, to ensure the adequacy and safety of all utility systems not under City control. This includes ensuring the long-term safety and adequacy of Piedmont's water supply and distribution system, and the safe treatment and disposal of the City's wastewater.
- **Policy 37.3 Coordination of Infrastructure Improvements**. Coordinate the scheduling of road and infrastructure improvements and maintenance work to avoid repeated pavement cuts and accompanying disruption and expenses.
- **Policy 37.5 Storm Drainage Improvements**. Monitor and assess the need for storm drainage improvements to ensure adequate system capacity and respond to Countywide Clean Water objectives.

City of Piedmont Municipal Code

The following sections of the City of Piedmont Municipal Code apply to the proposed Project.

The City of Piedmont's Construction and Demolition Debris Ordinance (as defined in the Green Building Standards of Chapter 8 of the Municipal Code) states that newly constructed residential buildings; projects increasing a building's conditioned area, volume, or size; or projects having a building permit valuation greater than or equal to $50,000 are required to divert at least 65 percent of the debris generated by the project from going to a landfill. This includes all construction, demolition, and renovation projects within the city (City of Piedmont, 2024).

Section 7.2 – Permit Required, Exception. It shall be unlawful for any person to make, or cause or permit to be made, any excavation in or under the surface of any land, public or private, in the City without first obtaining a permit from the City Council in the manner provided in this chapter. A separate permit is not required to make an excavation for a foundation or a basement in connection with the erection of a building on the premises in which the excavation is to be made and for which a building permit has been issued. (Ord. No. 110 N.S., 1).

Section 7.13 – Regulation to be Complied with During Excavation. Any person to whom an excavation permit is issued shall comply with the following:

(a) All vehicles transporting rock, earth or other materials from such excavation over the public streets of the City shall travel only over such route as may be directed by the superintendent of streets to be least dangerous to public safety, cause the least interference with general traffic and cause the least damage to the public streets.

(b) The floor of any such excavation shall not be made lower than the level thereof as set forth in the application provided for in this chapter.

(c) If, in the opinion of the superintendent of streets, any such excavation will present a dangerous condition if left open, such excavation shall be enclosed by a suitable fence.

(d) Any rock, earth or other material that may be deposited on any public street or place from any vehicle transporting such materials from any such excavation shall be immediately removed in a manner satisfactory to the superintendent of streets at the expense of the person to whom the permit to excavate was issued. (Ord. No. 110 N.S., 9).

3.17.3. Environmental Impacts

3.17.3.1. Impact Analysis Approach

This section considers the potential impact to utility and service system infrastructure in the jurisdictions through which the proposed Project would cross. Utilities and service systems also may experience impacts because of the Project's need for water or for construction waste and excavated material disposal.

Applicant Proposed Measures

PG&E did not propose any Applicant Proposed Measures (APMs) specific to utilities and service systems. No APMs relevant to other issues areas were identified as relevant to utilities and service systems.

3.17.3.2. Impact Significance Criteria

Project impacts related to utilities and service systems were evaluated against the CEQA significance criteria and are discussed in the following subsections. The impact analysis evaluates potential Project impacts during the construction phase and the operation and maintenance phase.

Significance Criteria

CEQA Guidelines Appendix G presents the following impact issues to be evaluated related to utilities and service systems. These guidelines ask if the Project would:

- *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 of which could cause significant environmental effects?*
- *Have sufficient water supplies available to serve the project and reasonably forgeable future development during normal, dry, and multiple dry years?*
- *Result in a determination by the wastewater treatment provider, which serves or may serve the project, that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?*
- *Generate solid waste in excess of state and local standards, or in excess of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?*
- *Comply with federal, state, and local management and reductions statutes and regulations related to solid waste?*

In addition to the CEQA impact issues presented in Appendix G of the CEQA Guidelines, the following impact issue from the CPUC's Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing and PEAs (CPUC, 2019) is evaluated:

- *Would the project increase the rate of corrosion of adjacent utility lines as a result of alternating current impacts?*

The following sections explain which impacts are relevant to the proposed Project and are analyzed in this section.

CEQA and CPUC PEA Checklist Items Analyzed

This section considers potential impacts of the proposed Project related to the following topics:

- *Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunication facilities, the construction of which could cause significant environmental effects.*

Construction of the Underground Power Line segment of the Project may encounter existing water, sewer, stormwater drainage, electric power, natural gas or telecommunication facilities. As a result, these facilities may be damaged during construction or they may need to be relocated. These impacts are addressed in **Impact US-1**.

- *Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.*

Construction of the proposed Project would require water for dust control. Operation of the proposed Project would require water for insulator washing. Impacts on the availability of water are addressed in **Impact US-2**.

- *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.*
- *Comply with federal, state, and local management and reductions statues and regulations related to solid waste.*

Construction of the proposed Project would require the removal and replacement of 45 existing power line structures and the removal of an additional 22 existing structures in the segment that would be relocated underground. Impacts associated with solid waste disposal and compliance with federal, state, and local management and reductions statues and regulations related to solid waste are addressed in **Impact US-3**.

Because the operation of the proposed Project has the potential to affect other existing utilities, this section considers the potential for the Project to increase the rate of corrosion of adjacent utility lines as a result of alternating current impacts in **Impact US-4.**

CEQA Checklist Items Not Analyzed

The following criteria from Appendix G of the CEQA Guidelines related to the impacts to utilities and service systems do not apply to the proposed Project, so these issues are not analyzed further for the reasons explained.

- *Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?*

The construction and operation of the proposed Project would generate minimal quantities of wastewater. As a result, it would not affect the treatment requirements of the San Francisco Regional Water Quality Control Board, nor would it require the construction of new wastewater treatment facilities or expansion of existing facilities. Small volumes of wastewater would be generated by the construction crews, such as in the use of portable toilets that would be provided for workers during the construction phase. Operations and maintenance of the Project would create no demand for wastewater treatment; this impact is not further analyzed.

3.17.3.3. Impacts and Mitigation Measures

Impact US-1: Require or result in relocated, new, or expanded water, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects.

Construction

Proposed Project construction is anticipated to occur over a 35-month period. Construction activities would involve existing access road improvement in Contra Costa County, removal of existing structures and conductors, installation of replacement structures and conductors, and installation of an underground segment. These activities have the potential to affect existing utilities, as described in the following paragraphs. Structure and conductor removal and installation could affect existing utilities through relocation or service disruption.

The Project itself is an electric power project, and its construction has the potential to require relocation of utilities and service systems.

Construction of the underground segment would require extensive trenching through city streets. This is the aspect most likely to encounter existing utilities whose proximity to proposed Project components may require that they be relocated.

All construction activities at the Moraga and Oakland X substations would take place within existing PG&E property and would involve changing out equipment to be compatible with the new conductors and looping the new optical ground wire into existing control equipment. No civil work is required for substation modifications. Construction activities for substation modifications are not analyzed further.

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT (WATER AND STORMWATER DRAINAGE FACILITIES), LESS THAN SIGNIFICANT WITH MITIGATION (TELECOMMUNICATIONS AND ELECTRICITY DISTRIBUTION FACILITIES). Construction of the Overhead Power Line Rebuild would require the removal and replacement of 45 existing structures and approximately 15 miles of existing conductor. Removal of existing structures and conductor and construction of replacement power line structures with new conductors would require relocated, new, or expanded utility services.

Water and Stormwater Drainage Facilities. Construction of the Overhead Power Line Rebuild would not require relocated or new water or stormwater drainage facilities. Construction activities required for replacement structures would not involve underground work that would interfere with water infrastructure. PG&E would be required to implement a Stormwater Pollution Prevention Plan (SWPPP) as a part of the proposed Project. Implementation of the SWPPP would reduce the demand on existing stormwater drainage facilities. The proposed Project's demand for water during construction is considered in Impact US-2. Because this segment of the proposed Project would not require relocated, new, or expanded water or stormwater drainage facilities, this impact would be less than significant.

Telecommunications and Electricity Distribution Facilities. During conductor installation for the overhead transmission rebuild, overhead electricity distribution lines or third-party communication may need to be temporarily relocated or taken out of service. Up to 8 hours would be needed to temporarily relocate or remove telecommunication and electricity lines. Communication equipment, owned by AT&T, located on structures ES26 and EN 29, would be removed and relocated. The construction of relocated utilities could cause significant environmental effects. As described in Section 2.3.4.1, PG&E would coordinate with the facility owner and provide advanced notification of planned outages to customers and utility owners. However, the impact would remain significant absent mitigation. To ensure adequate time for utility relocation, PG&E would be required to implement Mitigation Measure N-1b (Construction Notification). Mitigation Measure (MM) N-1b would require notification to utility providers at least 18 months prior to the start of construction activities as well as advance notice to affected customers. With advanced notification, utility owners would have sufficient time to design and construct new utilities with minimal environmental impacts, if relocation is permanent. With implementation of Mitigation Measure N-1b, impacts would be less than significant.

Overhead Power Line Removal

LESS THAN SIGNIFICANT WITH MITIGATION. Construction activities required for removal of existing structures in this segment of the proposed Project would be similar to the structure and conductor removal required for the Overhead Power Line Rebuild segment discussed above. PG&E would coordinate with utility owners and provide advanced notification of planned outages to customers and utility owners. However, the impact would remain significant absent mitigation. Mitigation Measure N-1b would require notification to utility providers at least 18 months prior to the start of construction activities as well as advance notice to affected customers. With advanced notification, utility owners would have sufficient time to design and construct new utilities with minimal environmental impacts, if relocation is permanent. With implementation of Mitigation Measure N-1b, impacts would be less than significant.

Underground Power Line

Construction activities for the underground segment would include two separate mile-long trenching activities in Park Boulevard and Park Boulevard Way, between the Oakland X Substation and Estates Drive. One trench (4 feet wide) for installing two circuits would be within the eastbound lanes of Park Boulevard between the Oakland X Substation and Estates Drive, and a separate trench for two additional circuits would be required within the westbound lanes. The trenching would be required so PG&E can install the underground powerline within a concrete duct bank, and for installation of large splice vaults at regular intervals. A total of 10 to 20 vaults would be required for the underground segment. Construction of the

underground segment is anticipated to take 19 months. See Section 2.3.6 for a full description of the construction activities that would be required for the Underground Power Line segment.

LESS THAN SIGNIFICANT WITH MITIGATION. Construction within city streets would not create demand for new or expanded utility services or facilities related to gas, water, stormwater, electricity, or telecommunications. However, construction of the underground segment could require relocation of existing utilities. The construction of relocated utilities could cause significant environmental effects. PG&E would be required to coordinate with utilities to identify and remediate potential conflicts with existing underground facilities per Section 4216 of the California Government Code. However, the impact would remain significant absent mitigation. Implementation of Mitigation Measure N-1b would reduce the impacts associated with collocation. With advanced notification, utility owners would have sufficient time to design and construct new utilities with minimal environmental impacts, if relocation is permanent. There exists the potential for collocation accidents which could result in significant impacts. Mitigation Measure US-1a (Underground Utilities Accident Response Plan) would be required to be implemented to ensure effective response and notification to affected utilities and customers. With implementation of MM US-1a and MM N-1b, impacts would be less than significant.

Utility Coordination and Relocation. Construction of trenches within urban roadways requires work around existing buried utilities. Due to the size of the trench and the vaults that are required for the underground conductors, PG&E may have to relocate existing facilities in order to find adequate space for the new equipment. Relocation of an existing utility requires that service be shut off for a period of time, so if this occurs, residents or businesses may be without water, gas, or telecommunications services for short periods of time. As described above, PG&E would provide advanced notification of any planned service outages to customers.

Likely underground utilities within Park Boulevard and Park Boulevard Way include water, wastewater (sewer), electric power (distribution lines), natural gas, and telecommunications. Section 4216 of the California Government Code defines actions that PG&E would have to take to protect underground structures during excavation.

PG&E has already performed subsurface utility surveys for the underground construction segment, and it would continue to identify the specific location and type of underground utilities as part of final design of the Project. Additionally, PG&E would conduct exploratory excavations (“potholing”) to confirm the potential presence of other utilities at the locations for proposed Project’s underground facilities.

Section 4216 of the California Government Code requires that at least two days prior to any excavation, PG&E must notify utility companies via the USA to locate and mark existing underground structures along the proposed Project alignment and any other area of ground disturbance. Given the likely density of existing underground utilities and the size of the required Project duct bank and vaults, the need for relocation of some underground utilities, such as water and telecommunication, is likely. The impact would remain significant absent mitigation. To ensure adequate time for utility relocation, PG&E would be required to implement Mitigation Measure N-1b (Construction Notification). Mitigation Measure N-1b would provide adequate time for utility notification in advance of Project construction. With implementation of Mitigation Measure N-1b, impacts would be less than significant.

Underground Utility Collocation Accidents. Even after PG&E implements required coordination through USA and coordination with other utilities, there exists the potential for PG&E’s construction activity to cause accidental damage to existing underground utilities during trenching, vault installation, and duct bank installation. Severe damage to existing underground utilities could result in rupture of water, wastewater, or natural gas pipelines, or disconnection of telecommunications facilities. This unplanned disruption in utility service would require immediate coordination with the utility owner and coordination to ensure repair of damaged facilities and resumption of interrupted service. The most severe consequence could be a natural gas pipeline rupture and explosion; other consequences could be a ruptured water main

flooding streets or neighborhoods. Gas leaks can release greenhouse gases and flooding of wastewater or water can lead to the release of contaminated liquids and flooding, resulting in a significant impact.

Existing law already requires that PG&E coordinate with other utilities in advance of construction, as described above. MM US-1a (Underground Utilities Accident Response Plan) is recommended to require that PG&E develop a plan for immediate response to an underground utility accident. The plan would help ensure effective response to an accident by coordinating with other utility owners. The plan would provide PG&E with procedures to immediately respond to potential gas leaks and water or wastewater flooding. The plan would also define procedures to ensure notification to affected residents and businesses affected by a potential service outage. With implementation of MM US-1a, the impact associated with collocation accidents would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. Operations and maintenance activities are anticipated to be similar to the operations and maintenance activities that occur with the existing overhead facilities. Operations and maintenance activities for the underground portion would include regular underground line inspections. Routine inspections would include quarterly visual inspections of all facilities, and detailed inspections, conducted very two years, would include visual inspection of the lines and vaults as well as infrared inspection of the terminations. PG&E would coordinate with other utilities prior to any activities that may affect other utility facilities. Impacts would be less than significant.

Mitigation Measures for Impact US-1

MM N-1b **Construction Notification.** See full text in Section 3.11, Noise.

MM US-1a **Underground Utilities Accident Response Plan.** See full text in Section 3.17.4 (Mitigation Measures).

With implementation of Mitigation Measures MM N-1b and MM US-1a, the potential impacts associated with existing utilities would be less than significant.

Impact US-2: Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.

Construction

PG&E estimates that a maximum of approximately 8,000 gallons of water would be needed daily for dust suppression for access road improvements or other construction activities using dirt access roads or unpaved staging areas. PG&E state that water would be sourced from local municipal sources close to the Project area. Water is provided by EBMUD (see Section 2.3.10.1). EBMUD can supply up to 325,000,000 gallons per day (or 325 mgd). The demand for the Project would be 0.0025% of the available supply.

Additionally, EBMUD can provide up to 9 mgd of recycled water for irrigation and non-potable consumption, if needed (PG&E, 2024).

All construction activities at the Moraga and Oakland X substations would take place within existing PG&E property and would involve changing out equipment to be compatible with the new conductors and looping the new optical ground wire into existing control equipment. No civil work is required for substation modifications. Construction activities for substation modifications are not analyzed further.

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT. Construction activities associated with the Overhead Power Line Rebuild would include the removal and replacement of 45 existing structures and reconductoring of approximately

15 miles of overhead power line. PG&E would construct the replacement foundations and install the new structures, transfer the existing conductor to pulleys on the new structures, and then remove the existing structures and, as feasible, foundations. Subsequently, new conductor would be pulled in place on the rebuilt structures. In this segment, water would be required for dust suppression during access road improvement, use of unpaved access roads or unpaved staging areas, or foundation installation and removal. Because project demand is a very small percentage of available water supplies, there is sufficient water to support project construction. The Project demand for water is also a small percentage of the projected 2050 demand of 297 mgd (see Section 3.17.1.1). Thus, impacts would be less than significant.

Overhead Power Line Removal

LESS THAN SIGNIFICANT.. This segment would require removal of 22 existing structures and approximately 5 miles of existing conductor. However, in this segment, no new structures would be erected, and structure removal would take place using paved roads. Construction activities and water use would be more limited. Water demand would be a small percentage of the available supply, and impacts would be less than significant.

Underground Power Line

LESS THAN SIGNIFICANT. Construction of the Underground Power Line segment would require trenching along Park Blvd. Approximately 257,644 cubic yards of material is expected to be excavated from the trenches; this material would be placed in trucks for removal or temporarily stored on the adjacent roadway. Water use in this segment would be required for dust suppression of excavated materials and clean-up of roads after each day's construction and the daily demand would the same as discussed above. Water demand would be a small percentage of the available supply, and impacts would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. Operations and maintenance of the overhead components of the proposed Project would require use of water for periodic insulator washing. Operations and maintenance activities for the underground portion would include regular underground line inspections. Routine inspections would include quarterly visual inspections of all facilities, and detailed inspections, conducted very two years, would include visual inspection of the lines and vaults as well as infrared inspection of the terminations. Because the proposed Project would result in a reduction of overhead facilities, there would be a reduction in water use as compared with the existing facilities. Impacts would be less than significant.

Impact US-3: 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 and comply with federal, state, and local management and reductions statues and regulations related to solid waste.

Construction

Construction of the proposed Project would require the replacement of 45 existing structures and removal of 22 existing structures. Approximately 20 miles of existing conductor would be removed, with approximately 15 miles replaced overhead and approximately 5 miles replaced in the underground segment. Additionally, approximately 297,948 cubic yards of soil would be removed for disposal at appropriate off-site facilities. Wood guard poles are not anticipated to require disposal and are anticipated to be reused. PG&E states that the CALGreen requirements of recycling or reusing 65 percent of construction waste would be met (PG&E, 2025). Conductors, lattice structures, and steel poles are expected to be recycled or reused after being removed. PG&E would haul solid waste generate during construction to appropriate landfills and would apply for industrial waste hauler permit(s) as needed, which would maintain compliance with all applicable federal, state, and local statues and regulations related to solid waste.

All construction activities at the Moraga and Oakland X substations would take place within existing PG&E property and would involve changing out equipment to be compatible with the new conductors and looping the new optical ground wire into existing control equipment. No civil work is required for substation modifications. Construction activities for substation modifications are not analyzed further.

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT. Construction activity associated with the Overhead Power Line Rebuild segment would require the removal and replacement of 45 existing structures and approximately 15 miles of conductor. Material from existing infrastructure that would be removed as part of the proposed Project, such as conductor, steel, concrete, and other debris, would be temporarily stored in material yards as the material awaits salvage, recycling, or disposal. Construction of this segment would result in approximately 900 cubic yards of waste from the removal of 75 existing structures.

The landfills that would serve the waste generated from the proposed Project have a combined remaining capacity of over 100 million cubic yards (see Table 3.17-1).

The available capacity for standard waste is adequate to accommodate all the solid waste that would be generated during construction of the proposed Project Therefore, the construction-related impact on solid waste facilities would be less than significant.

Overhead Power Line Removal

LESS THAN SIGNIFICANT. Construction activity associated with the Overhead Power Line Removal segment would require the removal of 22 existing structures and approximately 5 miles of conductor. Approximately 20 cubic yards of waste would be generated from the removal of 5 miles of conductor. As described for the Overhead Power Line Rebuild segment, the available capacity for both standard waste and treated wood waste is adequate to accommodate all of the solid waste that would be generated during construction of the proposed Project Therefore, impacts related to construction would be less than significant.

Underground Power Line

LESS THAN SIGNIFICANT. Construction of the Underground Power Line segment would require excavation of soil, pavement, and road base during trenching for installation of the underground line segment. During trenching, approximately 154,589 cubic yards of material (primarily soil) would be excavated and removed for disposal. Excavated soil, pavement, concrete and road base is estimated to be approximately 9,828 cubic yards per vault.

As discussed in Section 3.9 (Hazards, Hazardous Materials, and Public Safety), construction of the underground powerline would occur in areas where there is a history of contaminated soil. PG&E would implement soil sampling and testing in these areas. Any contaminated soil is expected to be taken to Kettleman Hills or Clean Harbors Buttonwillow, which accept hazardous waste. The Kettleman Hills and Clean Harbors Buttonwillow landfills have an estimated remaining capacity of at least 15,600,000 cubic yards (see Table 3.17-1). Additional landfill facilities that could accept non contaminated soil and other excavated materials for disposal have combined remaining capacity over 100 million cubic yards (see Table 3.17-1). This available capacity for both contaminated and non-contaminated materials is adequate to accommodate excavated materials. Therefore, impacts would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. Operations and maintenance activities may require replacement of project components similar to activities associated with the existing power line structures. These activities would not generate significant quantities of solid waste. There would be no change from existing operation and maintenance activities and a less-than-significant impact would occur.

Impact US-4: Increase the rate of corrosion in nearby pipelines.

Construction

NO IMPACT. Construction activities required to build the proposed Project would have no effect on rates of corrosion of nearby pipelines. Corrosion of nearby pipelines would only occur once the proposed Project is energized, during the operations and maintenance phase.

Operations and Maintenance

Power lines carrying high-voltage electricity create electromagnetic fields that can induce electric current in nearby pipelines. This induced voltage causes current to flow between the pipeline and the surrounding soil, which can lead to corrosion of the pipeline.

As described in Section 2.6.4 of the Project Description, site-specific conditions, such as moisture, temperature, and the type of metal and their conductivities, would create different rates of corrosion which would be observed during regular inspections and maintenance would be scheduled accordingly. Maintenance would include replacing cathodic protection components such as a corroded galvanic anode. For the existing overhead segments of the power line, PG&E has already installed cathodic protection to protect nearby pipelines. Cathodic protection would be installed on new structures, as determined through coordination with other utility system owners. However, the proposed underground segment would be in a new location, so there may not be cathodic protection in that area. The presence of a new electric utility in the underground segment has the potential to increase the rate of corrosion of nearby metal pipelines.

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT. The Overhead Power Line Rebuild segment would replace existing transmission facilities in the same right-of-way. The cathodic protection of pipelines is in place for the existing Power lines and there would be no change due to operation of the proposed Project. Final design would include a cathodic protection system for the approved Project location. As a result, there would be no increase in the rate of corrosion of nearby pipelines. Impacts would be less than significant.

Overhead Power Line Removal

NO IMPACT. The removal of transmission infrastructure would eliminate any existing potential for corrosion of adjacent utilities in this segment. There would be no pipeline corrosion impact as a result of this aspect of the proposed Project.

Underground Power Line

LESS THAN SIGNIFICANT. PG&E has performed subsurface utility surveys and would continue to identify utilities prior to final design. As described in Section 2.3.6, PG&E would evaluate the proximity of other pipelines and the potential for induced current to increase corrosion. PG&E would coordinate with the utility owners to determine necessary measures to reduce corrosion. These measures could include cathodic protection devices that PG&E would install. Final design of the proposed Project would include a cathodic protection system as part of the grounding function for the approved Project location. With implementation of a cathodic protection system, impacts would be less than significant.

3.17.4. Mitigation Measures

MM N-1b **Construction Notification.** See full text in EIR Section 3.11, Noise.

MM US-1a **Underground Utilities Accident Response Plan.** PG&E shall prepare and implement a plan to facilitate immediate response to damage caused to an underground utility. The plan

shall be submitted to the CPUC for review and approval at least 60 days before the start of construction in any underground segment. The plan shall include:

- A list of emergency contacts for all utility providers within the Underground Power Line segment ROW and for the Cities of Oakland and Piedmont emergency response providers. This information shall be retained onsite where underground construction is taking place.
- Description of actions to be taken by PG&E's construction personnel in the event of an accident affecting each different type of underground utility (e.g., natural gas, water, telecommunications, sewer).
- Description of notification processes to the affected community in the event of an unanticipated service outage.
- Description of the service areas covered by existing underground utilities so notification to the community can be effectively communicated.
- Documentation of coordination with all utility owners with facilities in the immediate vicinity of proposed Project construction, including their review of PG&E's construction plans and a description of any protective measures or compensation to be implemented to protect affected utilities.

3.17.5. References

CPUC (California Public utilities Commission). 2019. Guidelines for Energy Project Applications Requiring CEQA Compliance: pre-filing and Proponent's Environmental Assessments. https://www.cpuc.ca.gov/-/media/cpuc-website/files/legacyfiles/c/6442463239-ceqa-pre-filing-guidelines-pea-checklist-nov-2019.pdf. Accessed May 12, 2025.

Oakland, City of, 2025. City of Oakland Code of Ordinances. https://library.municode.com/ca/oakland/codes/code_of_ordinances. Accessed March 12, 2025.

PG&E (Pacific Gas & Electric Company), 2025. Email correspondence from Brandon Liddell (PG&E) to Hedy Koczwara (Aspen Environmental Group) and Tharon Wright (CPUC). May 23, 2025.

_____, 2024. Moraga-Oakland X 115 kV Rebuild Project Proponent's Environmental Assessment. Application A.24-11-005. November 15. https://ia.cpuc.ca.gov/environment/info/aspen/moraga-oakland/toc-pea.htm.

Piedmont, City of, 2025. Piedmont City Code – Chapter 7: Excavations. https://cdnsm5-hosted.civiclive.com/UserFiles/Servers/Server_13659739/File/Government/City%20Charter%20&%20Code/Chapter%207.pdf?v=3RwRntS4M&v=3RwRntS4M. Accessed March 18, 2025.

3.18. Wildfire

This section describes existing conditions and potential impacts related to wildfire as a result of construction, operation, and maintenance of the Project. This section addresses temporary increases in fire ignition due to the use of vehicles with combustion engines, "hot work" (i.e., activities that generate heat, sparks, or flame, such as welding, cutting, and soldering) and temporary limitations on roadway access during construction. Impairments to public services such as fire and police protection due to temporary lane closures are discussed in Section 3.13, Public Services. Impacts to emergency access are discussed in Section 3.15, Transportation. This section also addresses potential operational impacts to wildfire risk. The Project's potential effects associated with wildfire were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The impacts and conclusions are discussed in more detail in Section 3.18.3.3 (Environmental Impacts).

During the scoping effort conducted by the California Public Utilities Commission (CPUC) from February 25 through March 27, 2025, numerous public comments expressed concerns related to wildfire. The wildfire concerns relating to environmental impacts were considered in the analysis:

- Concern with wildfire risk associated with proposed aboveground rebuilt lines in areas that are heavily wooded, densely populated, experience strong canyon winds, or have limited ingress and egress routes.
- Identify potential impacts from overhead lines, mitigation for wildfire, and prevention reduction measures.
- Consult with the Oakland Fire Department (OFD) and discuss alternatives that underground the power lines in Diamond Canyon and Shepherd Canyon, both areas with high fire risk.
- Consider the recent wildfires in Los Angeles, CALFIRE's Fire Hazard Severity Zone map, and Executive Order N-18-25.
- Consider removal of the towers, especially those bordering residential areas, as it could provide a fire break that would allow for a fire road to be maintained above underground lines and remove the risk of fires associated with aboveground lines.
- Note that Orinda-Moraga was one of the top three areas identified as being at risk of experiencing the next Pacific Palisades-style disaster.
- Concern that the proposed Project towers would only be built to withstand 85 mile per hour (mph) winds while gusts over 80 mph have been documented in the area recently.
- Concern that PG&E is not making an effort to underground lines in high fire danger areas.
- Concern that the Montclair area only has three roads serving 10,000 residents and if a fire were to occur and result in a road blockage, it would be catastrophic.
- Concern that "hardening" utility poles does not mitigate wildfire risk given the high risk of trees falling, as noted in PG&E's Wildfire Mitigation Plan.
- Concern that Shepherd Canyon is an unsuitable area for the Project, as this is a high fire danger area with dense residential development and vegetation, heavy infrastructure, and difficult egress. This canyon is also a wind funnel that experienced a wildfire in 1993.
- Maintaining high-voltage power lines overhead through the densely populated Very High Fire Hazard Severity Zone (FHSZ) in Montclair poses an unacceptable risk.
- The Wildfire Transmission Risk Model (WTRM) used does not reflect future climate change impacts on ignition risk. Consider the Project's impacts in the context of the environment that would exist in the coming decades. Evaluate potential environmental impacts from a fire in the Oakland hills or estimate the lives and properties at risk from overhead lines causing a fire.
- Consider and quantify the impacts of wildfire in the proposed overhead line zones.

One commenter asked why the OFD had not been contacted. The EIR team engaged OFD in preliminary consultation subsequent to the public scoping meetings, as discussed in Section 3.18.3.3, below (OFD, 2025). Another commenter asked that the CPUC's 10-year undergrounding plan be corrected to include significant portions of the Oakland Hills that have been omitted despite the 1991 wildfire and the passage of Senate Bill (SB) 884. This action is not within the scope of this CEQA process, but the comment has been shared with the CPUC.

3.18.1. Environmental Setting

As discussed in Section 2.0, Project Description, the proposed Project would span across the City of Orinda, unincorporated areas of Contra Costa County, and the cities of Oakland and Piedmont within Alameda County. The Project spans approximately 5 miles, starting in the City of Orinda at Moraga Substation and ending at Oakland X Substation in the City of Oakland (See, Fig. 2.1-1a, "Overview with Existing Lines"). As discussed in Section 3.18.1.3, below, the topography in the area includes rolling hills, vegetated canyons, and higher elevations in the eastern and central reaches of the Project. A more gradual slope with less topographical variation occurs in the western segment of the Project. Project elevation ranges from approximately 650 feet above mean sea level (amsl) at Moraga Substation to approximately 1,370 feet amsl when the lines crest the Oakland Hills and then descends to approximately 140 feet amsl at Oakland X Substation.

Fire protection services and equipment relevant to the Project are discussed in detail in Section 3.13, Public Services. Data presented in this section is based primarily on PG&E's Proponent's Environmental Assessment (PEA), reviewed and verified by EIR authors; the PEA is not cited.

3.18.1.1. High Fire Risk Areas and Responsibility Areas

CAL FIRE and CPUC Risk Mapping

CAL FIRE's FHSZ maps identify levels of fire hazard severity based on factors such as potential fuel sources, terrain, weather, fire behavior characteristics, burn probabilities, and the likelihood of vegetation exposure. In the Project vicinity, FHSZs are designated as either a State Responsibility Area (SRA) or Local Responsibility Area (LRA) for preventing or suppressing fires. See Figure 3.18-1 (CAL FIRE Fire Hazard Severity Zones). SRAs are areas of the state outside of incorporated city boundaries and federal ownership, in which CAL FIRE has the primary financial responsibility of preventing and suppressing fires. (Pub. Resources Code, § 4102.)

In SRAs and LRAs, CAL FIRE has designated moderate, high, and very high FHSZs. FHSZs were established using a science-based model that assigns a hazard score based on the factors that influence fire likelihood and fire behavior. Factors considered include fire history, existing and potential vegetation fuels, predicted flame length, blowing embers, terrain, and typical fire weather for the area. FHSZ maps evaluate hazard, not risk, where hazards are based on the physical conditions that create a likelihood and expected fire behavior over a 30- to 50-year period without considering measures such as home hardening, recent wildfire, or fuel reduction efforts (CAL FIRE, 2025).

CAL FIRE has been developing a new fire model and updating its maps. It completed mapping updates to SRAs at the end of 2023, which went into effect in April 2024 (OFSM, 2025). As of spring 2025, CAL FIRE has been mapping LRAs, with updates to be provided in four phases. CAL FIRE issued recommended changes to LRAs in Contra Costa and Alameda Counties, which comprise Phase 2, which was completed in February 2025. These updates are subject to review with local jurisdictions and are not official until formally adopted by the local jurisdictions (OSFM, 2025). Local governing agencies must designate very high, high, and moderate FHSZs within 120 days following recommendations from CAL FIRE, but may not downgrade the levels of severity proposed by the State Fire Marshal (Govt. Code, § 51179(a)).

As shown on Figure 3.18-1 (CAL FIRE Fire Hazard Severity Zones), nearly three-quarters of the Project Right of Way (ROW) is within areas designated as very high FHSZs. It also crosses areas with no FHSZ designation

at its eastern and western ends. Of the approximately 5.0-mile-long Project alignment, approximately 3.6 miles are within a very high FHSZ, of which approximately 1.2 miles are within the very high FHSZ designation in an SRA and 2.4 miles of the overhead and 0.4 miles of the underground alignment within an LRA. Approximately 0.4 miles of the existing overhead and approximately 0.8 miles of the underground portion have no designated FHSZ.

The Project crosses both LRAs and SRAs. As shown on Figure 3.18-1, the eastern segment of the Project (generally consisting of structures in Figure 2.1-2, Detail Maps 4, 10, 11, and 12) is primarily within a very high FHSZ in an SRA. In Alameda County, the Project is in a very high FHSZ in an LRA from the county line to approximately Park Boulevard in Oakland (generally consisting of structures in Figure 2.1-2, Detail Maps 13 through 19); the remainder of the western section of the Project (generally consisting of structures in Figure 2.1-2, Detail Maps 20-23) has no FHSZ designation.

In 2021, the CPUC adopted its High Fire-Threat Map, which designates utility High Fire-Threat Districts (HFTD). These areas require enhanced fire safety in consideration of utility-based wildfire risks. As shown on Figure 3.18-2 (CPUC High Fire Threat Districts), approximately 3 miles of the Project is within Tier 3-Extreme High Fire Threat Districts and approximately 1 mile is within Tier 2-Elevated Threat Districts. The westernmost approximately 1 mile of the alignment is not in a CPUC HFTD.

Wildland Urban Interface

The Wildland Urban Interface (WUI) is the zone of transition between unoccupied land and human development. It is the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetation that can become fuels for wildfire ignition. Communities adjacent to and surrounded by wildland are at varying degrees of risk from wildfires. A major contribution to the severity and devastating outcomes of many WUI fires stems from the effect of fires spreading from the wildlands to deeper within a built community. Within a built community, fires can spread from structure to structure. In the most destructive WUI fires, fire spread also is compounded by high winds and structures burning unmitigated by fire suppression actions.

Three types of WUI identified by CAL FIRE occur in the Project, as defined below (CAL FIRE, 2015).

- Urban Interface is defined as dense housing adjacent to vegetation that can burn in a wildfire.
- Urban Intermix is defined as housing development interspersed in an area dominated by wildland vegetation subject to wildfire.
- Wildfire Influence Zone is defined as wildfire-susceptible vegetation.

The WUI types along the Project alignment are illustrated on Figure 3.18-3 (Wildland Urban Interface). Approximately 2.5 miles of the Project is within the WUI Wildfire Influence Zone in the eastern and central sections. Approximately 1.7 miles and approximately 0.3 miles of the Project is within the WUI Urban Interface and WUI Urban Intermix areas in the central and western sections, respectively. The western end of the western section, approximately 0.6 mile, is not part of a WUI.

3.18.1.2. Fire Occurrence

Fire history is an important factor in understanding fire frequency, fire type, significant ignition sources, and vulnerable areas. The topography, vegetation, and climatic conditions associated with the Oakland Hills combine to create a unique situation capable of supporting large-scale, high-intensity, and sometimes damaging wildfires.

Factors Affecting Fire Occurrence

Nearly all major wildfires in the Oakland Hills have burned in the months of September to November. This period coincides with the end of the dry summer season, where vegetation has lower fuel moisture and Diablo winds (easterly or northeasterly winds caused by strong inland high pressure, sinking air, and lower

pressure off the coast) return to the area. Diablo winds are similar to the Santa Ana winds that occur in Southern California. These winds are hot, dry, and powerful, and cause low humidity and dry out vegetation, creating conditions conducive to rapid wildfire spread. During these highly dangerous wildfire conditions, communities along the WUI are at particular risk of the spread of wildfire, even if they are relatively urbanized, as high-speed winds transport embers towards development, and buildings and vegetation can catch fire.

While not all the fires in the Bay Area were associated with Diablo winds, the largest and most damaging fires have occurred during such winds. The history of wildfire ignitions in the area are directly related to human activity. Notable ignition locations include view spots along Grizzly Peak Boulevard or Skyline Boulevard that offer views of the San Francisco Bay and congregation areas within Joaquin Miller Park, along Skyline Boulevard near Sequoia Point. Stolen vehicle dump sites are another potential wildfire ignition source, with notable locations in Joaquin Miller Park (near Sequoia Point) and at the water tank on Skyline Boulevard, approximately 0.5 miles west of its intersection with Grass Valley Road. Mechanized and power equipment use such as mowers on private residential parcels is another potential ignition source. This source was responsible for igniting the 1970 Diablo Fire, which burned approximately 204 acres after igniting near Buckingham Boulevard and Norfolk Road in Berkeley, approximately 2.3 miles from the Project alignment. Fireworks present another potential ignition source in early summer on or near July 4, notably at King Estates Park. Other potential ignition sources include vehicle-originated fires along area roads, including SR-13 and SR-24 and I-580.

Fire History in the Project Vicinity

The National Wildfire Coordinating Group, a federal government working group that coordinates wildfire term standardization, provides the following definition of a "large fire:" "(1) A fire burning more than a specified area of land, [for example], 300 acres for statistical purposes, and (2) A fire burning with a size and intensity such that its behavior is determined by interaction between its own convection column and weather conditions above the surface" (PG&E, 2022). PG&E's 2023-2025 Wildfire Mitigation Plan (WMP) (2024) defines a "large fire" as "[a] fire that burns 300 or more acres but does not meet the definition of a Destructive or Catastrophic fire." A "destructive fire" is defined by PG&E as "[a] fire that destroys 100 or more structures but does not result in a serious injury or fatality." A "catastrophic fire" is defined by PG&E as a fire "that caused at least one death, damaged over 500 structures, or burned over 5,000 acres." Based on these criteria, 300 acres or greater was used to define a large fire.

The October 1991 Tunnel Fire is a well-known, large wildfire in the Berkeley-Oakland Hills. This catastrophic fire caused 25 deaths and damaged more than 3,000 structures; many of these deaths occurred during the evacuation of residential areas in the path of the fire. It was ignited by an unknown source on a residential hillside in Berkeley, approximately 2.4 miles north of the Project alignment. The Tunnel Fire burned approximately 1,700 acres as it moved south across SR-24 into Berkeley and Oakland neighborhoods.

CAL FIRE's incident-reporting data goes back to 2013, and records for each year starting with 2013 were reviewed. According to CAL FIRE incident reporting, within the past 10 years, no wildfire incidents greater than 300 acres were reported within 5 miles of the Project. The CAL FIRE incidents within 5 miles of the Project site in the last 10 years smaller than 300 acres involved six fires between approximately 15 acres and 45 acres; no ignition source is stated for any of them. These fires are described briefly as follows:

- The Fish Fire (2017) burned approximately 20 acres near the intersection of SR-24 and Fish Ranch Road, which is approximately 0.5 mile north of a potential staging area for the Project and 2.3 miles from Project work areas.
- The Edwards Fire (2017) burned approximately 22 acres near the intersection of Edwards Avenue and Mountain Boulevard, which is approximately 3.7 miles south of the Project alignment.
- The Buckingham Fire (2018) burned approximately 45 acres near Buckingham Boulevard and Morgan Road in Moraga, which is approximately 2.4 miles east of Moraga Substation.

- The Merrill Fire (2019) burned approximately 40 acres near Merrill Circle North and Merrill Drive in Moraga, which is approximately 3.2 miles south of Moraga Substation.
- The Irvine Fire (2020) burned approximately 30 acres near Irvine Drive in Moraga, which is approximately 3.5 miles south of Moraga Substation.
- The Keller Fire (2024) burned approximately 15 acres after igniting near a residence on Sanford Street at Keller Avenue in Oakland, which is approximately 4.3 miles south of the Project alignment.

3.18.1.3. Power Line Ignition Risk

Per GO 131-E, power lines are lines designed to operate between 50 and 200 kilovolts (kV), such as those involved in the proposed Project. Power lines can be a source of human-caused wildfire ignitions.

Only about 10 percent of wildfires are started by electric utility equipment, and many of those fires result in little or no property damage; however, some of these fires can cause significant damage, as has occurred in recent years (CPUC, 2025a). Utility powerlines caused at least 8 of the 20 most destructive fires in California's history (CAL FIRE, 2025b; CPUC, 2025a; LAO, 2025).Wildfires caused by power lines can be particularly damaging, in part because some of the factors that cause utility ignitions, such as high winds damaging electrical lines, also contribute to a rapid spread of fire that is difficult to control (LAO, 2025). As shown in Table 3.18-1, the majority of wildfires started by electrical facilities in California are lower voltage distribution lines; however, PG&E 115 kV equipment started the 2018 Camp Fire in Butte County.

Surface fuels, branches, and trees that come into contact with lines, coupled with high-speed wind conditions, high temperatures, and low humidity, are main causes of ignition. Power lines in areas surrounded by dense vegetation and steep topography are at higher risk of causing fires than power lines in lower fire hazard areas.

A study of historical data has also found that ignitions per 100 miles are nearly three times more for electric distribution lines[42] compared with high voltage transmission lines (PG&E, 2019).[43] This is because higher voltage lines are on taller structures and are more widely spaced, which limits their contact with other flammable debris and vegetation and reduces the chances of electrical arcs (Taylor & Roald, 2022; BLM, 2015). Taller, high-voltage transmission or power lines are also typically constructed of fire-resistant steel. In comparison, smaller, low-voltage distribution lines have historically been constructed of wood, although many utilities in the U.S. are in the process of replacing distribution lines in areas of high fire risk with steel poles.

In the last few years, power conductor technology has been improved to reduce the risk of wildfire caused by power lines. Conductor lines may be covered with insulation to protect against contact with fuels and trees. This infrastructure hardening effort is ongoing throughout the State to cover more high-risk areas. Fuel management (i.e., strategic removal of vegetation to reduce wildfire risk) has also been employed to minimize fuel contact with power lines (Sayarshad, 2023). Replacing aging components (as would occur with this proposed Project) and moving overhead power lines underground are also effective ways to prevent ignition. While undergrounding lines nearly eliminates ignition risk, it is very expensive and may be physically or logistically infeasible in remote areas with steep terrain and limited access or dense urban environments with limited construction space. As a result, utilities typically select lines with the highest risk of ignition and failure (i.e., aged components) for undergrounding. Efforts are ongoing to create a wildfire risk model to identify which electrical lines are the most optimal for undergrounding (Taylor & Roald, 2022).

[42] A distribution line is a low voltage power line, operating under 50 kV, that delivers electricity from a substation to individual consumers, like homes and businesses.
[43] A transmission line is a line that operates at or above 200 kV.

Additionally, General Order (GO) 95 was adopted to establish requirements for the design, construction, and maintenance of overhead lines in California, to ensure adequate service as well as the safety of those constructing, maintaining, and operating such lines and the general public.

Table 3.18-1 summarizes fires in California that were started by components of electrical facilities, including power lines, distribution lines, and transmission lines.

Table 3.18-1. Fires Started by Electrical Facilities

Name	Cause	Date	County	Deaths	Structures Destroyed (Acres)	Source
Camp	**115 kV Power Line & 12 kV Distribution Circuit** 1921 line; worn electrical components	Nov. 2018	Butte	85	18,804 (153,336)	CAL FIRE (California Department of Forestry and Fire Protection), 2025b. Top 20 Most Destructive California Wildfires. https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/our-impact/fire-statistics/top20_destruction_061925.pdf?rev=44aa48ce19614b759d44cf02380f34a5&hash=59939EF7BE88548E2E8B4D718F060531. Accessed July 15, 2025. CAL FIRE (California Department of Forestry and Fire Protection), 2025c. Top 20 Deadliest California Wildfires. Dated June 19. https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/our-impact/fire-statistics/top20_deadliest_061925.pdf?rev=15874b8e5cad42a09a08d7c2a31951fc&hash=0D88BDBFADE20E4116107AE1784C7303. Accessed July 15, 2025. CPUC (California Public Utilities Commission), 2019a. Appendix A: SED Incident Investigation Report for 2018 Camp Fire. https://www.cpuc.ca.gov/-/media/cpuc-website/industries-and-topics/documents/wildfire/staff-investigations/i1906015-appendix-a-sed-camp-fire-investigation-report-redacted.pdf?sc_lang=en&hash=FC40497355B496C4BE040275A72A43B4. Accessed April 28, 2025.
Tubbs	**Electrical**	Oct. 2017	Napa, Sonoma	22	5,636 (36,807)	CAL FIRE (California Department of Forestry and Fire Protection), 2025b. Top 20 Most Destructive California Wildfires. https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/our-impact/fire-statistics/top20_destruction_061925.pdf?rev=44aa48ce19614b759d44cf02380f34a5&hash=59939EF7BE88548E2E8B4D718F060531. Accessed July 15, 2025. CAL FIRE (California Department of Forestry and Fire Protection), 2025c. Top 20 Deadliest California Wildfires. Dated June 19. https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/our-impact/fire-statistics/top20_deadliest_061925.pdf?rev=15874b8e5cad42a09a08d7c2a31951fc&hash=0D88BDBFADE20E4116107AE1784C7303. Accessed July 15, 2025.
Redwood Valley	**Distribution Line**	Oct. 2017	Mendocino	9	36,523 (544)	CAL FIRE (California Department of Forestry and Fire Protection), 2025c. Top 20 Deadliest California Wildfires. Dated June 19. https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/our-impact/fire-statistics/top20_deadliest_061925.pdf?rev=15874b8e5cad42a09a08d7c2a31951fc&hash=0D88BDBFADE20E4116107AE1784C7303. Accessed July 15, 2025.
Atlas	**Distribution Line**	Oct. 2017	Napa, Solano	6	51,624 (781)	CAL FIRE (California Department of Forestry and Fire Protection), 2025c. Top 20 Deadliest California Wildfires. Dated June 19. https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/our-impact/

Name	Cause	Date	County	Deaths	Structures Destroyed (Acres)	Source
						fire-statistics/top20_deadliest_061925.pdf?rev=15874b8e5cad42a09a08d7c2a31951fc&hash=0D88BDBFADE20E4116107AE1784C7303. Accessed July 15, 2025.
Zogg	**Distribution Line** Tree fell on conductors	Sept. 2020	Shasta	4	204 (56,338)	CPUC (California Public Utilities Commission), 2022. Incident Investigation Report of the Zogg Fire. https://www.cpuc.ca.gov/-/media/cpuc-website/industries-and-topics/documents/wildfire/staff-investigations/sed-investigation-report---zogg-fire-e20201009-01__redacted.pdf. Accessed April 28, 2025.
Valley	**Electrical**	Sept. 2015	Lake, Napa, Sonoma	4	76,067 (1,955)	CAL FIRE (California Department of Forestry and Fire Protection), 2025b. Top 20 Most Destructive California Wildfires. https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/our-impact/fire-statistics/top20_destruction_061925.pdf?rev=44aa48ce19614b759d44cf02380f34a5&hash=59939EF7BE88548E2E8B4D718F060531. Accessed July 15, 2025.
Woolsey	**Electrical** Electrical equipment on distribution line	Nov. 2018	Ventura	3	96,949 (1,643)	CAL FIRE (California Department of Forestry and Fire Protection), 2025b. Top 20 Most Destructive California Wildfires. https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/our-impact/fire-statistics/top20_destruction_061925.pdf?rev=44aa48ce19614b759d44cf02380f34a5&hash=59939EF7BE88548E2E8B4D718F060531. Accessed July 15, 2025. CPUC (California Public Utilities Commission), 2019c. Investigation Report of the Woolsey Fire. https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/safety-and-enforcement-division/investigations-wildfires/sed-investigation-report---woolsey-fire---redacted.pdf. Accessed April 28, 2025.
Nuns	**Distribution Line** Alder tree came into contact with a conductor due to delayed vegetation management	Oct. 2017	Sonoma	3	54,382 (1,355)	CAL FIRE (California Department of Forestry and Fire Protection), 2025b. Top 20 Most Destructive California Wildfires. https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/our-impact/fire-statistics/top20_destruction_061925.pdf?rev=44aa48ce19614b759d44cf02380f34a5&hash=59939EF7BE88548E2E8B4D718F060531. Accessed July 15, 2025.
Thomas	**Distribution Lines** Two 16 kV lines came into contact with each other	Dec. 2017	Ventura, Santa Barbara	2	281,893 (1,060)	CAL FIRE (California Department of Forestry and Fire Protection), 2025b. Top 20 Most Destructive California Wildfires. https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/our-impact/fire-statistics/top20_destruction_061925.pdf?rev=44aa48ce19614b759d44cf02380f34a5&hash=59939EF7BE88548E2E8B4D718F060531. Accessed July 15, 2025. CPUC (California Public Utilities Commission), 2018. Investigation Report of the December 4, 2017, Wildfire in Santa Paula, California Involving South California Edison Facilities That Came to Be Known as The Thomas Fire. https://www.cpuc.

Name	Cause	Date	County	Deaths	Structures Destroyed (Acres)	Source
						ca.gov/-/media/cpuc-website/divisions/safety-and-enforcement-division/investigations-wildfires/sed-investigation-report---thomas-fire---redacted.pdf. Accessed April 28, 2025. CAL FIRE (California Department of Forestry and Fire Protection), 2025d. Top 20 Largest California Wildfires. Dated June 19. https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/our-impact/fire-statistics/top-20-largest-ca-wildfires.pdf?rev=fba7bfc52eab4d5d87fbee5bd9416ed8&hash=270E810A7FCF091122EE2A18EB24ACB6. Accessed July 15, 2025. VCFD (Ventura County Fire Department), 2019. VCFD determines cause of the Thomas Fire. https://vcfd.org/news/vcfd-determines-cause-of-the-thomas-fire/. Accessed April 28, 2025.
Witch	**69 kV Power Line** Electrical arc with communication line ignited nearby vegetation	Oct. 2007	San Diego	2	197,990 (1,650)	CAL FIRE (California Department of Forestry and Fire Protection), 2025b. Top 20 Most Destructive California Wildfires. https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/our-impact/fire-statistics/top20_destruction_061925.pdf?rev=44aa48ce19614b759d44cf02380f34a5&hash=59939EF7BE88548E2E8B4D718F060531. Accessed July 15, 2025. CAL FIRE (California Department of Forestry and Fire Protection), 2025d. Top 20 Largest California Wildfires. Dated June 19. https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/our-impact/fire-statistics/top-20-largest-ca-wildfires.pdf?rev=fba7bfc52eab4d5d87fbee5bd9416ed8&hash=270E810A7FCF091122EE2A18EB24ACB6. Accessed July 15, 2025. CPUC (California Public Utilities Commission), 2008. Report of the Consumer Protection and Safety Division Regarding the Guejito, Witch, and Rice Fires. https://docs.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/93739-08.htm. Accessed July 8, 2025.
Fairview	**Distribution Line** Contact & arcing between distribution line & communications line; insufficient clearance between lines	Sept. 2022	Riverside	2	36 (28,098)	CPUC (California Public Utilities Commission), 2024. Incident Investigation Report of the Fairview Fire. https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/safety-and-enforcement-division/documents/citations/sce/fairview-fire/enclosure-1--seds-incident-investigation-report-june-282024--redacted-sce.pdf. Accessed April 28, 2025. CPUC (California Public Utilities Commission), 2025b. Citation Issued Pursuant to Decision 16-09-055. https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/safety-and-enforcement-division/investigations-wildfires/citation--d1609055-w2503001-fairview-fire.pdf. Accessed April 28, 2025.

Name	Cause	Date	County	Deaths	Structures Destroyed (Acres)	Source
Dixie	**Distribution Line** A 12 kV distribution line came into contact with a tree	July 2021	Butte, Plumas, Lassen, Tehama	1	963,309 (1,311)	CAL FIRE (California Department of Forestry and Fire Protection), 2025b. Top 20 Most Destructive California Wildfires. https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/our-impact/fire-statistics/top20_destruction_061925.pdf?rev=44aa48ce19614b759d44cf02380f34a5&hash=59939EF7BE88548E2E8B4D718F060531. Accessed July 15, 2025. CAL FIRE (California Department of Forestry and Fire Protection), 2025d. Top 20 Largest California Wildfires. Dated June 19. https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/our-impact/fire-statistics/top-20-largest-ca-wildfires.pdf?rev=fba7bfc52eab4d5d87fbee5bd9416ed8&hash=270E810A7FCF091122EE2A18EB24ACB6. Accessed July 15, 2025. CPUC (California Public Utilities Commission), 2023a. Incident Investigation Report of the Dixie Fire. https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/safety-and-enforcement-division/investigations-wildfires/dixie-fire-investigation-report.pdf. Accessed April 28, 2025.
Old	**Distribution Line** 12 kV conductors sparked above dry vegetation due to inadequate clearance between 2 phases of conductors	May 2022	Napa	0	0 (570)	CPUC (California Public Utilities Commission), 2023b. Incident Investigation Report of the Old Fire. https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/safety-and-enforcement-division/investigations-wildfires/old-fire-investigation-reportpgeredacted.pdf. Accessed April 28, 2025.

3.18.1.4. Fire Risk

Fire risk factors include topography, vegetation types, and weather. Information on vegetation types and weather for the Project area is presented in the following sections. PG&E used its WTRM to estimate wildfire risk with the implementation of the proposed Project. This section presents data on local vegetation types and weather, as well as a description of the WTRM and how the modeling was conducted.

Topography

Topography affects wildfire movement and spread. Steep terrain typically results in faster upslope fire spread due to preheating of uphill vegetation. Flatter areas typically result in slower fire spread, absent windy conditions. Topographic features such as saddles, canyons, and chimneys (land formations that collect and funnel heated air upward along a slope) may form unique circulation conditions that concentrate winds and funnel or accelerate fire spread. For example, fire normally moves more slowly downslope than upslope. Terrain also may buffer, shelter, or redirect winds away from some areas based on canyons or formations on the landscape. Saddles occurring at the top of drainages or ridgelines may facilitate the migration of wildfire from one canyon to the next.

Much of the Project is in the East Bay Hills, to the east of the San Francisco Bay. The hillslopes and canyons of the East Bay Hills meet the Bay plain to the west and slope upward to the northwest-southeast-oriented ridgeline to the east. The lowest elevations in the very high FHSZ crossed by the Project are approximately 70 feet amsl at the bottoms of Arroyo Viejo and San Leandro Creek. The highest elevations are in the northern portion of the very high FHSZ at approximately 1,500 feet amsl near Grizzly Peak. The elevations in the vicinity of the Project are shown on Figure 3.18-4 (Project Area Elevation).

The very high FHSZ associated with the Project is characterized by multiple drainages (areas where water naturally flows through the landscape) that run generally east to west, or northeast to southwest, downward from the summit ridgeline that roughly parallels Grizzly Peak Boulevard and Skyline Drive. Listed in general north to south order, prominent watersheds and drainages in the vicinity of the Project include Claremont Canyon, Temescal Creek, Shephard Creek, Palo Seco Creek, Sausal Creek, Horseshoe Creek, Rifle Range Branch, Country Club Creek, Arroyo Viejo, Grass Valley Creek, and San Leandro Creek. The creeks generally converge into a few larger creeks in the lower Bay plain region, ultimately reaching the San Francisco Bay. Shephard Creek, in Shepherd Canyon Park, forms a southwest-northeast drainage that crosses the Project alignment. The steepest slopes in the very high FHSZ have gradients up to 62 degrees, although most of the area has slope gradients of less than 27 degrees, and the mean slope gradient for the area is 16 degrees. Figure 3.18-5 (Project Area Slope) shows slopes in the vicinity of the Project, as used in PG&E's WTRM (PG&E, 2024b).

Within the East Bay Hills, the narrow drainage topographic features of the Oakland Hills have the capability to funnel winds, increase wind speeds, erratically alter wind direction, facilitate fire spread, and promote extreme fire behavior. This is especially true during Diablo wind events, when strong easterly or northeasterly winds are aligned with the downslope direction of the canyons and watersheds of the Oakland Hills. The topography of the Oakland Hills is, therefore, capable of producing wind conditions that promote extreme wildfire behavior.

All slope aspects (the compass orientation of a slope) are represented in the hills, with a higher proportion of south-, southwest-, and west-facing slopes present. The effect of aspect on fire hazard is related to solar exposure. South and west-facing slopes are subject to more heating from the sun and experience higher temperatures and lower fuel moisture. These slope aspects typically are dominated by lighter potential fuels (for example, brush, grasses). North- and east-facing slopes receive less solar exposure and are cooler and typically have heavier fuel loads (for example, trees).

Vegetation Types

The vegetation communities and associated fuel models used in the WTRM are shown in Figure 3.18-6 (Project Area Vegetation Fuels) and consist of the following:

- Annual Grassland (short, sparse dry climate grass [GR1], low load dry climate grass [GR2], and moderate load dry climate grass [GR4])
- Chamise-Redshank Chaparral (high load dry climate shrub [SH5] and high load humid climate shrub [SH8])
- Coast Oak Woodland (GR1, moderate load dry climate grass-shrub [GS2], light load dry climate tinder-grass-shrub [TU1], low load broadleaf litter [TL2])
- Coastal Scrub (GR1, low load dry climate grass-shrub [GS1], GS2, low load dry climate shrub [SH1], SH5)
- Closed-Cone Pine-Cypress (SH5, TU1, very high load dry climate timber-shrub [TU5], TL2, moderate load conifer litter [TL3], moderate load broadleaf litter [TL6])
- Eucalyptus (GR1, SH5, TU1, TU5, TL2, TL3, TL6, very high load broadleaf litter [TL9])
- Freshwater Emergent Wetland (non-burnable fuel – land covered by urban and suburban development [NB1])
- Perennial Grassland (GR1)
- Redwood (TU1, TL3)
- Valley/Foothill Riparian (SH1, TU5)
- Urban (Developed) (GR1, NB1)
- Urban (Acacia) (TU1)
- Urban (Mixed Tree Stand) (GR1)

Within the eastern and central sections of the Project, the predominant fuel types are NB1 (urban [developed]) at 28 percent, TL6 (closed-cone pine-cypress with moderate load broadleaf litter) at 23 percent, and TL3 (redwood) at 14 percent. NB1 fuel models are considered to not support wildland fire spread. The primary carrier of fire in the TL fuel models is dead and down woody fuel; live fuel, if present, has little effect on fire behavior. TL3 fuel models are identified as having very low spread rate and low flame length; TL6 fuel models are identified as having moderate spread rate and low flame length.

Weather Data

Hourly weather data for the period from October 2014 to October 2024 was obtained from a National Weather Service remote automated weather station, the Oakland North weather station (ONOC1), located approximately 2.6 miles northwest of the Project alignment at latitude 37.8650 and longitude -122.220830 and elevation 1,403.0 feet amsl. The weather station is monitored by the University of Utah. The 10 years of data were analyzed to determine, for each month, the prevailing wind direction, average daily maximum wind speed, average and peak daily high temperatures, and average minimum and low relative humidity. These data are presented in Table 3.18-2.

Table 3.18-2. Summary of Weather Data from Station ONOC1 2014-2024

		Wind Speed (mph)		Relative Humidity (percent)		Temperature (°F)	
Month	Predominant Wind Direction	Average Max.	Monthly Peak	Average Min.	Monthly Low	Average High	Monthly Peak
January	NE	28.5	34	22.8	10	64.3	72
February	NE	26.9	35	19.7	8	68	74
March	SSW	24.5	32	17.5	10	73.3	81

Month	Predominant Wind Direction	Wind Speed (mph)		Relative Humidity (percent)		Temperature (°F)	
		Average Max.	Monthly Peak	Average Min.	Monthly Low	Average High	Monthly Peak
April	SSW	22.3	27	17.5	9	80.4	87
May	SSW	21.1	28	19.3	8	83.1	90
June	SSW	17.6	23	18.6	9	93.1	97
July	SSW	16.3	19	17.4	10	91.3	99
August	SSW	15.8	19	14.6	6	93.7	101
September	SSW	18.8	25	19.72	5	96.1	108
October	SSW	26.1	35	10.81	3	89.93	103
November	NE	25.0	29	20.18	7	74.2	81
December	NE	25.7	32	25.4	13	61.6	69

mph = mile(s) per hour

In addition, data from two other weather stations were reviewed and evaluated. One weather station is in Orinda near Moraga Substation at latitude 37.85111 and longitude -122.15500 with an elevation of 738 feet amsl; data between November 2009 and March 2024 were reviewed. The other weather station is at the Oakland Museum of California at latitude 37.79810 and longitude -122.26343 with an elevation of 30 feet amsl; data between November 1970 and March 2024 were reviewed.

The eastern section of the Project typically is warmer than the central and western sections, which are cooler as a result of being nearer to San Francisco Bay. In the East Bay Hills at approximately 700 to 800 feet amsl, temperatures are slightly less influenced by the San Francisco Bay but are still highly influenced by onshore flow versus offshore flow. The average high temperature for the eastern section of the Project drops to its lowest in December at an average of 55.6 degrees Fahrenheit (°F). High temperatures then reach their highest in September at an average of 80.9°F. The annual average daily temperature is 60.2°F. The annual average precipitation is 31.43 inches. The month with the most rainy days on average is December (seven days) and the months with the fewest rainy days are June through September (0 days).

Areas near San Francisco Bay and near sea level see temperatures that are highly influenced by the water temperature and whether the area is experiencing onshore flow versus offshore flow. Onshore flow is typical with flows from the water over the land, cooling temperatures during the afternoons and evenings. Offshore flow causes increasing temperatures because air flowing from the land toward the water can sometimes not allow for as much cooling overnight. The average high temperature for the western and central sections of the Project drops to its lowest in December at an average of 58.5°F. High temperatures then reach their highest in September at an average of 75.0°F. The annual average daily temperature is 59.3°F. The annual average precipitation is 22.57 inches. The months with the highest number of rainy days on average are January and February (17 days) and the month with the fewest rainy days is July (0 days).

The Oakland weather trend data suggests fire risk is generally high year-round. According to the National Weather Service, a Fire Weather Watch is issued any time an area has been dry for a substantial amount of time, and when the following conditions are expected to occur within the next 48 hours (NOAA, 2025):

- Sustained winds averaging 15 mph or greater
- Relative humidity 25 percent or less
- Temperature 75°F or greater

Table 3.18-2 indicates that in the Oakland area, the highest risk of fire would likely occur between June and October, which generally experience a combination of the highest temperatures and lowest humidity. Wind speeds also tend to gradually increase with monthly progression from late summer into winter.

Values at Risk

Communities in the Project vicinity include homes, schools, commercial facilities, and similar public and private structures, as well as infrastructure that could potentially be at risk from wildfire. The age of the structures and improvements and their physical siting factor into risk. In addition to intrinsic value, identification of values at risk in the Project area is informed by location within or near WUI zones, biological resources, communities, and other population centers.

The eastern section of the Project is within the City of Orinda. These two communities and vicinity are prone to seasonal strong winds and have a fire-adapted ecology. The combination of narrow roads and the presence of houses near open spaces make Moraga and Orinda susceptible to wildfires. The Project progresses generally southwest and crosses through hilly open space and park land in the City of Orinda, unincorporated Contra Costa County, through an area mainly owned by East Bay Regional Park District and East Bay Municipal Utility District, to the top of the Oakland Hills. The trees and other vegetation present are important to the existing uses of the area, which include recreation and open space. The few structures in the eastern section of the Project include PG&E's Moraga Substation and the Moraga–Oakland X 115 kV power lines, maintenance buildings, and roadways. A review of aerial satellite imagery shows approximately 100 structures, primarily single-family residences and utilities, including aboveground electric distribution and telecommunication lines, within 1,000 feet of Moraga Substation.

The central segment of the Project between Manzanita Drive and SR-13 is in the City of Oakland and its Montclair neighborhood. Land uses are predominantly residential uses with some park and recreational areas, including Shepherd Creek and Shepherd Canyon Park. Approximately 1,550 structures – primarily single-family residences as well as commercial buildings, schools, and churches – are within 1,000 feet of the Project footprint in this section, as are streetlights and overhead electric distribution lines on wood poles with some segments now moved underground. A small number of traffic lights are in the Montclair Village area. The Oakland Fire Station No. 24 and the City of Oakland Municipal Service Yard, which contains vehicles and other equipment, also are within 1,000 feet of the Project footprint.

The western section of the Project is in the Cities of Piedmont and Oakland. The land use in this area includes parks and recreation along Sausal Creek and Dimond Canyon Boulevard and highly urbanized areas with a mix of residential, commercial, and other uses. Approximately 3,150 structures, primarily single-family and multi-family residences as well as commercial buildings, schools, and churches, are within 1,000 feet of the Project footprint in this section, as are streetlights and overhead electric distribution lines with wood poles. Several traffic lights are along Park Boulevard.

3.18.1.5. PG&E's Wildfire Mitigation Plan

PG&E has developed a WMP designed to reduce wildfire ignition potential, enhance wildfire situational awareness, and reduce impacts of public safety power shutoff (PSPS) events. An annual implementation report and an annual plan update are submitted to the CPUC. The 2023-2025 WMP (Revision 6) continues many of the actions undertaken in previous plans and introduces and updates initiatives to advance wildfire mitigation (PG&E, 2024b).

Sections 5.4 and 9.5 of the PG&E WMP detail planning and operational models and methodologies used to determine ignition probability, wildfire risk, and likelihood of PSPS events. PG&E's WMP incorporates climate change considerations and acknowledges climate-driven hazards, including rising temperatures, extreme storms, and wildfire. In PG&E's WMP, "transmission lines" are defined as being 60 kV or greater. The current compilation of planning and operational models for transmission facilities include:

- Wildfire Risk Model: Considers baseline risk without utilization of PSPS and Enhanced Powerline Safety Settings (EPSS) operational mitigations. This is the wildfire risk that PG&E faces, based on its service territory and current assets.

- PSPS Risk Model: Considers the negative impact of PSPS to customers. This is the risk that PG&E customers experience related to a PSPS event, where lines are de-energized pre-emptively due to an incoming weather event and conditions that could otherwise lead to a catastrophic fire.
- EPSS Risk Model: Considers the negative impact of EPSS to customers. This is the risk that PG&E customers experience related to additional outages from the enablement of the EPSS settings. These settings disable automatic reclosing operations and make protection devices more sensitive to fault currents to avoid a potential ignition.
- *Planning*: 2022 Enterprise Risk Model for Wildfire Risk, a wildfire risk model for a distribution and transmission system.
- *Planning*: Wildfire Transmission Risk Model, a wildfire risk-based model for an overhead transmission system. This model is also known as the Transmission Composite Model.
- *Planning*: Wildfire Consequence Model, a wildland fire simulation model to estimate propagation and consequences of ignitions.
- *Planning*: Enhanced Vegetation Management Tree Weighted Prioritization Model, a wildfire risk-based model incorporating tree density for overhead distribution circuit segments for the purpose of enhanced vegetation management scoping and prioritization.
- *Operational*: Fire Potential Index (FPI) Model, a model that provides estimates of the probability of large or catastrophic fire growth; used to identify real-time and near-term forecasted risk based on various weather and fuel components.
- *Operational*: Ignition Probability Weather Model, a model that provides estimates of the probability of an ignition being caused by an outage on an hourly basis.
- *Operational*/*Planning*: Transmission Operability Assessment Model, a model used to assess the physical condition of transmission facilities for operational and planning decisions.
- *Planning*: Public Safety Power Shutoff Consequence Model, a model that projects the impacts and benefits of performing PSPS activities at the circuit or circuit segment level (formerly known as Circuit Protection Zones or CPZs).

PG&E implements its WMP through standards and requirements that are communicated internally to employees and to its suppliers, contractors, and third-party employees to follow when traveling to, performing work, or operating outdoors on any forest, brush, or grass-covered land. PG&E's Wildfire Prevention Contract Requirements are based on its Standard TD-1464S. The summary of PG&E's current wildfire prevention standards and requirements may be superseded in the future following revisions to published standards and requirements.

PG&E monitors and communicates fire risk at least daily using a set of FPI ratings from its FPI model. The FPI ratings provide PG&E workers with a daily forecast of fire danger levels by geographical area. FPI model calculations and scale from R1 to R5-Plus consider fuel, moisture, humidity, wind speed, air temperature, and historical fire occurrence. These fire danger determination ratings are as follows:

- **R1:** Very little or no fire danger.
- **R2:** Moderate fire danger.
- **R3:** Fire danger is so high that care must be taken using fire-starting equipment. Local conditions may limit the use of machinery and equipment to certain hours of the day.
- **R4:** Fire danger is critical. Using equipment and open flames is limited to specific areas and times.
- **R5:** Fire danger is so critical that using some equipment and open flames is not allowed in certain areas.
- **R5-Plus:** The greatest level of fire danger where rapidly moving, catastrophic wildfires are possible. When fire danger is R5-Plus, there are high-risk weather triggers (for example, strong winds).

PG&E's FPI model identifies geographic areas (fire index area or FIA) over which fire danger determinations are produced daily or when conditions change the previous daily determinations. PG&E workers use the fire danger determination to plan and adjust work plans based on the current determination for the FIA.

Approximately 1 mile of the western end of the existing overhead lines, approximately 0.8 miles of the underground lines east of the El Centro Avenue and Park Boulevard intersection, and Oakland X Substation are outside of an elevated FHSZ and are outside of a FIA. Where PG&E work is in forest-, brush-, or grass-covered lands within 5 miles of an FIA, PG&E work uses the FPI rating for the closest FIA.

PG&E's Risk Model

PG&E's WTRM was used to analyze wildfire risk. The WTRM is outlined in detail in Section 6 of PG&E's *2023-2025 Wildfire Mitigation Plan* (WMP) (PG&E, 2024b). The WTRM assesses risk based on probability of equipment or asset failure, which, for the purposes of this Project, is the probability of failure of power line structures (i.e., damage that can ignite a fire). Risk is calculated as the product of the probability of an event associated with a risk driver and the potential consequences from that event. Risk consequences are potential impacts that would result if the risk event were to occur. Consequences include safety, reliability, and financial attributes. Each power line structure has a consequence value based on the structure attributes and its potential for failure.

WTRM uses weather data to generate the probability of failure and incorporates vegetation as one of the drivers of wildfire risk. Information on topography is incorporated through wildfire consequence modeling to generate the final wildfire risk value. The modeling framework incorporates climate impacts (Section 6.2 of the WMP) (PG&E, 2024b). Wildfire risk is the combination of two modeled values: the probability of an ignition event and the likely consequence of an ignition event at a geographical location. The probability of ignition is predicted in two steps. First, the probability of an outage (or equipment failure) is estimated for a variety of asset types and failure modes. Second, the probability of an ignition given an outage is determined for each asset type and failure model combination.

The structures across the Moraga–Oakland X 115 kV lines included in the Project alignment were divided into three categories depending on the action being taken on each structure. The categories were "no change" if the existing structure would be retained as is, "new structure" if it would be replaced by a new replacement structure, and "removal" if the structure would be removed or undergrounded. These three scenarios were then applied to the WTRM to establish current and post project wildfire risk values. The total wildfire risk reduction gained from the Project was calculated by summing the change in wildfire risk values across all structures.

The Project includes 75 structures along the two power lines, of which 6 would be retained, 21 would be removed and undergrounded, and 48 would be replaced. In addition, 3 new proposed light-duty steel pole transition structures are part of the Project. For each of the 48 replaced structures and 3 new transition structures, the WTRM was used to calculate the updated post-construction wildfire risk value.

To calculate the post-construction project wildfire risk values for structures that would be replaced, key input parameters to the WTRM were replaced to reflect the attributes of the replacement structures. The attributes that were considered for updating include the following:

- The structure's age was set to zero to indicate it will be a new structure.
- The inspection condition code was set to 1 to indicate that the new structure will not have any age-related deficiencies that could lead to a failure.
- The value of the strength ratio was carried over from the existing structure with the assumption that the new structure will be built to the same load specifications as the existing structure. The over-

strength ratio is a measure of how much mechanical load a structure is designed to support when compared to the baseline wind load in the design code.

- The value of the atmospheric corrosion design life reduction factor was carried over from the existing structure with the assumption that the replacing structure would be built from the same materials as the existing structure and would be subject to the same atmospheric conditions as the existing one. Although some new structures may be made of different materials than the structures they are replacing, the new structures would be equal to or better than the existing structures in terms of fire resistance.

The WTRM also uses other parameters to calculate the probability of failure based on factors such as wind and weather conditions in the location around the structure, historical outages on the lines, and a base fragility function for each structure. These parameters were not updated because they are independent of a specific structure and because the location of the replacement structure would be installed in the vicinity of the existing structure.

Based on the updated input parameters, the model was used to recalculate the annualized probability of failure for each replacement structure. The probability of failure (ignition) was multiplied by the wildfire consequence value (i.e., predicted outcome of an ignition event at the location of an equipment asset as estimated by the Wildfire Consequence Model) for each replacement structure to calculate the new wildfire risk (PG&E, 2025). The change in wildfire risk for each structure was summed across the Project's 78 structures to calculate a total change in wildfire risk from the Project. The PG&E WTRM estimates an approximately 90 percent reduction in wildfire risk from the Project; the calculations are illustrated in Table 3.18-3.

Table 3.18-3. Estimated Change in Wildfire Risk with Proposed Project Implementation

Existing Number[a b]	Replacement Number[a]	Project Scenario	Percent Change in Wildfire Risk
EN1	RN1	Replace structure	-74
EN2	RN2	Replace structure	-74
EN3	RN3	Replace structure	-51
EN4	RN4	Retain structure	0
EN5	RN5	Retain structure	0
EN6	RN6	Retain structure	0
EN7	RN7	Replace structure	-96
EN8	RN8	Replace structure	-96
EN9	RN9	Replace structure	-58
EN10	RN10	Replace structure	-94
EN11	N/A	Remove structure	-100
EN11A	N/A	Remove structure	-100
EN12	RN11	Replace structure	-97
EN13	RN12	Replace structure	0
EN14	RN13	Replace structure	-61
EN15	RN14	Replace structure	-79
EN16	RN15	Replace structure	-61
EN17	RN16	Replace structure	-79
EN17A	N/A	Remove structure	-100
EN18	RN17	Replace structure	-79

Existing Number[a b]	Replacement Number[a]	Project Scenario	Percent Change in Wildfire Risk
EN19	RN18	Retain structure	-49
EN20	N/A	Remove structure	-100
EN21	RN19	Replace structure	-90
EN22	RN20	Replace structure	-83
EN23	RN21	Replace structure	-93
EN24	RN22	Replace structure	-87
EN25	RN23	Replace structure	-93
EN26	RN24	Replace structure	-93
EN27	RN25	Replace structure	-87
EN28	RN26	Replace structure	-87
EN29	TN27A	Replace structure	-87
EN30	N/A	Remove structure	-100
EN31	N/A	Remove structure	-100
EN32	N/A	Remove structure	-100
EN33	N/A	Remove structure	-100
EN34	N/A	Remove structure	-100
EN35	N/A	Remove structure	-100
EN36	N/A	Remove structure	-100
EN37	N/A	Remove structure	-100
ES1	RS1	Replace structure	-35
ES2	RS2	Replace structure	-66
ES3	RS3	Replace structure	-66
ES5	RS4	Retain structure	0
ES6	RS5	Retain structure	0
ES7	RS6	Retain structure	0
ES8	RS7	Replace structure	-96
ES8A&B	N/A	Remove structure	-100
ES9	RS8	Replace structure	-74
ES10	RS9	Replace structure	-97
ES11	RS10	Replace structure	-77
ES12	N/A	Remove structure	-100
ES14	RS11	Replace structure	-86
ES15	RS12	Replace structure	-77
ES16	RS13	Replace structure	-97
ES17	RS14	Replace structure	-97
ES18	RS15	Replace structure	-79
ES19	RS16	Replace structure	-60
ES20	RS17	Replace structure	-79
ES21	RS18	Retain structure	-49
ES22	N/A	Remove structure	-100

Existing Number[a b]	Replacement Number[a]	Project Scenario	Percent Change in Wildfire Risk
ES23	RS19	Replace structure	-90
ES24	RS20	Replace structure	-93
ES25	RS21	Replace structure	-93
ES26	RS22	Replace structure	-93
ES27	RS23	Replace structure	-93
ES28	RS24	Replace structure	-93
ES29	RS25	Replace structure	-93
ES30	RS26	Replace structure	-93
ES31	TN27B	Replace structure	-86
ES32	N/A	Remove structure	-100
ES33	N/A	Remove structure	-100
ES35	N/A	Remove structure	-100
ES36	N/A	Remove structure	-100
ES37	N/A	Remove structure	-100
ES38	N/A	Remove structure	-100
N/A	TN28	Add Structure	N/A
N/A	TN29	Add Structure	N/A
N/A	TS28	Add Structure	N/A
Total			**-90**

[a] Each structure is identified by its location on the northern line or southern line and as existing and rebuild; for example, existing northern 1 (EN1) and existing southern 1 (ES1) and rebuild northern 1 (RN1) and rebuild southern 1 (RS1). TN refers to new transition (riser) structures on the northern line and TS refers to new transition (riser) structures on the southern line.
[b] There is no existing structure ES4 or existing structure ES34.
[c] Wildfire Transmission Risk Model (WTRM).

3.18.1.6. Road Closures, Evacuation Routes, and Alternate Routes During Construction

Construction of the proposed Project would require short-term roadway blockages that may constrain emergency egress in the event of a wildfire or other emergency occurring during active construction. A detailed analysis of potential impairment of an emergency response plan or emergency evacuation plan is provided in Section 3.18.3.3, Impact WF-1. Figure 3.18-7 (in Appendix A) illustrates the evacuation routes defined in the City of Oakland Safety Element and in the City of Piedmont's Environmental Hazards chapter of its General Plan (City of Piedmont, 2025a).

Temporary Road Closures Due to Cranes. As described in Section 2.0, Project Description, crane activity on local roads may require temporary lane or road closures of up to approximately 10 consecutive working days (2 calendar weeks). Work areas with anticipated temporary road closures are shown on detailed sheets in Figure 2.1-2 (Proposed Project Detail Map). When crane trucks (also known as boom trucks) are set up in a roadway to install or remove power line structures, they are expected to be able to be set up to not block driveway access. Other than the footprint of a crane set up for construction for up to approximately 10 working days, work areas within roadways are anticipated to require temporary lane or road closure only during daily construction work hours. Crane trucks are not anticipated to remain within a roadway overnight. At the conclusion of a construction workday, a work area in a roadway would be demobilized and temporary lane or road closures would end. Other than four locations discussed below, temporary road closure locations would have ingress and egress available on both sides of the closures (refer to Table 2.3-6).

Temporary Road Closures Due to Guard Structures. At each location where the power lines cross a road, approximately 5,000 square feet of work area would be needed to install guard structures. The temporary guard structures may be installed over roads during tension pull activities. Installation and removal of guard structures (as described in Section 2.3.3 of the Project Description) would also require short-term road closures. Guard structures are installed before conductor stringing or removal to prevent conductor from falling on a roadway or other feature. These would be wood poles that could be installed on either side of a road, within the existing right-of-way.

Cul-de-sac Roads. In four locations, the work area would occupy a part of a street with no secondary access for residents (e.g., a cul-de-sac). An example is at East Circle Street, which ends at proposed structures RN12 and RS12. Access to the residences beyond the work areas on these roads is expected to be maintained; however, vehicular access may be restricted. As a result, residents may need to park their cars up to approximately 200 feet away. PG&E has committed to offering these residents the option of safe transport to and from their residences during construction. Applicant Proposed Measure (APM) TRA-1 (PG&E Temporary Traffic Controls) includes PG&E's commitment to safely transporting residents to their properties when they are unable to drive to their residences or have to park their vehicles on another street beyond the blocked area during the workday. APM TRA-1 has been supplemented by MM T-1a in Section 3.15 (Transportation), which defines the components of "safe transport" among other requirements.

Other Work Areas. The other work areas shown in Figure 2.1-2 (Proposed Project Detail Map) that may require temporary road closures have secondary access; egress options are available from either side of the work areas.

Table 2.3-6 lists work locations in the central and western sections of the Project by existing and replacement structure numbers, the associated road that may be temporarily closed, alternate routes to provide ingress and egress, and the distance from the work area to the nearest intersection in both directions.

One lane in each direction would be maintained open on Park Boulevard between Leimert Boulevard and Estates Drive during installation of the transition structures (TS27A/TS27B), so these structures are not included in Table 2.3-6. During construction of the underground portion of the Project in Park Boulevard, at least one lane in each direction would be maintained open, and the underground portion of the Project is not included in Table 2.3-6. Any closures required for installation of guard poles on residential roads would be no more than a day in length, and are expected to maintain an open lane; these guard pole locations also are included in Table 2.3-6 as structures labeled with "GP."

Larger roadways often serve as evacuation routes in emergencies because they have multiple entry and exit points. Roadways with no secondary access that would restrict traffic to one entry or exit point generally do not serve as evacuation routes. Multiple interstates and highways, including I-580, I-880, I-980, SR-24, and SR-13, are in the vicinity of the Project and could be used in an evacuation from the area. Additional major roadways in the Project vicinity that could be used in an evacuation are listed in the following subsections by jurisdiction.

Most local governments within the Project area, including County of Contra Costa, Cities of Orinda, Oakland, and Piedmont, use Genasys Protect (formerly Zonehaven Aware), which is an evacuation management platform that helps communities and first responders plan, communicate, and execute evacuations (Genasys, 2025). Genasys Protect incorporates information provided by local emergency services. Communities are separated into zones, and residents can look up their addresses to determine their zone. Each zone map specifies evacuation information relevant to the residents within that zone to simplify the evacuation planning process and increase emergency preparedness. Genasys identifies the specific evacuation routes and automatically sends road and zone closure information to Waze (a navigation app that provides real-time traffic information and driving directions) to support evacuations. Residents can access real-time maps and information online to guide evacuation in the event of an emergency. As noted

on the Genasys Protect website, evacuation routes are always incident-specific because the best route to take is relative to the location and type of threat.

Contra Costa County Evacuation Routes

Contra Costa County identifies evacuation routes in its 2045 General Plan Health and Safety Element. Contra Costa County communicates evacuation information, including routes, using Genasys Protect. Within unincorporated Contra Costa County, the proposed Project is within Genasys zones CCC-E156, CCC E157, and CCC-E167.

Major roadways in Contra Costa County near the Project that could be used as potential evacuation routes, include the following:

- SR-24 – An east/west running eight-lane highway that is approximately 2 miles to the north of the Project and crosses both Alameda and Contra Costa Counties. As this highway goes east, it intersects with I-680 in Walnut Creek. There are multiple on-/off-ramps in the City of Orinda.
- I-680 – A north/south running eight-lane highway in eastern Contra Costa County that intersects with SR-24 in Walnut Creek.
- Pinehurst Road – A long two-lane road in unincorporated Contra Costa County that connects to Skyline Boulevard and Shepherd Canyon Road in Oakland and Canyon Road and Redwood Road in Unincorporated Contra Costa County.
- San Pablo Dam Road (turns into Camino Pablo Road) – This road runs from SR-24 to I-80 in San Pablo.

Additional evacuation routes include Moraga Way, Valley View Drive, and Woodland Road (Contra Costa County, 2024b). No work areas or guard structures would be located along designated evacuation routes under the proposed Project.

City of Orinda Evacuation Routes

The City of Orinda generally identifies SR-24 as the primary evacuation route for wildfire emergencies and provides an evacuation analysis that establishes possible emergency response protocol based on other natural hazards. The City of Orinda communicates emergency alerts, including evacuation information, through Genasys Protect, which is described in its Community Awareness Frequently Asked Questions and emergency preparedness page on the City website (City of Orinda, 2025). Within the City of Orinda, the proposed Project is within Genasys zones ORI-E015, ORI-E019, ORI-E020, and ORI-E027.

Major roadways in the City of Orinda that could be used as potential evacuation routes include the following:

- *Moraga Way* – A north/south road that intersects with SR-24 and Canyon Road/Moraga Road in Moraga.
- *Miner Road* (becomes St. Stephens Drive South of Via Las Cruces) – A long, two-lane, looping road that connects to Camino Pablo Road in the west and SR-24 in the east. This road runs through several neighborhoods.
- *Orindawoods Drive* – A two-lane road to the north of SR-24 that runs between Camino Pablo Road and SR-24. This road runs east/west.
- *Glorietta Boulevard* – A two-lane road that runs from Moraga Way to the northeast and connects to SR-24 in the City of Lafayette. This road also intersects with Rheem Boulevard.
- *Rheem Boulevard* – A two-lane road that connects to Moraga Way and loops to the east of Moraga Way to intersect with Moraga Road. This road primarily runs north/south and parallels Moraga Way to the east.

The closest evacuation routes to the Moraga Substation include Lost Valley Drive, Wilder Road, Valley View Drive, Moraga Way, La Cresta Drive, and Crestview Drive during an evacuation event (City of Orinda, 2024). No work areas or guard structures would be required along designated evacuation routes under the proposed Project.

City of Oakland Evacuation Routes

The City of Oakland, which includes the neighborhood of Montclair, identifies primary and secondary evacuation routes in the Safety Element of its General Plan (City of Oakland, 2023). Figure 3.18-7 (in Appendix A) illustrates the evacuation routes defined in the City of Oakland Safety Element. The City of Oakland uses Genasys Protect to provide evacuation routes to the public in case of an emergency. Within Oakland, the Project is within Genasys zones OKL-E072, OKL-E083, OKL E084, OKL-E085, OKL-E087, OKL-E090, OKL-E091, OKL-E099, OKL-E100, OKL-E101, OKL-E102, OKL E108, OKL-E109, OKL-E110, OKL-E111, OKL-E113, OKL-E245, and OKL-E246.

Primary evacuation routes in Oakland near the Project include the following:

- *SR-13* – A north/south highway that connects to SR-24 to the north and I-580 to the south.
- *Park Boulevard* – An east/west running, four-lane road that crosses the City of Oakland and connects to SR-13 in the east and I-580 in the west.
- *Skyline Boulevard* – A north/south running road on the eastern edge of Oakland.
- ~~*Manzanita Drive* – A two-lane road that connects Pinehurst Road from the southeast to Skyline Boulevard, Snake Road, and Colton Boulevard to the northwest.~~
- *Thornhill Drive* – A two-lane road that runs east/west and intersects with Mountain Boulevard and SR-13. This road turns into Moraga Avenue on the west side of SR-13.
- *Mountain Boulevard* – A north/south running road that parallels SR-13 on the eastern side. This road is a two-lane road that has multiple on-/off-ramps to SR-13 and connects to Thornhill Drive, Duncan Way, and Broadway Terrace in the north.
- *Shepherd Canyon Road* – An east/west running road that parallels the power line alignment in the Project's central section between Skyline Boulevard and SR-13 (via Snake Road and Mountain Boulevard).
- *Snake Road* – A two-lane road that runs east/west connecting Shepherd Canyon Road from the east to Mountain Boulevard to the west. This road also runs north/south connecting to Skyline Boulevard to the north. Snake Road is a designated evacuation route between Mountain Boulevard and Shepherd Canyon Road and between Thornhill Drive and Skyline Boulevard.

Secondary evacuation routes include the following:

- *Pinehurst Road* – A two-lane east/west road that connects to Canyon Road leading to Moraga to the north.
- *Ascot Drive* – A north/south road connecting to Skyline Boulevard to the north to Mountain Boulevard to the south.

I-580, 14th Avenue, Foothill Boulevard, Beaumont Avenue are also additional evacuation routes that could be used during an emergency event (City of Oakland, 2023). Work areas or guard structures would be located along several evacuation routes, which include ~~Manzanita Drive,~~ Skyline Boulevard, Shepherd Canyon Road, Mountain Boulevard, SR-13, and Park Boulevard, under the proposed Project. Guard pole installation will not require a full road closure.

City of Piedmont Evacuation Routes

The City of Piedmont identifies major evacuation routes in the Environmental Hazards Element of its General Plan (City of Piedmont, 2024). The City of Piedmont uses Genasys Protect to provide evacuation routes to the public in case of an emergency. Within Piedmont, the Project is within Genasys zone PIE E009.

Major roadways in Piedmont near the Project that could be used as potential evacuation routes include the following:

- *Moraga Avenue* – One of the most northern roads in Piedmont. This road is a four-lane road that runs east/west, connecting Pleasant Valley Avenue in the west and SR-13 in the east.
- *LaSalle Avenue* – A north/south road two-lane road that leads to Moraga Avenue and Mountain Boulevard to the north.
- *Pleasant Valley Avenue* – A north/south running road that is primarily two lanes but has sections to the north that are four lanes. It becomes Grand Avenue at the intersection of Moraga Avenue. This road intersects with many other east/west running roads and eventually connects to I-580 to the south and SR-24 to the north.
- *Highland Avenue* – A six-lane road that runs north/south near the middle of Piedmont. It connects to Moraga Avenue in the north and ends at the intersection with Wildwood Avenue in the south.
- *Wildwood Avenue* – An east/west running two-lane road that turns into Lakeshore Avenue in Oakland to the west, eventually providing access to I-580. In the east, it intersects with Hampton Road and Crocker Avenue, a short north/south road that connects Wildwood Avenue to Mandana Boulevard in Oakland. This road provides additional routes for access to I-580 and other larger highways.
- *Hampton Road* – An east/west running two-lane road that intersects with Crocker Avenue and Estates Drive.

Additional evacuation routes also include SR-13, Oakland Avenue, Grand Avenue, Bayo Vista Avenue, Crocker Avenue, Mandana Avenue, Hampton Road, Estates Drive, Park Boulevard, LaSalle Avenue, Mountain Boulevard, Wildwood Avenue, Winsor Avenue, Grand Avenue, Blair Avenue, and Harbord Drive (City of Piedmont, 2024). Work areas or guard structures would be located along evacuation routes, which include Mountain Boulevard, SR-13, Estates Drive, and Park Boulevard, under the proposed Project.

Alameda County Emergency Operation Plan and Evacuation Routes

The Project footprint is near unincorporated areas of Alameda County. Information is provided on Alameda County's Emergency Operation Plan and Appendix F of the Alameda County Safety Element (County of Alameda, 2023; 2025). The *Alameda County Emergency Operations Plan* identifies the Sheriff's Office as the department responsible for managing and coordinating evacuations in unincorporated areas of the county. The evacuation routes described above for the cities of Oakland and Piedmont are also useful for evacuation from areas of unincorporated Alameda County near the Project. In addition to the major inter-states and highways listed previously, there are numerous other roadways that connect the neighborhoods to these major evacuation routes.

Evacuation routes include Bond Street, Main Street, Foothill Road, Railroad Avenue, I-580, I-880, Niles Canyon Road, Redwood Road, Palo Verde Road, Eden Canyon Road, Foothill Road, I-680, Arroyo Road (Alameda County, 2022). No work areas or guard structures would be required along designated evacuation routes under the proposed Project.

3.18.2. Applicable Regulations, Policies, and Standards

3.18.2.1. Federal

Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission (FERC) requires utilities to adopt and maintain minimum clearance standards between vegetation and transmission voltage power lines to reduce wildfire risk. These clearances vary depending on voltage. In most cases, the minimum clearances required in state regulations are greater than the federal requirement. In California, for example, CPUC has adopted GO 95, discussed below, rather than the NERC standards as the electric safety standard for the state.

North American Electric Reliability Corporation Standards

NERC is a not-for-profit international regulatory authority whose mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid. NERC develops and enforces reliability standards; annually assesses seasonal and long-term reliability; monitors the bulk power system through system awareness; and educates, trains, and certifies industry personnel. NERC is the Electric Reliability Organization for North America, subject to oversight by FERC. To improve the reliability of regional electric transmission NERC developed a transmission vegetation management program that is applicable to all transmission lines operated at 200 kV and higher and to lower-voltage lines designated by the Regional Reliability Organization as critical to the reliability of the electric system in the region. NERC standards take into consideration local conditions such as fire risk.

Uniform Building Code and Uniform Fire Code

The Uniform Building Code (UBC) and the Uniform Fire Code (UFC) provide codes for fire protection at the federal level. To minimize potential fire risk and damage to structures, the UBC provides requirements to which building construction, materials, and other elements or construction practices must adhere. The UFC provides design measures for installation of fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards and safety measures, hazardous material storage and use, and other general and specialized requirements pertaining to fire safety and prevention.

3.18.2.2. State

California Department of Forestry and Fire Protection

Pursuant to PRC Sections 4201 to 4204 and Government Code (GC) Sections 51175 to 51189, CAL FIRE created FHSZ maps for the state that identify areas for preventing or suppressing fires that are within SRAs or LRAs. These maps identify areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. The FHSZs then define the application of various mitigation strategies to reduce risks associated with wildland fires. The financial responsibility for preventing and suppressing fires in SRAs has been determined to be primarily on the state (PRC Section 4201) and the responsibility of preventing and suppressing fires in LRAs is primarily on local agencies, including cities and counties (GC Sections 51175 to 51189). SRAs were originally mapped by CAL FIRE in 1985 and LRAs were mapped in 1996. The fire maps *do not* outline the potential for life safety hazard risks during evacuations, nor do they outline the potential maximum extent of wind-driven wildfire events in built-up areas of the WUI.

Within SRAs, the Director of CAL FIRE has designated areas as moderate, high, and very high FHSZs (PRC Section 4202). Within LRAs, the Director of CAL FIRE was charged with recommending the locations of moderate, high, and very high FHSZs (GC Section 51178). These recommendations must be reviewed and adopted in ordinances by local agencies (GC Section 51179). As discussed in Section 3.18.1.1, CAL FIRE has been developing a new fire model and completed mapping updates to SRAs that went into effect in April 2024 (OFSM, 2025). As of spring 2025, CAL FIRE has been mapping LRAs, with updates to be provided in

four phases. CAL FIRE issued recommended changes to LRAs in Contra Costa and Alameda Counties, which comprise Phase 2, which was completed in February 2025. These updates are subject to review with local jurisdictions and are not official until formally adopted by the local jurisdictions (OSFM, 2025). Local governing agencies must designate very high, high, and moderate FHSZs within 120 days following recommendations from CAL FIRE, but may not downgrade the levels of severity proposed by the State Fire Marshal (Govt. Code, § 51179(a)). The 2025 LRA maps are were used in this analysis. All designations are mapped on the CAL FIRE website.

California Fire Code

The California Fire Code (CFC), adopted as part of the California Code of Regulations, Title 24, Part 9, establishes minimum requirements for fire prevention, life safety, and property protection throughout the state. The CFC governs both the construction and operation of buildings and non-building structures, and it includes provisions for fire protection systems, emergency access, hazardous materials management, and fire safety during construction and demolition activities. The code is enforced by local fire departments or fire authorities having jurisdiction, which may require project-specific permits, fire safety plans, inspections, and compliance with site-specific conditions to ensure adequate fire protection throughout the life of a project (California Fire Code, 2019).

California Public Resources Code

The California PRC provides regulations to enhance safety with regard to the operation and management of electrical transmission and power lines. These include the following:

- **PRC Section 8387(a)**: Each local publicly owned electric utility will construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of wildfire posed by those electrical lines and equipment. Under subsection (b)(1) of PRC Section 8387, the local publicly owned electric utility will prepare a WMP before January 1, 2020. After January 1, 2020, a local publicly owned electric utility will prepare a WMP annually and will submit the plan to the California Wildfire Safety Advisory Board (WSAB) on or before July 1 of each calendar year. The plan will be updated annually and submitted to the WSAB by July 1 of each year. WSAB advises the California Office of Energy Infrastructure Safety (OEIS) on electrical corporations' WMPs, requirements for these plans, and other wildfire safety matters. Additionally, WSAB reviews the WMPs submitted by publicly owned electric utilities and electrical cooperatives and provides comments and advisory opinions. WSAB also serves as an additional forum for the public to provide input on the important topic of wildfire safety. At least once every three years, the submission will be a comprehensive revision of the plan.
- **PRC Section 4201-4204**: This section and Government Code Sections 51175 to 51189 direct CAL FIRE to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These FHSZs define the application of various mitigation strategies to reduce risk associated with wildland fires.
- **PRC Section 4292**: This section requires the clearing of flammable vegetation around specific structures that support certain connectors or types of electrical apparatus. An approximately 10-foot radius around such structures must remain clear of vegetation for the entirety of the fire season.
- **PRC Section 4293:** This section requires specific clearance between conductors and vegetation. As the line voltage increases, the radius of clearance also increases. It is also required that some trees be removed if they pose the potential to fall on an electrical transmission line and cause damage.

California Public Utilities Commission

The CPUC originally adopted GO 95 in 1941 to establish requirements for the design, construction, and maintenance of overhead lines in California, in order to ensure adequate service as well as the safety of

those constructing, maintaining, and operating such lines and the public. GO 95 regulates all aspects of design, construction, and operations and maintenance (O&M) of electrical power lines and fire safety hazards for utilities subject to its jurisdiction. Under GO 95 there are specific requirements regulating the minimum distance or clearance that should be maintained between the ground, lines and other infrastructure, and vegetation that vary based on voltage, type, and location. On May 4, 2000, the CPUC issued D.98-07-097 to adopt revisions to GO 166, which addressed matters relating to electric service reliability and safety and focused on minimizing potential hazards posed by damage to electric distribution facilities. On January 18, 2012, the CPUC issued D.12-01-032, which adopted significant revisions to GO 95, Overhead Electric Line Construction, and GO 165, Inspection Requirements for Electric Distribution and Transmission Facilities. Phase I and Phase II revisions to GO 95 and GO 165 addressed vegetation management practices, inspection cycles, corrective maintenance timeframes, and other fire-reduction measures in fire threat zones.

On February 5, 2014, the CPUC adopted its Decision Adopting Regulations to Reduce the Fire Hazards Associated with Overhead Electric Utility Facilities and Aerial Communications Facilities (Decision 14-02-015). In addition to updating various requirements of GO 95 and ordering further study, the decision called for creation by the CPUC of a High Fire-Threat District Map identifying zones of high hazard, elevated risk, and extreme risk for destructive utility-associated wildfires.

In January 2018, under the requirements of D.17-01-009, the CPUC adopted its High Fire-Threat District Map, which designates three areas where there is an increased risk from wildfires: Tier 3 (extreme fire risk), Tier 2 (elevated fire risk), and Zone 1 (CAL FIRE Tree Mortality HHZ Tier 1, not included in Tier 3 or Tier 2). Tier 2 fire-threat areas are where there is an elevated risk (including likelihood and potential impacts on people and property) from utility-associated wildfires. Tier 3 fire-threat areas are where there is an extreme risk (including likelihood and potential impacts on people and property) from utility-associated wildfires. These CPUC designations do not replace CAL FIRE's FHSZs.

On October 25, 2018, the CPUC entered an Order Instituting Rulemaking to Implement Electric Utility Wildfire Mitigation Plans Pursuant to Senate Bill 901 (2018), R.18-10-007, facilitating SB 901's requirement that PG&E and other utilities submit WMPs. PG&E submitted its amended 2019 Wildfire Safety Plan on February 6, 2019, which "… describes the enhanced, accelerated, and new programs that PG&E is and will aggressively continue to implement to prevent wildfires in 2019 and beyond." On February 7, 2020, PG&E submitted its updated 2020 WMP. On February 5, 2021, PG&E submitted its updated 2021 WMP. On November 1, 2021, Change Orders for the 2021 WMP (Docket #2021-WMPs) were submitted to the CPUC. On March 27, 2023, PG&E submitted its updated 2023 WMP Update before submitting its 2023 WMP Update Revised on April 6, a second revision on August 7, 2023, a third revision on September 27, 2023, and a fourth revision on January 8, 2024. The State of California OEIS issued a decision on the WMP in December 2023 that included required areas for continued improvement. PG&E prepared a sixth version of the WMP and submitted it to the state on July 5, 2024.

The CPUC also provides an annual guide to utilities for creating their WMPs based on guidance provided in D.19-05-036. The WMP template includes substantive and procedural requirements for WMPs based on lessons learned and input from stakeholders and the WSAB. The most recent WMP 2021 guidelines were focused on such principles as standardizing information collection, systematizing qualitative information, and tracking utility progress toward wildfire risk reduction.

California Senate Bill 901

Passed in 2018, Senate Bill 901 adopted new provisions of California Public Utilities Code Section 8386 requiring all electric utilities to prepare, submit, and implement annual WMPs. These plans describe the utilities' strategies to construct, operate, and maintain their electrical lines and equipment in a manner that will help minimize the risk of catastrophic wildfires associated with those electrical lines and equipment.

California Senate Bill 1028

Senate Bill 1028 (2016) requires each electrical corporation to construct, maintain, and operate its electrical lines and equipment in a manner that would minimize the risk of catastrophic wildfire posed by those electrical lines and equipment and makes a violation of these provisions by an electrical corporation a crime under state law. The bill also requires each electrical corporation to annually prepare a WMP and submit to CPUC for review. The plan must include a statement of objectives, a description of preventive strategies and programs that are focused on minimizing risk associated with electric facilities, and a description of the metrics that the electric corporation uses to evaluate the overall WMP performance and assumptions that underlie the use of the metrics.

Governor's Office of Planning and Research Fire Hazard Planning Technical Advisory

The Governor's Office of Planning and Research (OPR, now called the Governor's Office of Land Use and Climate Innovation) released the Fire Hazard Planning Technical Advisory (Technical Advisory), a planning document to help cities and counties in California reduce wildfire risk (OPR, 2022). The Technical Advisory provides recommendations and example policies to integrate fire hazard planning into local general plans, as well as emphasizes the importance of evacuation routes in wildfire-prone areas, specifically requiring local governments to identify and evaluate them for capacity, safety, and viability under various emergency scenarios. The Technical Advisory also addresses residential developments lacking at least two emergency evacuation routes in hazard areas; and advises on integrating Community Wildfire Protection Plans (CWPPs) and aligning them with other relevant plans like the Safety Element of the general plan.

California Government Code 65302(g)(1) and (g)(5)

California Government Code 65302(g)(1) outlines the general requirements for a safety element in a local government's general plan, including the identification and analysis of hazards and risks such as seismic activity, wildfires, and other natural disasters. Specifically, 65302(g)(5) mandates that local jurisdictions identify residential developments in hazard areas lacking at least two emergency evacuation routes upon the next revision of the housing element on or after January 1, 2020. This means that if a jurisdiction has a safety element, and it includes identifying residential developments in areas prone to hazards, it must also identify those developments that only have one evacuation route or none at all.

3.18.2.3. Local

Because the CPUC has exclusive jurisdiction over Project siting, design, and construction, the Project is not subject to local (city and county) discretionary regulations except for air districts and Certified Unified Program Agencies with respect to air quality and hazardous waste regulations. However, local plans and policies are considered for informational purposes as part of the CEQA review process.

County and City Adopted Emergency Response Plans and Local Hazard Mitigation Plans

The Contra Costa Operational Area Emergency Operations Plan (EOP) addresses evacuation within the context of its overall emergency preparedness and response framework. While a detailed plan specifically outlining evacuation procedures, routes, and shelter locations for the entire Operational Area appears to be in development, the EOP generally describes the planned response to emergencies and disasters in or affecting the County, with the aim of protecting the safety, health, and welfare of citizens.

The Alameda County EOP outlines procedures for various emergency situations, including evacuations. The EOP emphasizes a coordinated approach to emergency response, focusing on protecting the safety and welfare of residents. The EOP details procedures for communication, resource allocation, and specific actions to be taken during an evacuation, such as identifying safe routes and establishing evacuation centers.

The 2024 Contra Costa County Local Hazard Mitigation Plan (LHMP), which includes an annex for the City of Orinda, focuses on enhancing community resilience to various hazards (Contra Costa County, 2024c). While the LHMP does not explicitly detail specific evacuation plans, the plan emphasizes the importance of planning and preparation for potential emergencies, including wildfires, which are a significant concern for the area. The plan guides decision-makers in allocating resources to minimize the effects of hazards and integrates with existing planning mechanisms like building codes and zoning regulations.

The Alameda County LHMP focuses on reducing risks from various natural and human-caused disasters, but the plan does not explicitly detail evacuation procedures (Alameda County, 2021). Instead, the plan emphasizes actions like community preparedness, land use planning, and infrastructure improvements to mitigate the impact of hazards. The plan does address evacuation indirectly by highlighting the need for adequate emergency response times, especially in areas like the Berkeley Hills, which are vulnerable to wildfire. The plan also acknowledges the importance of understanding evacuation routes and capacities to ensure effective evacuations during emergencies.

The City of Oakland LHMP addresses evacuation as a key component of its overall hazard mitigation strategy, particularly in relation to wildfires (City of Oakland, 2021). The LHMP highlights the importance of identifying and maintaining key evacuation routes, especially in high fire hazard zones. Projects are underway to manage vegetation and ensure access along these routes. In the Oakland Hills, roads marked with double yellow lines are designated as major egress routes, emphasizing their importance during emergencies. Drivers are advised to have physical maps and consider alternative routes if primary egress routes (like roads with double yellow lines in the Oakland Hills) are blocked.

The City of Piedmont's Annex to the 2010 Association of Bay Area Governments (ABAG) Local Hazard Mitigation Plan addresses evacuation in the context of various hazards (City of Piedmont, 2012). Specifically, the plan references the city's existing Emergency Operations Plan, which details procedures, duties, and responsibilities for each department during emergencies, including evacuation. The plan also emphasizes the importance of integrating mitigation efforts with existing planning mechanisms like building and zoning regulations.

Contra Costa County General Plan 2045, Public Facilities/Services and Safety Element

Contra Costa County contains significant vegetation and wildlife habitats that pose a considerable fire hazard throughout the County. The Contra Costa County General Plan includes a Public Facilities/Services Element and a Health and Safety Element with goals and policies to minimize the risk of fire hazards and establish policies for immediate emergency response.

The Public Facilities/Services Element establishes the following goals (Contra Costa County, 2024a):

- Goal PFS-1: Coordinated public facilities and services that support the economic, social, health, and environmental wellbeing of the county and its residents.
- PFS-P1.4 Encourage, and whenever possible require, co-location and undergrounding of new utility infrastructure, such as transmission and distribution lines, fiber-optic cables, and pipelines, in existing rights-of-way to minimize visual, operational, and environmental impacts on the community.
- Goal PFS-6 Efficient and effective law enforcement, fire, and emergency medical services for all communities.
- PFS-P6.1 Require new development to support effective law enforcement and fire protection by providing a safe and accessible public realm for all.

The Contra Costa County Health and Safety Element includes the following relevant public protection services and disaster planning implementation measures (Contra Costa County, 2024b):

- **Goal HS-7:** Minimized injury, loss of life, and damage to property from wildfire hazards.
- **HS-P7.2:** Require any construction of buildings or infrastructure within a High or Very High Fire Hazard Severity Zone in the LRA or SRA, as shown on Figure HS-10, or in areas that may be designated as the WUI to incorporate fire-safe design features that meet the State Fire Safe Regulations and Fire Hazard Reduction Around Buildings and Structures Regulation for road ingress and egress, fire equipment access, and adequate water supply.
- **HS-P7.3:** Require new development within a Very High Fire Hazard Severity Zone in the LRA or SRA (as shown on Figure HS-10) or in areas that may be designated as the WUI, and on a residential parcel with evacuation constraints (as shown on Figure HS-21), to prepare a traffic control plan to ensure that construction equipment or activities do not block roadways or interfere with evacuation plans during the construction period. Work with the appropriate fire protection district to review and approve the traffic control plan prior to issuance of building permits.
- **HS-P7.10:** Coordinate with energy service providers to underground power lines, especially in the WUI and High and Very High Fire Hazard Severity Zones.
- **Goal HS-13**: Effective evacuation capacity and capabilities throughout the county in response to emergencies and major hazards of concern.

City of Orinda General Plan Safety Element

The City of Orinda considers wildfire a hazard of very high concern. The *City of Orinda General Plan* includes a Safety Element with policies to minimize the risk of wildland and urban fire hazards. It establishes the relevant following goals and policies associated with wildfires:

- **Goal S-1**: A community that effectively minimizes threats to public health, safety, and welfare resulting from natural and human-caused hazards.
- **Goal S-4:** A community that seeks to avoid and minimize the risk of loss of life, injury, and property loss from wildfires and urban fires.
- **Policy S-2**: Incorporate the Contra Costa County Hazard Mitigation Plan and the City of Orinda Annex, approved by the Federal Emergency Management Agency in 2018, into this Safety Element by reference, as permitted by California Government Code Section 65302.6, to ensure that emergency response and evacuation routes are accessible throughout the city.
- **Policy S-11:** Coordinate with emergency responders, engineers, and Caltrans to identify and maintain additional potential evacuation routes to ensure adequate capacity, safety, and viability of those routes in the event of an emergency, including making improvements to existing roads to support safe evacuations as needed.
- **Policy S-35**: Continue to require review by the Planning Department and Moraga-Orinda Fire District prior to the issuance of development permits for proposed construction projects and conceptual landscaping plans in Very Fire Hazard Severity Zones identified by CAL FIRE and Wildland-Urban Interface Zones (see Figure 11: Wildfire Hazard Severity Zones and Figure 12: Wildland-Urban Interface Zones). Plans for proposed development in such areas shall include, at a minimum:
  1. Site plan, planting plan, planting palette, and irrigation plan to reduce the risk of fire hazards and with consideration to site conditions, including slope, structures, and adjacencies.
  2. Development and maintenance of defensible space.

3. Multiple points of ingress and egress to improve evacuation, emergency response, and fire equipment access, and adequate water infrastructure for water supply and fire flow that meets or exceeds the standards in the California Fire Safe Regulations (Section 1273 and 1274 of the California Code of Regulations – Title 24, Division 1.5, Chapter 7, Articles 2 and 3).
4. Class A roof materials for new and replacement roofs.
5. Location and source of anticipated water supply

- **Policy S-39**: Require proposed development to provide adequate access for fire and emergency vehicles and equipment that meets or exceeds the standards in the California Fire Safe Regulations (Sections 1273 and 1274 of the California Code of Regulations – Title 24, Division 1.5, Chapter 7, Articles 2 and 3).
- **Policy S-41:** Continue to coordinate with PG&E to underground power lines throughout the community, especially in the wildland-urban interface and fire hazard severity zone areas where wildfire risk is greatest.

City of Oakland General Plan Safety Element

The City of Oakland identifies wildfire as its primary fire hazard risk. Wildfire risk is at its highest from May to October. The City of Oakland General Plan includes a Safety Element with policies to minimize the risk of wildland and urban fire hazards. It establishes the following relevant goals:

- **Goal SAF-2:** Proactively prevent urban fires and exposure to wildfire and protect community members and property from fire danger.
- **SAF-A.9:** Continue to review development proposals to ensure that they incorporate required and appropriate fire-mitigation measures, including adequate provisions for occupant evacuation, and access by fire-fighting personnel and equipment.
- **SAF-2.3** Development in the Very High Fire Hazard Severity Zone (VHFHSZ): Prioritize development in areas with existing adequate road networks, evacuation routes, and water infrastructure. Require any new development in the Very High Fire Hazard Severity Zone to prepare a Fire Protection Plan that minimizes risks by:
  - Assessing site-specific characteristics such as topography, slope, vegetation type, wind patterns, etc. as part of a risk analysis.
  - Determination of fire response capability, including the assistance of local fire protection agencies, and availability of local resources.
  - Siting and designing development to avoid hazardous locations (e.g., through community fire breaks) to the extent feasible.
  - Incorporating fuel modification and brush clearance techniques in accordance with applicable fire safety requirements (including fuel breaks and their maintenance) and carried out in a manner which reduces impacts to environmentally sensitive habitat to the maximum feasible extent.
  - Using fire-resistant building materials and design features, such as visible signage, consistent with the adopted Oakland Municipal Code and Fire and Building Code standards (including Fire Safe Regulations as minimum standard).
  - Complying with established standards and specifications for fuel modification, visible home and street addressing and signage, defensible space, access and egress, and water facilities.

Following the most recent California Fire Code as adopted and amended.

- **SAF-A.35:** Maintain adequate capacity along evacuation routes as shown in SAF-13a, e.g., by limiting street parking where capacity may be needed.

- **SAF-8.5** Cohesive Evacuation Routes Network: Ensure the evacuation routes network is interconnected with adequate capacity and reflects ability to evacuate for multiple threats.
- **SAF-8.16** Emergency Notification: Use early warning notification systems (Genasys, text messages, etc.) to notify residents by wireless emergency alert of the need to evacuate in the event of an emergency and the location of evacuation routes, points, and critical facilities such as schools and day care centers, particularly residents of vulnerable areas and neighborhoods with constrained emergency access. Continue to collaborate with adjoining jurisdictions on the network of outdoor warning sirens, and to test the sirens on a monthly basis.

City of Piedmont General Plan Environmental Hazards Element

The City of Piedmont combines two mandatory elements, Safety and Noise, into one Environmental Hazards Element of its General Plan. The eastern portion of the City of Piedmont is characterized by substantial areas of wildland fire risk. The City's Environmental Hazards Element includes goals and policies to minimize the risk of wildland and urban fire hazards, including the following:

- **Goal 19:** Wildfire and Flooding Hazards. Reduce exposure to wildfire, flooding, and other climate-related hazards.
- **Policy 19.2:** Fuel Management Implement. Create vegetation management programs which reduce the fuel load and potential for wildfire. This should include the removal of invasive fire-prone vegetation and the use of less flammable plants for landscaping, especially on hillside sites. Public education on "defensible space" and good vegetation management practices should be strongly promoted.
- **Policy 19.3:** Fire-Fighting Water Flow. Ensure that Piedmont's water system remains adequate for fire-fighting purposes. As funding allows, undertake improvements for areas where capacity is determined to be deficient.
- **Policy 19.9:** Fire Protection Plans for New Development. Require fire protection plans for all new development, including new development within VHFHSZs. Fire protection plans shall contain the following components:
  - Risk Analysis
  - Fire Response Capabilities
  - Fire Safety Requirements – Defensible Space, Infrastructure, and Building Ignition Resistance
  - Mitigation Measures and Design Considerations for Non-Conforming Fuel Modification
  - Wildfire Education, Maintenance, and Limitations
  - Evacuation Planning
- **Policy 19.19:** Ensure Adequate Emergency Evacuation Routes. Ensure that all new residential development has at least two emergency routes.
- **Policy 19.20:** Emergency Access. Ensure that the Piedmont Fire Department has complete access to all locations in the City, including gated residential communities and critical infrastructure.
- **Policy 19.24:** Underground Power Lines. Coordinate with Pacific Gas & Electric to implement an electrical undergrounding plan with a focus on critical evacuation roadways and areas with highest wildfire risk.
- **Policy 19.30:** Transportation Construction Plan. Projects developers shall be required to prepare and implement a Transportation Construction Plan (TCP), which shall be approved by the City. The plan shall include the locations of material and equipment storage, trailers, worker parking, a schedule of site operations that may block traffic, and provisions for traffic control. The TCP shall include procedures for stopping construction in the event of an emergency and ensuring that emergency access and evacuation routes are not inhibited. The TCP shall ensure adequate emergency access and consistency

with the California Fire Code and other development requirements as part of the development review process.

The City of Piedmont's Community Services and Facilities Element contains additional relevant goals and policies, including the following:

- **Goal 19:** Wildfire and Flooding Hazards. Reduce exposure to wildfire, flooding, and other climate-related hazards.
- **Policy 34.7:** Defensible Space, Evacuation Planning, and Emergency Access. Encourage new development (including additions and alterations) to incorporate lighting, landscaping, and design features that reduce the potential for crime, facilitate rapid response to emergency calls, and facilitate evacuation in event of an emergency. Prohibit new development and home alterations that would impede emergency access. See Policy 19.23: Evaluate Evacuation Route Capacity of the Piedmont Hazards Element in accordance Government Code Section 65302.15 (as amended by AB 747) and design requirements developed in implementing policy 19.2

3.18.3. Environmental Impacts

3.18.3.1. Impact Analysis Approach

Potential impacts related to the increase in wildfire risk and hazards are evaluated by assessing Project construction and operation impacts that could obstruct emergency access, increase the risk of fire, and create hazards after a fire has occurred. The potential for the Project's activities and equipment to pose wildfire hazards was evaluated by reviewing the following:

- Fire hazard maps, fire occurrence maps, and geographic information systems data from CAL FIRE and the CPUC (CAL FIRE, 2025; 2025)
- Information provided in the Safety, Public Facilities/Services, and Environmental Hazards Elements of the Contra Costa County General Plan (Contra Costa County, 2024b), City of Oakland General Plan (City of Oakland, 2023), City of Orinda General Plan (City of Orinda, 2023), and City of Piedmont General Plan (City of Piedmont, 2025a)
- CPUC and PG&E fire hazard rules and policies, including the current WMP (CPUC, 2014a; 2014b; PG&E, 2024b; 2025)
- Alameda County, Contra Costa County, City of Oakland, City of Orinda, and City of Piedmont emergency plans and evacuation routes (County of Alameda, 2023; 2025; Contra Costa County, 2024b; City of Oakland, 2023; City of Orinda, 2024; City of Piedmont, 2024)

The APMs listed in Table 3.18-4 would be implemented as part of the proposed Project. These APMs include the development of traffic control plans, Project-specific Construction Fire Prevention Plan, and fire prevention practices.

Table 3.18-4. Applicant Proposed Measures – Wildfire

APM	Description
Wildfire	
APM AIR-1	**Dust Control During Construction.** Pacific Gas and Electric Company (PG&E) will implement measures to control fugitive dust consistent with BAAQMD's Basic Best Management Practices (BMPs) (BAAQMD, 2023) as follows: ■ All exposed surfaces within the active construction area (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day as necessary to contain dust. ■ All haul trucks transporting soil, sand, or other loose material offsite will be covered.

APM	Description
	■ All visible mud or dirt trackout onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. ■ All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph). ■ All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. ■ All grading activities shall be suspended when average wind speeds exceed 20 mph. If excavating soils when average wind speeds exceed 20 mph, soil piles will be lightly sprayed with water to contain dust to the work area. ■ Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations. Where project activities are within 1,000 feet of residential areas, PG&E will also implement the following additional BMPs, consistent with BAAQMD's Enhanced BMPs (BAAQMD, 2023): ■ Limit the simultaneous occurrence of excavation, grading, and ground-disturbing construction activities. ■ Minimize the amount of excavated material or waste materials stored at the site. ■ Stabilize soil where project grading occurred and the area is inactive for at least 14 calendar days. Soil stabilization measures may include wood mulch, gravel, seeding or application of other non-toxic soil stabilizer consistent with APM HYD-1.
APM HYD-1	**Prepare and Implement an SWPPP.** Stormwater discharges associated with project construction activities are regulated under the CGP. Cases in which construction will disturb more than 1 acre of soil require submittal of a Notice of Intent, development of an SWPPP (both certified by the Legally Responsible Person), periodic monitoring and inspections, retention of monitoring records, reporting of incidences of noncompliance, and submittal of annual compliance reports. Pacific Gas and Electric Company (PG&E) will comply with all CGP requirements for construction of project components. Following project approval, PG&E will prepare and implement a SWPPP, which will address erosion and sediment control concerns to minimize construction impacts on surface water quality, as well as reduce the potential for stormwater runoff to impact adjacent properties. The SWPPP will be designed specifically for the hydrologic setting of the proposed Project (surface topography, storm drain configuration, and other factors). Implementation of the SWPPP will help stabilize graded areas and reduce erosion and sedimentation. The SWPPP will propose BMPs that will be implemented during construction activities. Erosion and sediment control BMPs – such as straw wattles, erosion control blankets, and silt fences – will be installed in compliance with the SWPPP. Suitable soil stabilization BMPs will be used to protect exposed areas during construction activities, as specified in the SWPPP. During construction activities, BMPs will be implemented to reduce exposure of construction materials and wastes to stormwater. BMPs will be installed following manufacturer's specifications and according to standard industry practice. Erosion and sediment control measures may include the following: ■ Straw wattle, silt fence, or gravel bag berms ■ Trackout control at all entrances and exits ■ Stockpile management ■ Effective dust control measures ■ Good housekeeping measures ■ Stabilization measures, which may include wood mulch, gravel, and seeding Identified erosion and sediment control measures will be installed prior to the start of construction activities and will be inspected and improved as required by the CGP. Temporary sediment control measures intended to minimize sediment transport from temporarily disturbed areas such as silt fences or wattles will remain in place until disturbed areas are stabilized. In areas where soil is to be temporarily stockpiled, soil will be placed in a controlled area and will be managed using industry-standard stockpile management techniques. Where construction activities occur near a surface waterbody or drainage channel, the staging of construction materials and equipment and

APM	Description
	excavation spoil stockpiles will be placed and managed in a manner to minimize the risk of sediment transport to the drainage. Any surplus soil will be transported from the site and disposed of in accordance with federal, state, and local regulations. The SWPPP will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials will be permitted, if necessary. A copy of the SWPPP will be provided to CPUC for recordkeeping. The plan will be maintained and updated during construction as required by the CGP.
APM HYD-3	**Project Site Restoration.** As part of the final construction activities, PG&E will restore all removed curbs and gutters, repave, and restore landscaping or vegetation, as necessary.
APM NOI-1	**General Construction Noise Management.** PG&E will employ standard noise-reducing construction practices such as the following: ■ Comply with manufacturer's muffler requirements on all construction equipment engines and ensure exhaust mufflers are in good condition. ■ Turn off construction equipment when not in use, where applicable. ■ Locate stationary equipment, construction staging areas, helicopter landing zones, and construction material areas as far as practical from sensitive receptors. ■ Include noise control requirements for construction equipment and tools in specifications provided to construction contractors to the maximum extent practicable, including performing all work in a manner that minimizes noise. ■ PG&E will provide written notice at least 1 week prior to planned construction activities to all sensitive receptors and residences within approximately 500 feet of construction sites, staging yards, access roads, and areas of drone use, and within approximately 1,000 feet of helicopter landing zones. PG&E also will post notices in public areas, including recreational use areas, within approximately 500 feet of the project alignment and construction work areas. The announcement will state approximately where and when construction will occur in the area, including areas of helicopter construction. Notices will provide tips on reducing noise intrusion – for example, by closing windows facing the planned construction. PG&E will identify a public liaison to respond to concerns of neighboring receptors during construction, including residents, about construction noise disturbance. PG&E also will establish a toll-free telephone number for receiving questions or concerns during construction and develop procedures for responding to callers. Contact information for reaching the PG&E public liaison officer by telephone or in person will be included in the notices and also posted conspicuously at the construction sites. PG&E will respond to questions or concerns received.
APM TRA-1	**Temporary Traffic Controls.** PG&E will obtain any necessary transportation and encroachment permits from Caltrans and the local jurisdictions, as required, including those related to state route crossings and the transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during construction. PG&E will develop traffic control plans to detail road and lane closure or width reduction or traffic diversion as required by the encroachment permits. Residents and emergency service providers will be notified of upcoming road closures consistent with the notification procedures described in APM NOI-1. Construction activities that are in, along, or cross local roadways will follow best management practices and local jurisdictional encroachment permit requirements—such as traffic controls in the form of signs, cones, and flaggers—to minimize impacts on traffic and transportation, including emergency vehicle access and evacuation routes in the project area. Where work areas will occupy the end of a street with no secondary access and residential access may be restricted, PG&E will implement residential safe transport. PG&E will provide the CPUC with copies of permits obtained prior to construction activity in each jurisdiction or location. If required for obtaining a local encroachment permit, PG&E will establish a Traffic Management Plan (TMP) to address haul routes, timing of heavy equipment and building material deliveries, workers and equipment parking, potential street or lane closures, signing, lighting, and traffic control device placement. When working on state highways, PG&E will ensure traffic control operations are compliant with both the California Temporary Traffic Control Handbook, 2019 edition, and the California Manual

APM	Description
	on Uniform Traffic Control Devices, 2014 edition, and any updated versions of these documents that become available before start of construction.
APM WFR-1	**Construction Fire Prevention Plan.** A project-specific Construction Fire Prevention Plan for construction of the Project will be prepared prior to initiation of construction by PG&E. The PG&E plan will be approved by the CPUC. The final plan will be approved by the CPUC at least 30 days prior to the initiation of construction activities. The plan will be fully implemented throughout the construction period, and it will include the following at a minimum: ■ The purpose and applicability of the plan ■ Incorporation of the requirements in PG&E's current Utility Standard TD-1464S for Preventing and Mitigating Fires While Performing PG&E Work ■ Responsibilities and duties for compliance ■ Preparedness training and drills ■ Procedures for fire reporting, response, and prevention that include: • Identification of daily site-specific risk conditions • The tools and equipment needed on vehicles and on hand at sites • Reiteration of fire prevention and safety considerations during tailboard meetings • Daily monitoring of the Red-Flag Warning System with appropriate restrictions on types and levels of permissible activity ■ Coordination procedures with federal, state, and local fire officials and emergency responders, including notifications of temporary lane or road closures ■ Crew training, including the construction fire prevention practices described in APM WFR-2 ■ Method(s) for verifying that all plan protocols and requirements are being followed PG&E or its contractor will be responsible for training Project personnel and enforcing all provisions of the PG&E Construction Fire Prevention Plan, as well as performing other duties related to fire detection, prevention, and suppression for the Project. Construction activities will be monitored to ensure implementation and effectiveness of the plan.
APM WFR-2	**Fire Prevention Practices.** PG&E will implement the following fire prevention practices at active construction sites and during maintenance activities: ■ Existing PG&E personnel conducting maintenance on the Project are trained on the PG&E Utility Standard TD-1464S for Preventing and Mitigating Fires While Performing PG&E Work or relevant current standard and will follow the standard in regard to training, preparation, communication methods and means, observations of and alerts concerning weather conditions including NWS events, and PG&E's work restrictions and fire mitigation required for elevated PG&E Utility FPI ratings (R4, R5, or R5-Plus). ■ Construction personnel will be trained in fire-safe actions, including PG&E's current Utility Standard for Preventing and Mitigating Fires While Performing PG&E Work, Wildfire Prevention Contract Requirements, and the Project's PG&E Construction Fire Prevention Plan concerning initial attack, firefighting, and fire reporting. Construction personnel will be trained and equipped to extinguish small fires to prevent them from growing into more serious threats. ■ Construction personnel will have fire suppression equipment on all construction vehicles per PG&E Utility Standard TD-1464S and will be required to park vehicles away from dry vegetation. Water tanks and/or water trucks will be sited or available at active project sites for fire protection during construction. ■ All construction crews and inspectors will be provided with radio and cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. All fires will be reported to the fire agencies with jurisdiction in the area upon discovery of the ignition. ■ While performing stationary ground-level jobs or activities from which a spark, fire, or flame may originate (for example, welding, cutting, grinding), all flammable material (for example, grass, leaf litter, dead or dying tree) must be removed down to the mineral soil around the operation for a minimum of 10 feet. ■ PG&E General Requirements for Wildfire Mitigation (R1 to R3) apply for PG&E work areas located farther than 5 miles from an FIA when the nearest FIA has an elevated FPI rating (R4,

APM	Description
	R5, or R5-Plus), except during NWS Red-Flag Warnings and Fire Weather Watch events when R5 mitigations would apply. ■ For work within an FIA, during Red-Flag Warning and Fire Weather Watch events, as issued by the NWS, and elevated PG&E Utility FPI rating (R4, R5, or R5-Plus), all construction activities will refer to the current PG&E Standard TD-1464S and related requirements such as PG&E Wildfire Prevention Contract Requirements, Attachment 1 – Wildfire Mitigation Matrix, and Attachment 2 – Wildfire Risk Checklist Fire Mitigations. With the increased potential fire risk of R4, additional water resources are required, and a working fire watch is assigned to be able to continue work as long as the weather conditions are evaluated to ensure it remains safe to continue work. ■ For R5 and R5-Plus ratings, measures beyond R1 to R4 levels include posting a dedicated fire watch at the jobsite, making available a trailer-mounted water tank or alternative water delivery method at the jobsite, and modifying the fuel sources surrounding the jobsite. All planned work is suspended during an R5-Plus fire rating. During all emergency work being performed for an R5-Plus fire rating, personnel must have a PG&E Safety and Infrastructure Protection Team on standby or a 300-gallon water tender available. Use of heavy equipment (blades, dozers, skid steers, excavators, back hoes), construction hot work, and electrical equipment work (including tasks related to conductors, pole, and overhead equipment from which a spark, fire, or flames may originate) are allowed with the R5 mitigations in place but not allowed during R5-Plus conditions.

3.18.3.2. Impact Significance Criteria

Project impacts related to wildfire were evaluated against the CEQA significance criteria and are discussed in the following sections. The impact analysis evaluates potential Project impacts during the construction phase and the O&M phase.

Significance Criteria

Criteria WF-1 through WF-4 are included in Appendix G of the CEQA Guidelines and address impacts related to emergency evacuation plans, exacerbation of wildfire risks, and exposure of people or structures to post-fire risks.

If located in or near State Responsibility Areas or lands classified as very high fire hazard severity zones, these criteria consider whether the proposed Project would:

- **WF-1:** Substantially impair an adopted emergency response plan or emergency evacuation plan
- **WF-2:** Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose nearby residents to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire
- **WF-3:** Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes
- **WF-4:** Require the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment

The proposed Project does not propose the installation or maintenance of additional supporting infrastructure such as new access roads, fuel breaks, or supporting utilities beyond the proposed power line rebuild and removal activities. As such, there would be no ancillary infrastructure elements that could exacerbate wildfire risk or result in separate, ongoing environmental impacts. Furthermore, potential wildfire-related risks associated with the construction and operation of the proposed Project's primary infrastructure are addressed in Impact WF-2. Therefore, Impact WF-4 is not separately analyzed, as no additional infrastructure with the potential to exacerbate wildfire risk or result in environmental impacts is proposed.

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of Project impacts related to wildfires was evaluated for criteria WF-1 through WF-3 listed above.

Recent case law suggests that analysis of Impact WF-1 should consider the effect of a project on life safety impacts (i.e., physical injury) during emergency event evacuations. Throughout California, environmental review considering this case law considers a project's effect on Evacuation Time Estimates (ETE), or the amount of time needed to evacuate a hazard area to avoid life safety impacts. Increases in ETE may indicate a significant impact on life safety due to increased exposure to life safety hazards (e.g., smoke, fire, or falling debris) during an evacuation, when considered in context with all relevant factors. Therefore, an increase in ETE is discussed below as a significance threshold for Impact WF-1.

3.18.3.3. Impacts and Mitigation Measures

Impact WF-1: Substantially impair an adopted emergency response plan or emergency evacuation plan.

Construction

Overhead Power Line Rebuild

SIGNIFICANT AND UNAVOIDABLE. Section 3.18.1.6 describes the emergency evacuation routes and plans that exist within the Project area. Portions of the Project are in areas identified as very high FHSZs. Hot work (i.e., activities that generate heat, sparks, or flame, such as welding, cutting, and soldering) during construction would temporarily increase the risk of starting a fire. In addition, a wildfire in the Project area started by non-Project activities would present a greater risk during construction due to the construction-related road blockages. Project construction vehicles would block some roads during construction, potentially impairing emergency evacuation in the event of a wildfire or other emergency and resulting in a significant impact by increasing ETE (Evacuation Time Estimates). As a result, construction activities could potentially impair the implementation of an emergency response plan or emergency evacuation plan.

Construction Activity Affecting Evacuation Plans or Routes. Approximately 4 miles of existing overhead facilities would be rebuilt, including replacing four 115 kV circuits. Specific construction activities that may affect evacuation routes include use of cranes and installation of guard structures. Construction requires vehicles to access each rebuild structure site with cranes, as well as locations requiring installation of guard structures. This construction activity would require temporary road or lane closures at some work areas. Construction activities in these work areas would include vehicle and equipment parking and operation; limited equipment and vehicle maintenance and fueling; material delivery, staging, and removal; and structure-specific activities associated with tension pull stringing or conductor removal.

At road crossings (i.e., where power lines cross a road), approximately 5,000 square feet of work area would be needed to install guard structures. The temporary guard structures may be installed outside of road rights-of-way and immediately adjacent to roads to protect roads from conductors that may fall during tension pull activities. The guard structures themselves would not obstruct roadways, but the construction activity and equipment required for their installation and removal may obstruct emergency access routes, estimated for less than one day. Guard structures and their locations and are identified in Table 2.3-6.

As discussed in Section 3.18.1.6, several work areas and guard structures would be located on identified evacuation routes, including Park Boulevard~~, Manzanita Drive,~~ and Skyline Boulevard. Installation of guard structures east of SR-13 would result in temporary road closures that may substantially impact

emergency evacuation if multiple closures occur simultaneously, especially on alternate routes identified in Table 2.3-6. Furthermore, many of the alternate routes require detours that could substantially increase evacuation time.

Rolling stops would occur on SR-13 when guard structures are placed to pull power lines across SR-13. Permits would be obtained from California Highway Patrol and Caltrans to facilitate traffic control during this temporary activity. PG&E would plan traffic control operations to be compliant with both the *California Temporary Traffic Control Handbook*, 2019 edition, and the *California Manual on Uniform Traffic Control Devices*, 2014 edition. Netting would be placed above the roadway to protect motorists and prevent traffic accidents by preventing falling conductors or other components from reaching the ground.

Cranes, used to install or remove power line structures, would require approximately 32 feet by 40 feet of space to work with extended outriggers and may require temporary, interspersed road closures over the course of up to 10 consecutive working days (approximately 2 calendar weeks). Work at a location may be separated by several days or weeks. Crane trucks would operate during working hours (approximately between 7:00 a.m. and 8:00 p.m.). Crane activity includes set-up, installing and removing guard structures, staging material, crane work, and removal of all materials and equipment from a location.

Crane work using mobile crane trucks would take approximately two days per tower. Crane trucks are not anticipated to remain within a roadway overnight. Depending on the activity ongoing at a particular site, removal of a crane truck from a work area typically requires between approximately 5 minutes (when not lifting a load) and 45 minutes (when holding a load that must be set down before moving). As further discussed below, during a reasonably foreseeable worst-case scenario, if a crane truck is causing partial or a full road closure and it requires 45 minutes to demobilize during an emergency requiring evacuation, an emergency evacuation plan or emergency response plan could be substantially impaired.

Applicant Proposed Measures and Construction Practices. PG&E would implement specific fire prevention practices identified in APM WFR-2 (Fire Prevention Practices) to reduce the risk of construction-related ignitions. Fire prevention practices would include requiring PG&E personnel to be trained to follow fire safety standards, requiring fire suppression equipment during construction, prohibiting parking vehicles on dry vegetation, ensuring water is available for fire protection, and requiring appropriate preparation during elevated fire risk conditions.

Additionally, PG&E would prepare a Construction Fire Prevention Plan under APM WFR-1 (Construction Fire Prevention Plan). The Construction Fire Prevention Plan would address fire preparedness training and drills and procedures for fire reporting, response, and prevention. Lane and road closures would be coordinated with Caltrans or local jurisdictions' fire officials and emergency responders to reduce the effects on emergency access. At locations where full road closures may be needed for construction staging and access, emergency responders would be provided options for ingress and egress and would maintain emergency access.

In compliance with APM TRA-1 (Temporary Traffic Controls), PG&E would facilitate early notification and information about access for emergency vehicles. Emergency responders and area residents would be notified prior to construction of locations where roads are expected to be closed temporarily. APM TRA-1 also states that PG&E would develop traffic control plans, as required by encroachment permits, to detail road and lane closures, width reductions, or traffic diversions, and traffic controls in the form of signs, cones, and flaggers to minimize effects on emergency vehicle access and evacuation routes. Five of the potential road closures would occur at the end of dead-end roads where egress from some residences would be temporarily impacted for up to approximately 10 working days (2 calendar weeks). APM TRA-1 relies on notification procedures described in APM NOI-1 (General Construction Noise Management; superseded by MM N-1b). MM N-1b would increase advance notice to one month. Notification would include information on where and when construction would occur in each area so that residents can plan access routes and detours accordingly.

As described in Project Description Section 2.3.8.2 (Traffic Control), PG&E would maintain emergency access throughout construction to the greatest extent feasible. Construction vehicles and equipment are anticipated to access Project construction areas using existing PG&E access and paved public roads or existing dirt access roads. Construction vehicles and equipment needed at the pull sites would follow designated access routes and are expected to be parked or staged within the Project ROW or alongside existing access roads. Work areas on local roads with crane activities may require temporary road closures of up to approximately 10 working days (2 calendar weeks). While PG&E intends to maintain emergency access and access to evacuation routes, the construction occurring on and near these routes may impede evacuation efforts.

Impact Conclusion. Although most temporary road closure locations would have ingress and egress available on both sides of the closures that could be used in the event of an evacuation, the required use of alternate routes would increase the ETE for persons living or working near the closure sites due to the longer and less direct drive times. Increases in ETE would also occur on routes that remain open due to increases in evacuation demand on the remaining open routes, thus affecting the evacuation times for persons not otherwise near the road closures. Road closures that are on critical evacuation routes or could potentially obstruct evacuation routes would impair an emergency evacuation plan or emergency response plan.

APM TRA-1 (Temporary Traffic Controls) would not adequately ensure that impacts to emergency access and evacuation routes would be less than significant. In a wildfire event requiring emergency evacuation, construction vehicles may be blocking multiple roadways in the Oakland Hills. While they may be able to be moved in less than one hour, any road blockage in a wildfire emergency would create a significant impact.

Mitigation Measures. The following mitigation measures would enhance compliance with evacuation plans for the overhead replacement segment. However, even with implementation of all measures, Impact WF-1 would remain *significant and unavoidable*.

- **Mitigation Measure (MM) WF-1a (Prepare Construction Coordination Emergency Evacuation Plan).** As defined in the full text (Section 3.18.4), this measure would require PG&E to identify all roads with any construction blockage or impairment caused by construction vehicles or activity, and define and provide signage for alternate routes to be used for evacuation during construction. The evacuation routes would be identified in signage and resident notification that would be updated as construction activity moves from street to street. This measure would require providing notice prior to the start of construction to affected residents, emergency service responders, and other affected local agencies, including Contra Costa and Alameda counties and the cities of Oakland, Orinda, and Piedmont, that would use affected roads during an evacuation situation.
- **MM WF-1b (Limit Construction Requiring Full Road Closures)** would be required in work areas where construction would require full road closures of any length. MM WF-1b would limit full road closures to December 1~~5~~ through ~~February 28~~March 31 to minimize the risk of road closures substantially affecting evacuation in the event of a wildfire.
- **MM T-1a (Traffic Management Plan and Safe Transport; defined in Section 3.15, Transportation)** would be required to supplement APM TRA-1 to ensure that a TMP is prepared for the proposed Project. MM T-1a includes elements discussed with OFD during EIR scoping consultation meetings and addresses OFD's concerns about coordination and detours (OFD, 2025). A TMP would ensure that any traffic impediments caused by crane trucks would not obstruct or substantially delay emergency responder access in the event of an emergency. The TMP would establish methods for minimizing construction effects on roadways, and address haul routes, timing of heavy equipment and material deliveries, worker and equipment parking, potential street or lane closures, signing, lighting, and traffic control device placement. Advance notice of this information would allow emergency responders to

be prepared to use alternate routes to avoid crane truck work areas and slowed traffic areas if necessary. Traffic control would also be provided to safely guide traffic around work zones and minimize congestion to the maximum extent possible. Information about temporary road closures and the nearest alternate routes would be provided to local fire departments and transportation agencies. MM T-1a also addresses PG&E's commitment to provide safe transport to residents who are not able to drive to their homes due to construction activity; the measure adds specific detail and planning steps in advance of the start of construction.

- **MM N-1b (Construction Notification, defined in Section 3.12, Noise)** would be required because APM TRA-1 also relies on notification procedures described in APM NOI-1. MM N-1b is also necessary to reduce the impact severity to a less-than-significant level. MM N-1b would supplement APM TRA-1 to ensure that sufficient advance notification is provided to residents, emergency service providers, and other local agencies at least one month in advance prior to construction.

In sum, PG&E has proposed four APMs that would contribute to construction safety regarding wildfires for the rebuild segment: APMs TRA-1 (PG&E Temporary Traffic Controls), NOI-1 (General Construction Noise Management; superseded by MM N-1a) and WFR-1 (Construction Fire Prevention Plan), and WFR-2 (Fire Prevention Practices). However, as described above, these APMs do not address all essential components of wildfire evacuation safety, and impacts would be significant absent mitigation.

Therefore, to incorporate necessary notification, planning, and timing restriction components, MM WF-1a (Prepare Construction Coordination Emergency Evacuation Plan), MM N-1b (Construction Notification), MM WF-1b (Limit Construction Requiring Full Road Closures), and MM T-1a (Traffic Management Plan and Safe Transport) would be required. However, even with implementation of these mitigation measures, the construction of the overhead rebuild segment of the Project has the potential to substantially impair an adopted emergency response plan or emergency evacuation plan because the increase in ETE would still result during lane and road closures, and impacts would remain significant and unavoidable.

Overhead Power Line Removal

LESS THAN SIGNIFICANT WITH MITIGATION. During overhead power line removal, lines would not be energized. PG&E crane trucks would work along the utility corridor to remove approximately 4.66 miles of conductors and structures. Impacts to emergency response plans and emergency evacuation plans would be similar to those during the overhead power line rebuild but would be limited to the western portion of the Project area (west of Estates Drive) where these components would no longer be needed.

As discussed in Section 3.15 (Transportation), temporary road and lane closures, including rolling stops, are anticipated when certain sections of the PG&E lines are being removed at overhead crossings of roads. Temporary road closures for crane trucks would be required at work areas along residential roads (see Table 2.3-6 and Figure 2.1-2, Proposed Project Detail Map, in Appendix A for specific locations).

The same fire prevention and safety practices as the overhead power line rebuild, discussed above, would be applied during construction. Similar to the overhead power line rebuild, hot work during construction would temporarily increase the risk of fire; however, implementation of APM WFR-2 (Fire Prevention Practices) would reduce the risk of construction-related ignitions. Construction would also follow the Construction Fire Prevention Plan required by APM WFR-1 (Construction Fire Prevention Plan). Emergency responders and nearby residents would be notified in accordance with APM TRA-1 (Temporary Traffic Controls) and APM NOI-1 (General Construction Noise Management; superseded by MM N-1b [Construction Notification]).

Power line removal activities would maintain adequate emergency access and traffic flow to the greatest extent feasible. However, crane trucks would similarly have the potential to obstruct emergency access if a loaded crane truck requires 45 minutes to move from a site during an emergency. Therefore, under this worst-case scenario, APM TRA-1 would not be sufficient, and the impact would be significant because a

TMP may not be prepared to address potential crane truck obstructions. Therefore, MM WF-1a (Prepare Construction Coordination Emergency Evacuation Plan) and T-1a (Traffic Management Plan) would be required to provide advanced notice to the public about evacuation routes and to supplement APM TRA-1 to ensure that a TMP is prepared for the proposed Project.

In sum, PG&E has proposed four APMs that would contribute to construction safety regarding wildfires for the removal segment: TRA-1 (PG&E Temporary Traffic Controls), NOI-1 (General Construction Noise Management; superseded by MM N-1a), WFR-1 (Construction Fire Prevention Plan), and WFR-2 (Fire Prevention Practices). With these APMs, there remains the risk that emergency access or wildfire evacuation routes may still be impacted by crane trucks, resulting in a significant impact absent mitigation.

To reduce impacts to a less-than-significant level during removal of existing structures between Oakland X Substation and Estates Drive, MM WF-1a (Prepare Construction Coordination Emergency Evacuation Plan), MM N-1b (Construction Notification), and MM T-1a (Traffic Management Plan and Safe Transport) are required. These mitigation measures would ensure that the overhead power line removal would not substantially impair an adopted emergency response plan or emergency evacuation plan. There are fewer road closures and generally shorter alternative routes along the removal segment compared to segments east of SR-13. Impacts associated with the overhead power line removal would be less than significant with mitigation.

Underground Power Line

LESS THAN SIGNIFICANT WITH MITIGATION. Construction activities for the underground power line include staging, excavation, trenching, and installation of vaults, duct banks, and conduits, and backfilling and repaving of approximately 1.2 miles of Park Boulevard and Park Boulevard Way. Installation of the underground power line would require approximately 1,500 square feet of workspace, requiring temporary closures of one travel lane and one parking lane along Estates Drive, Park Boulevard (identified as an emergency evacuation route in the Oakland Safety Element), and Park Boulevard Way (City of Oakland, 2023); see Figure 3.18-7. Impacts to emergency access and routes would be less severe than removal and rebuilding of the power line, as undergrounding would primarily occur within a wider road with one lane anticipated to remain open to facilitate vehicle access. Lane closures associated with trenching would progress at an anticipated rate of 40 to 100 linear feet per day; as such, impacts would be temporary and localized to each workspace each day, and would not extend along the length of the underground segment at any one time.

To reduce any potential impacts to emergency response and evacuation plans related to wildfire from the temporary lane closures and the presence of construction equipment, PG&E has proposed three APMs. The APMs would require notification to nearby residents and local jurisdictions' fire officials and emergency responders of the Project's construction activities and schedule and provide information on road and lane closure details (APM WFR-1 [Construction Fire Prevention Plan], APM TRA-1 [Temporary Traffic Controls], and APM NOI-1, [General Construction Noise Management; superseded by MM N-1b]).

However, Park Boulevard is a major roadway that connects local residents to regional destinations and highways. Therefore, impacts would remain significant after implementation of these APMs because advance notice of construction would be inadequate. Under APM NOI-1, only one week's notice is given when notifying the public about the Project, and no further information about reducing wildfire risk is provided that could further reduce the level of demand for emergency responders. APM NOI-1 is superseded by MM N-1b, which would increase advance notice to one month and allow residents and other affected persons to understand when and where construction activities would occur. Providing advance construction notice would allow individuals to be aware of alternate evacuation routes and plan accordingly.

Construction of the underground power line would also occur near several schools (see Table 3.13-2, Schools within 0.25 Miles of the Proposed Project). In EIR scoping consultations meeting with OFD and

the City of Piedmont, concern was expressed about the level of traffic at the intersection of Estates Drive and Park Boulevard during regular school hours at Corpus Christi School and other schools, and potentially significant impacts resulting from concurrent construction of the transition structures and undergrounding activities (OFD, 2025; City of Piedmont, 2025b). As shown in Table 2.4-3, construction of the western extent of underground lines west of Estates Drive is anticipated to occur between July 2028 and February 2030. Thus, construction traffic occurring any time outside of summer break may combine with school traffic, potentially obstructing emergency access and creating a significant impact due to the presence of construction equipment, vehicles, lane closures, and school traffic occurring simultaneously. An encroachment permit would be required from the City of Piedmont for construction activities in the public ROW (City of Piedmont, 2025b). Coordination with Caltrans or local jurisdictions would be required as part of the traffic control plans required by APM TRA-1 to prevent excessive congestion impeding on emergency response during construction, including busy intersections and streets adjacent to schools. However, given the need for temporary lane closures and the periodic influx of traffic during school hours, construction of the underground power line would result in significant impacts to emergency response if construction were to occur during school hours.

To minimize traffic conflicts between construction activities, potential emergency evacuation traffic, emergency response vehicles, and school traffic, MM WF-1c (School Session Construction Timing Restriction) is necessary to ensure that construction near schools occurs outside of school hours. Avoiding construction activities during school hours would reduce the likelihood of construction equipment, vehicles, lane closures, and school traffic occurring simultaneously. By preventing construction traffic from combining with school traffic, congestion would be reduced, and emergency response and potential evacuation routes would thus not be substantially impacted by the proposed Project.

MM WF-1a (Prepare Construction Coordination Emergency Evacuation Plan), MM N-1b (Construction Notification), MM T-1a (Traffic Management Plan and Safe Transport), and MM WF-1c (School Session Construction Timing Restriction) are necessary to reduce impacts to less-than-significant levels. MM WF-1a (Prepare Construction Coordination Emergency Evacuation Plan), and MM T-1a (Traffic Management Plan and Safe Transport) would ensure that construction of the underground power line would not result in inadequate emergency access or constraints to wildfire evacuation routes. Impacts associated with construction of the underground power line would be less than significant with mitigation.

Operations and Maintenance

LESS THAN SIGNIFICANT. With the completion of the Project, roadway operations would return to preconstruction conditions. PG&E's typical O&M activities would continue with the rebuilt Project. Typical O&M activities would be conducted with existing PG&E staff using existing access to overhead power lines. Access to underground Project components requires lane closures for access through manholes into vaults. O&M activities would consist of routine inspection, repair and maintenance activities conducted in accordance with PG&E's Transmission Owner Maintenance Practices for Electrical Overhead Power Lines, in the latest revision, as filed with the California Independent System Operator. PG&E's maintenance practices include required coordination with the City of Oakland in advance of road closures for maintenance along Park Boulevard or Park Boulevard Way. For overhead lines, no additional traffic that could obstruct emergency access or evacuation routes would occur. For underground lines, additional traffic for O&M activities would be minimal and infrequent such that any impacts to emergency access or evacuation routes would be negligible. Impacts would be less than significant.

Mitigation Measures for Impact WF-1

MM WF-1a **Prepare Construction Coordination Emergency Evacuation Plan.** See full text in Section 3.18.4, Mitigation Measures.

MM WF-1b **Limit Construction Requiring Full Road Closures.** See full text in Section 3.18.4, Mitigation Measures.

MM WF-1c **School Session Construction Timing Restriction.** See full text in Section 3.18.4, Mitigation Measures.

MM N-1b **Construction Notification.** See full text in Section 3.11 (Noise).

MM T-1a **Traffic Management Plan and Safe Transport.** See full text in Section 3.15 (Transportation).

Even with implementation of the five mitigation measures above, the potential impacts related to emergency access and/or constraints to wildfire evacuation routes remain ***significant and unavoidable*** for Project segments east of SR-13.

Impact WF-2: Exacerbate wildfire risk and thereby expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildfire or the uncontrolled spread of a wildfire.

This impact focuses on the proposed Project's potential to exacerbate wildfire risks due to construction and O&M activities. This discussion considers the nature of the Project's activities, such as hot work, use of equipment, and timing of construction activities in relation to factors such as topography, designated FHSZ, weather, and other physical environmental characteristics that may influence the Project's ability to exacerbate wildfire risks.

Construction

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT. The East Bay Hills topography can funnel winds, increase wind speeds, erratically alter wind direction, facilitate fire spread, and promote extreme fire behavior due to the variable elevations, orientation, and steep slopes (see Figure 3.18-5, Project Area Slope). The eastern and central portions of the power line that would be rebuilt are in very high FHSZs (see Figure 3.18-1, CAL FIRE Fire Hazard Severity Zones).

During construction, the primary risk for potential fire hazards would be associated with the use of vehicles and equipment over the span of approximately 35 months. Activities include driving and idling on dry vegetated areas, using a chain saw or welding; all of which could generate heat or sparks that could ignite dry vegetation. Vehicles would contain combustible materials such as fuels, oils, and ignition sources.

As discussed in Section 2.3.2, work sites that are not paved or that do not have a stabilized vegetation-free surface would require preparation such as removing vegetation and spreading of gravel. This activity is anticipated to primarily occur in the eastern portion of the power line in less developed, vegetated areas. In more developed areas of central and western portions of the power line, adjacent vegetation such as trees, ornamental landscaping, shrubs, and brush may be trimmed or removed to allow construction equipment and vehicles to operate safely within a work area. Removal or reduction of vegetation in work areas would reduce the likelihood of sparking a fire. Construction activities at the Moraga and Oakland X substations would occur within the control rooms, and major structure replacement or upgrades would be required.

PG&E would comply with all applicable California Health and Safety Codes and ordinances regulating the handling, storage, and transportation of hazardous materials, which would minimize the potential for accidental conditions, including fire. PG&E would implement APM WFR-1 (Construction Fire Prevention Plan) and APM WFR-2 (Fire Prevention Practices). These APMs would require workers to be trained in fire prevention practices; have water tanks or water trucks at hand; have fire suppression equipment on all construction vehicles; monitor weather conditions and have appropriate work restrictions based on fire

risk conditions (such as requiring additional water resources); and coordinate with fire agencies and emergency responders regarding temporary lane and road closures. Two 4,000-gallon water trucks would be used during construction activities in unincorporated Contra Costa County, where fire hydrants and related fire suppression infrastructure are not present.

Vehicles and equipment would access work areas using existing paved roads, existing PG&E access, existing dirt access roads, or overland access, and would be required to park away from dry vegetation. Any work involving heat, sparks, or flames (e.g., welding, cutting, grinding) would require removal of flammable material such as grass, leaf litter, dead or dying trees from within 10 feet of the work area. Construction personnel would be trained and equipped to extinguish small fires if they were to occur during construction. Therefore, the risk of vegetation ignition by vehicle tailpipes and other equipment over the approximately 35-month construction period would be minimized. Construction activities conducted in accordance with APM WFR-1 include protocols such as work restrictions during elevated fire risk periods; including enhanced safety measures during high-risk conditions such as requiring additional fire suppression equipment; determining the FPI rating before work; and complying with all local, state, and federal fire regulations. Construction would follow safety protocols in accordance with the FPI rating (R1 through R5-plus) as required by APM WFR-2 (Fire Prevention Practices), which includes but is not limited to PG&E's current Utility Standard TD-1464S for Preventing and Mitigating Fires While Performing PG&E Work, fire-safe actions training for personnel, fire suppression equipment, access to radio and cellular telephone, requirements for removing flammable material, PG&E General Requirements for Wildfire Mitigation, and PG&E Wildfire Prevention Contract Requirements.

Implementation of APMs WFR-1 (Construction Fire Prevention Plan) and WFR-2 (Fire Prevention Practices) would minimize the potential for power line rebuild activities to start a fire and would provide the tools, training, and preparation to address a fire in the event one does start. Impacts related to exposing people to wildfire risks and wildfire pollutants would be less than significant.

Overhead Power Line Removal

LESS THAN SIGNIFICANT. Removal of the overhead power line involves disassembled structures being cut and removed in pieces and transported to a laydown area or directly to a recycling facility. The use of tools and equipment such as chainsaws have the potential to spark a fire if fuels such as dead or dying trees and dry brush are in or near the work area. For this portion of the alignment, removal of the overhead power line would occur on the western portion of the power line (west of Estates Drive), which is in a residential area that is more densely populated than the central and eastern portion of the power line. This area is largely outside of the very high FHSZs. Thus, there are fewer factors supporting wildfire along this segment due to the flatter topography, less fuel loads, and built-up environment. However, if weather conditions are conducive of wildfire, such as high-speed Diablo winds, low humidity, and high heat, the communities in Oakland and Piedmont are vulnerable to the spread of wildfire. The use of heavy equipment, saw cutters, and other heat- or spark-generating activities during construction could start a fire if nearby fuels are available.

PG&E would implement APMs WFR-1 (Construction Fire Prevention Plan) and APM WFR-2 (Fire Prevention Practices) to minimize the risk of igniting a fire and to ensure all workers are trained on fire safety, preparedness, and suppression. Construction vehicles would be required to park away from dry vegetation. Any work involving heat, sparks, or flames would require removal of flammable material such as grass, leaf litter, dead or dying trees from within 10 feet of the work area. Construction personnel would be trained and equipped to extinguish small fires if they were to occur during construction; required equipment includes water tanks or water trucks and fire suppression equipment. Implementation of these APMs would minimize the potential for power line removal activities to start a fire. Impacts related to exposing people to wildfire risks and wildfire pollutants would be less than significant.

Underground Power Line

LESS THAN SIGNIFICANT. The western segment (generally consisting of structures in Figure 2.1-2, Detail Maps 20-23) would be installed underground beneath existing roads in an urban area with generally flatter topography than the portion of the Project that would be replaced (Figure 3.18-5, Project Area Slope). Flatter areas typically result in slower fire spread, absent windy conditions. A large portion of the underground power line would occur outside of a very high FHSZ; of the approximately 1.2-mile segment that would be relocated underground, only approximately 0.4 miles would be within a very high FHSZ (Figure 3.18-1, CAL FIRE Fire Hazard Severity Zones). This portion of the power line has fewer flammable fuels, as the area has more development compared to the eastern segment (generally consisting of structures in Figure 2.1-2, Detail Maps 4, 10, 11, and 12), which passes through open space.

Construction activities during underground relocation would involve excavation, trenching, vault, duct bank, and cable installation, and cable splicing and termination along Estates Drive, Park Boulevard, and Park Boulevard Way. These are all paved roads adjacent to residential, commercial, parkland, and institutional development. The transition structures at TS27A and TS27B are next to the open space and park adjacent to the Sausal Creek watershed.

Construction activities in these highly urban areas are unlikely to exacerbate wildfire risks in normal weather conditions absent of wind, as the surrounding environment is developed and is less likely to support wildfire spread. However, if weather conditions are conducive of wildfire, such as high-speed Diablo winds, low humidity, and high heat, the communities in Oakland and Piedmont are vulnerable to the spread of wildfire. The use of heavy equipment, saw cutters, and other heat- or spark-generating activities during construction could start a fire in adjacent densely vegetated open space.

To reduce the risk of ignition during construction, PG&E would implement APM WFR-1 (Construction Fire Prevention Plan) and APM WFR-2 (Fire Prevention Practices). Construction vehicles would be required to park away from dry vegetation. Any work involving heat, sparks, or flames would require removal of flammable material such as grass, leaf litter, dead or dying trees from within 10 feet of the work area. Construction personnel would be trained and equipped to extinguish small fires if they were to occur during construction; required equipment includes water tanks or water trucks and fire suppression equipment. Daily monitoring of the Red-Flag Warning System would occur as required by APM WFR-1, and only allowable work activities would occur depending on the level of severity of weather conditions. Enhanced safety measures during high-risk conditions include requiring additional fire suppression equipment; determining the FPI rating before work; and complying with all local, state, and federal fire regulations. Construction would follow safety protocols in accordance with the FPI rating (R1 through R5-plus) as required by APM WFR-2 (Fire Prevention Practices), which includes but is not limited to PG&E's current Utility Standard TD-1464S for Preventing and Mitigating Fires While Performing PG&E Work, fire-safe actions training for personnel, fire suppression equipment, access to radio and cellular telephone, requirements for removing flammable material, PG&E General Requirements for Wildfire Mitigation, and PG&E Wildfire Prevention Contract Requirements.

Implementation of these APMs would minimize the potential for power line underground relocation activities to start a fire and would provide the tools, training, and preparation to address a fire in the event one does start. Impacts related to exposing people to wildfire risks and wildfire pollutants would be less than significant.

Operations and Maintenance

PG&E Maintenance Activities

LESS THAN SIGNIFICANT. O&M activities would involve periodic inspections of power line structures and substations, which may be conducted through ground, aerial, or climbing inspections. Ground and climb-

ing inspections would not expose people to the risks associated with wildfire, as these activities do not involve the use of equipment or tools that could exacerbate the risk of fire. Aerial inspections from drone, helicopter, or aerial lift, however, require equipment that could cause a fire if operated improperly. Electrical components in a drone, accidental leakage of fuel from a helicopter, and hot tailpipes from aerial lifts (assuming they are diesel) could cause a fire if an accident were to occur. This equipment would be operated in accordance with safety regulations and would be operated by licensed and trained operators to minimize the risk of an accident. Additionally, this equipment would only be used periodically and intermittently. Routine visual inspections would occur quarterly, and detailed inspections would typically occur over a 3-year cycle.

Furthermore, vegetation inspections and management along the replaced power line right-of-way would be conducted yearly to minimize the risk of wildfire. Vegetation management would be performed in accordance with state and federal regulations, including the following:

- Federal Energy Regulatory Commission Order No. 777, which requires transmission owners to prevent vegetation encroachments into the minimum distances within transmission lines.
- NERC Standard FAC-003-4, which establishes vegetation management standards for electric transmission lines.
- California Public Resource Code 4292-4293 and 4295.5 address fire hazard reduction for electric lines and establish minimum clearances.

CPUC GO 95, Rule 35, and Rule 37, and Section III, which establishes requirements and standards for vegetation management, minimum vertical clearances of wires above ground, and general requirements for all lines. Maintenance activities would be implemented with the current PG&E WMP, as updated yearly, reviewed by the WSAB and approved by the State of California OEIS. O&M activities would be implemented in accordance with safety standards, and equipment used for inspections would be used at a relatively low frequency such that impacts related to wildfire would be less than significant.

Wildfire Risk Associated with Operation of the Power Line

BENEFICIAL. The proposed Project is a maintenance project needed to replace older existing 115 kV power line equipment that has reached the end of its useful life. Upon completion of construction, the aging structures currently in place would be replaced with stronger, safer, more fire-resistant structures and conductors that would be designed in compliance with more stringent and current regulations. In areas where the power line is replaced overhead, wildfire risk from the proposed Project would be reduced from the current condition. The newer structures would be taller, and conductors would be less likely to come into contact with trees and flying or floating debris that may spark a fire. The replaced structures would be approximately 5 to 10 feet taller than existing structures, further reducing the likelihood of tree encroachment onto conductors. The new structures would be more reliable as they would be in new condition, would be made of steel, and be on new foundations. PG&E would implement a vegetation management program during operations that would clear vegetation around structures. High fire-threat locations would be inspected more than once a year to ensure trees and other vegetation are at a safe distance from the power lines.

Six of the 75 structures along the two power lines were replaced in 2020 and 2021. These structures would be retained, resulting in no change in wildfire risk during operation of power line facilities at those locations.

For structures that would be removed and rebuilt in an underground configuration (21 of the 75 Project structures), the risk of wildfire caused by PG&E facilities would no longer exist, because no overhead lines remain.

For the four circuits that would be installed underground, there is very little chance for conductors to arc, lines to snap or structures to fall, lines to come into contact with vegetation, or for weather-driven wear and tear.

The remaining structures (48 of the 75) would be replaced by new lattice steel towers, lattice steel poles, tubular steel poles, and transition structures placed near the existing structures. All replacement structures would be made of steel and have new foundations secured with micropile caissons or concrete caissons.

For each of the remaining 48 structures, the WTRM described in Section 3.18.1.3 was used to calculate the updated post-construction wildfire risk value (refer to Table 3.18-3). The WTRM estimates an approximately 90 percent reduction in wildfire risk from the entire Project due to the replacement of older electricity infrastructure with current technology and newer facilities. This would reduce potential exposure of adjacent communities to pollutant concentrations from wildfire.

A scoping comment expressed concern about the new power pole structures' ability to withstand wind. To meet wind load requirements, PG&E would install utility poles in accordance with CPUC GO 95 regulations. GO 95 regulations identify wind load requirements for "light loading" (areas in California where elevation is 3,000 feet amsl or less) and "heavy loading" (areas in California where elevation exceeds 3,000 feet amsl) areas (CPUC, 2014a, 2014b), as higher winds speeds are associated with higher elevations. Project elevation ranges from approximately 650 feet amsl at Moraga Substation to approximately 1,370 feet amsl when the lines crest the Oakland Hills, and then drops to approximately 140 feet amsl at Oakland X Substation. Project components would be designed in accordance with the latest light loading requirements and associated wind speeds. The new power line structures would improve wildfire safety compared to existing conditions, under which the existing power lines and structures are aged and not designed with specific wind loading requirements.

Overall, the operation of new power lines and structures would reduce the risk of wildfire compared to existing conditions. There would be no adverse impact, and impacts would be beneficial.

Impact WF-3: Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Construction

Overhead Power Line Rebuild

LESS THAN SIGNIFICANT. During construction of the Project, some grading improvements would be made to existing unpaved roads for construction vehicle access within the Project area. Limited grading may be needed in some Project work areas and staging areas for equipment access. Limited excavation would be required at structure foundations to remove and replace foundations and structures. The grading and limited excavation would not substantially alter drainage patterns in the area because simultaneous excavation, grading, and ground-disturbing activities would be limited; soil would be stabilized in graded areas; and appropriate Storm Water Pollution Prevention Plan (SWPPP) measures for erosion control would be implemented at Project work areas, staging areas, and access as described in APM AIR-1 (Dust Control During Construction) and APM HYD-1 (Prepare and Implement an SWPPP). These measures would protect soils from wind and rain, slow down water runoff to prevent it from carrying soils, encourage vegetation to anchor soils with roots in addition to breaking the impact of raindrops to reduce soil erosion, and reduce the impact of rainfall and help soils to retain moisture by adding a protective layer (e.g., mulch) to reduce dust and prevent wind erosion.

After construction, site restoration would incorporate APM HYD-3 (Project Site Restoration) to replace any vegetation removed during construction, which would minimize any post-construction erosion. The

Project would not construct any habitable structures in steep locations that could expose people to unstable soil conditions or runoff. Project construction would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes, and construction impacts will be less than significant.

Overhead Power Line Removal

LESS THAN SIGNIFICANT. Power line removal activities would be similar to the power line rebuild activities. APM AIR-1 (Dust Control During Construction) and APM HYD-1 (Prepare and Implement an SWPPP) would be implemented to minimize soil disturbance, stabilize disturbed surfaces, and implement an SWPPP. The majority of overhead power line removal would occur on the western portion of the Project, which is in a flatter area than the central and eastern portion of the power line. This area is not prone to runoff, post-fire slope instability, or drainage changes, and is largely outside of the very high FHSZ. After construction is completed, PG&E would repave damaged paved surfaces, ensuring that road surfaces would be restored. Site restoration would incorporate APM HYD-3 (Project Site Restoration) to replace any vegetation removed during construction, which would minimize any post-construction erosion. The Project would not construct any habitable structures in steep locations that could expose people to unstable soil conditions or runoff. Therefore, removing the overhead power line would not expose people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes. Impacts would be less than significant.

Underground Power Line

LESS THAN SIGNIFICANT. The western portion of the Project has flatter topography and is outside of very high FHSZ. Installation of the underground power line would involve temporary ground disturbance through trenching, excavation, and backfilling, but these activities would be located within existing roads and not on steep or unstable surfaces. After construction is completed, PG&E would backfill and restore excavated areas and repave damaged paved surfaces, ensuring that road surfaces would be restored with the same material. The Project would not construct any habitable structures in steep locations that could expose people to unstable soil conditions or runoff. Therefore, construction of the underground power line would not expose people or structures to risks of downslope or downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes. Impacts would be less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. O&M activities include utility maintenance, vegetation clearing, tree pruning, and other related O&M activities. O&M activities conducted during Project operations would be nearly identical to existing O&M activities and would comply with existing state and federal laws, rules, and regulations. Any O&M activities to underground portions of the power line that require ground disturbance, such as major repairs needed in the event of a natural disaster or accident would be temporary, localized, and would occur within existing paved roads. No grading or disturbance to steep areas would occur during O&M. Impacts to people and structures resulting from runoff, post-fire slope instability, or drainage changes would be less than significant.

3.18.4. Mitigation Measures

MM N-1b **Construction Notification.** See full text in EIR Section 3.11, Noise.

MM T-1a **Traffic Management Plan and Safe Transport.** See full text in EIR Section 3.15, Transportation.

MM WF-1a **Prepare <u>Construction Coordination</u> Emergency Evacuation Plan.** At least 90 days before the start of construction on affected roadways, PG&E shall submit to the California Public

Utilities Commission (CPUC) for review and approval ~~a~~an Construction Coordination Emergency Evacuation Plan that defines the following information:

- Documentation of coordination with each affected jurisdiction, including Contra Costa and Alameda counties and the cities of Oakland, Orinda, and Piedmont, and incorporation of each jurisdiction's requirements.
- Identification and mapping of all designated evacuation routes defined by jurisdictions in the Project area. Evacuation route signage shall be installed at locations as specified by the affected jurisdictions and updated on a regular basis as construction activity moves. This signage would identify "critical" and "non-critical" evacuation routes. Critical evacuation routes are defined as evacuation routes that, if partially or entirely closed, would lead to an increase in evacuation times or blockage (dead-end). Non-critical evacuation routes are defined as short (less than 0.25 miles) evacuation routes that, if partially or entirely closed, would not affect evacuation times or road capacity. PG&E would be required to consult with a qualified transportation specialist to identify critical and non-critical evacuation routes and changes to evacuation times or road capacity. The evacuation routes shall be based on net evacuation time for affected populations considering factors including, but not limited to, each jurisdiction's identified evacuation routes, which will be determined in coordination with each applicable jurisdiction. Affected populations will also be determined in coordination with each applicable jurisdiction based on the proximity of residents to affected evacuation routes.
- Identification of all roads that will support any type of construction activity (including definition of construction vehicle access routes to all work areas). Maps and descriptions shall define the activity that would occur on each affected road (e.g., access only, parking, crane set-up, guard structure installation) and map the specific extent of each activity at an appropriate level of detail, including identification of all residential driveways.
- ~~For each location where a road would be blocked or impaired for any length of time, define an alternate route to be used for emergency egress. Detours shall be signed in the field.~~
- Provide for CPUC review of draft notification letters at least two months prior to the start of construction, which, pursuant to MM N-1b, will be provided to all affected residents at least one month prior to the start of construction, including all residents, emergency service responders, and other affected local agencies that would use affected roads in an evacuation situation. Notification shall include information on detours and schedule of road closures and shall be coordinated with requirements of other mitigation measures (including MM N-1b).
- PG&E shall provide information of closures to the affected jurisdictions to connect with Genasys Protect to provide real-time information on Project-related road closures to the public.

MM WF-1b **Limit Construction Requiring Full Road Closures.** In work areas requiring full road closures on critical evacuation routes (identified in the construction coordination emergency evacuation plan prepared under MM WF-1a) of any length of time, ~~construction activities and~~ full closures shall occur between December ~~15~~ 1 and ~~February 28~~March 31, when the risk of fire is generally the lowest. During National Weather Service Red-Flag Warnings, ~~and~~ Fire Weather Watch events, and PG&E Fire Potential Ratings of R4, R5, or R5-Plus, full road closures shall be prohibited until the warning or event has been lifted or expires.

When construction is occurring on critical evacuation routes and partial road closures are required, at least one lane shall always remain open. The lane(s) to remain open shall be the shortest route to the closest evacuation route, arterial road, or other major roadway. Work is permitted year round on partial road closure segments.

On non-critical evacuation routes (identified in the emergency evacuation plan prepared under MM WF-1a) with full closures, work is permitted year-round. Detours for these road closures shall have signage, and first responders shall be notified, in accordance with the construction coordination emergency evacuation plan.

MM WF-1c **School Session Construction Timing Restriction.** At least 30 days prior to planned construction of the underground rebuild segment of the Project, PG&E shall coordinate with all schools within 0.25 miles of underground power line installation to determine restricted hours of construction to avoid peak school traffic hours on weekday school days during the school year. Restricted hours shall generally ~~be between 7:30 a.m. and 8:30 a.m. and between 3:30 p.m. and 4:30 p.m.~~ avoid the one hour period for morning drop off and one hour period for afternoon pick-up or as otherwise determined by each school.

If Alternative 4 (Skyline-Ascot Underground Alternative) is selected, the construction of the underground segment along Ascot Drive between Scout Road and Mountain Boulevard shall not be constructed while school is in session at either Montera Middle School or Joaquin Miller Elementary School.

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4. ALTERNATIVES

4.1. CEQA Requirements for Alternatives

CEQA Guidelines Section 15126.6 (a) states that an EIR shall describe a reasonable range of alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project.

The CEQA Guidelines require an EIR to evaluate the comparative merits of the alternatives it has selected for analysis and provide sufficient information about each alternative to compare it with the Proposed Project. An EIR should explain how the project alternatives were selected for analysis as well as identifying the alternatives that were rejected as infeasible and briefly explaining why they were rejected (CEQA Guidelines Section 15126.6(a), (c), (d)). The CEQA Guidelines state that the discussion of alternatives shall focus on alternatives capable of eliminating or reducing significant adverse environmental effects of a project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly. However, the CEQA Guidelines provide that an EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote or speculative.

To comply with CEQA's requirements, each alternative that was initially identified for the Proposed Project was evaluated in three ways:

- Does the alternative meet most of the basic project objectives?
- Is the alternative potentially feasible (from economic, environmental, legal, social, and technological standpoints)?
- Does the alternative avoid or substantially lessen any significant effects of the Proposed Project, including consideration of whether the alternative itself could create significant environmental effects potentially greater than those of the Proposed Project?

4.2. Alternatives Screening Methodology

Alternatives were evaluated using a screening process that consisted of three steps:

- *Step 1:* Clearly define each alternative to allow comparative evaluation.
- *Step 2*: Evaluate each alternative in comparison with the Proposed Project using CEQA criteria (defined below).
- *Step 3:* Based on the results of Step 2, determine the suitability of each alternative for full analysis in the EIR by looking at whether the alternative: (1) achieves all or most of the project's objectives, (2) is potentially feasible, and (3) avoids or substantially lessens a significant environmental impact of the project as proposed. If the alternative does not meet these criteria, eliminate it from further consideration.

Infeasible alternatives and alternatives that did not offer any overall environmental advantage (i.e., the alternative either did not reduce or avoid one or more of the Proposed Project's significant effects or if it did, other effects were significantly increased) were removed from further consideration and analysis. Following the screening process, the advantages and disadvantages of the remaining alternatives were carefully weighed with respect to CEQA's criteria for consideration of alternatives.

4.2.1. Project Objectives

PG&E has identified the following objectives for the Project, which have been considered by the CPUC in developing a reasonable range of alternatives:

- Provide lifecycle updates of Moraga–Oakland X 115 kV four circuit power line path by removing and replacing four circuits to avoid future reliability issues while maintaining safe operations.
- Replace four project power line circuits using a larger size conductor that will accommodate the region's reasonably foreseeable future energy demands.
- Ensure the project at completion meets power line reliability and safety requirements, and industry standards.
- Construct a safe, economical, and technically feasible project that minimizes environmental and community impacts.

4.2.2. Feasibility

The CEQA Guidelines (Section 15364) define feasible as "...capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." The alternatives screening analysis is largely governed by what CEQA terms the "rule of reason," meaning that the analysis should remain focused, not on every possible eventuality, but rather on the alternatives necessary to permit a reasoned choice. Those alternatives that are potentially feasible, meet most of the project objectives, and would reduce significant impacts of the Proposed Project are fully analyzed in the EIR.

According to CEQA Guidelines Section 15126.6(f)(1), among the factors that may be considered when addressing the potential feasibility of alternatives include site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or other regulatory limitations, jurisdictional boundaries, and the project proponent's control over alternative sites. For the screening analysis, the potential feasibility of alternatives was assessed taking the following factors into consideration:

- **Legal Feasibility**. Does the alternative have the potential to avoid lands that have legal protection that may prohibit or substantially limit the feasibility of permitting a high-voltage power line? Lands that are afforded legal protections that would prohibit the construction of the project, or require an act of Congress for permitting, are considered less feasible locations for the project. These land use designations include wilderness areas, wilderness study areas, restricted military bases, airports, and Indian reservations. Information on potential legal constraints of each alternative has been compiled from laws, regulations, and local jurisdictions, as well as a review of federal, state, and local agency land management plans and policies.
- **Regulatory Feasibility**. Do regulatory restrictions substantially limit the likelihood of successful permitting of a high-voltage power line? Is the alternative consistent with regulatory standards for power line system design, operation, and maintenance?
- **Technical Feasibility**. Is the alternative potentially feasible from a technological perspective, considering available technology? Are there any construction, operation, or maintenance constraints that cannot be overcome?
- **Social Factors**. Is the alternative inconsistent with an adopted goal or policy of the CPUC or other applicable agency?
- **Economic Feasibility**. Is the alternative so costly that implementation would be prohibitive? The State CEQA Guidelines require consideration of alternatives capable of eliminating or reducing significant environmental effects even though they may "impede to some degree the attainment of the project

objectives, or would be more costly" (CEQA Guidelines Section 15126.6(b)). The Court of Appeals determined in *Citizens of Goleta Valley v. Board of Supervisors* that "[t]he fact that an alternative may be more expensive or less profitable is not sufficient to show that the alternative is financially infeasible. What is required is evidence that the additional costs or lost profitability are sufficiently severe as to render it impractical to proceed with the project." (*Citizens of Goleta Valley v. Board of Supervisors* (2nd Dist. 1988) 197 Cal.App.3d 1167, 1181; see also *Kings County Farm Bureau v. City of Hanford* (5th Dist. 1990) 221 Cal.App.3d 692, 736.)

- **Environmental Feasibility**. Would implementation of the alternative cause substantially greater environmental damage than the proposed Project, thereby making the alternative clearly inferior from an environmental standpoint?

4.2.3. Ability to Reduce or Avoid Significant Environmental Impacts

The CEQA Guidelines require an EIR to describe a reasonable range of alternatives that have the potential to "avoid or substantially lessen any of the significant effects of the project" (CEQA Guidelines Section 15126.6(a)).

4.3. Alternatives Evaluated in this EIR

The alternatives described in this section would have to be adopted in segments in order to develop the capacity required, combining portions of the Proposed Project with alternative segments. Each alternative segment is described first (Section 4.3.2 through Section 4.3.6), and Section 4.3.8 describes how the alternative segments could be combined to create a complete project.

Section 4.4 explains the alternatives considered but eliminated from detailed analysis. No overhead power line route alternatives are evaluated because the density of development in the Project area leaves no available right-of-way for a new overhead route. Numerous scoping comments suggested that all four of the overhead 115 kV lines be removed and installed underground. In response, the CPUC has evaluated multiple routing options for underground installation of the 115 kV lines east of Estates Drive (see Section 4.4 for discussion of alternatives considered but eliminated from further analysis). Only the following alternatives were determined to be potentially feasible; they are illustrated in Figure 4.3-1, Overview of Alternatives Retained for Analysis (and in more detail in subsequent maps).

The No Project Alternative (Alternative 1) is described in Section 4.3.4. The following potentially feasible underground alternative routes are also analyzed:

- **Alternative 2**: Skyline-Colton-Snake Underground Alternative: Section 4.3.5
- **Alternative 3:** Shepherd Canyon Underground Alternative: Section 4.3.6
- **Alternative 4:** Skyline-Ascot Underground Alternative: Section 4.3.7
- **Alternative 5**: Estates Drive Underground Alternative: Section 4.3.8

4.3.1. Issues Associated with All Underground Alternatives

Due to the steep, narrow, and sharply winding roads in the Oakland Hills,[44] placing all four overhead 115 kV lines underground in one road may not be feasible due to the width and separation required for two separate double-circuit duct banks (PG&E, 2025a). As a result, Alternatives 2, 3, and 4 assume that only two circuits would be installed in each road, requiring two of those three alternatives to be selected. Most of the Estates Drive portion of Alternative 5 would have all four circuits installed within that roadway.

[44] The Oakland Hills is an informal term for the area that extends along the eastern side of the City of Oakland, rising from the flatlands to an elevation of about 1,500 feet near Skyline Boulevard and Manzanita Drive.

PG&E's PEA states that "a minimum road width of at least 22 feet is needed to fit both duct banks, not inclusive of other utility obstructions. However, utilities, including sewer and water, natural gas distribution, and telecommunication lines, are expected to be present in the roadways in unknown locations and may present additional constraints if they cannot be relocated to provide enough room for the duct banks." Because of these constraints and the narrowness of the roads in the Oakland Hills, each of the three underground alternatives between Manzanita Drive and SR-13 (Alternatives 2, 3, and 4) is assumed to support only two of the four 115 kV circuits. As a result, two of the three Oakland Hills alternatives (Alternatives 2 & 3, Alternative 2 & 4, or Alternatives 3 & 4) would be required to be constructed in order to accommodate the four Project circuits.

Installing the four circuits in two different underground roadways would also increase reliability in the event of an outage within one of the roadways since the other two circuits would not be affected. Section 4.3.1 presents an overview of the major challenges associated with underground power lines in the Project area. If an underground route is selected, further investigation would be required to develop a specific design for each roadway segment.

Each underground power line segment would also require construction of transition poles or stations at each point where the lines would transition from overhead to underground or underground to overhead. Section 4.3.1 describes these facilities.

Because of the narrow, steep, and winding roads between SR-13 and Manzanita Road (see Figure 4.3-1), any underground route between SR-13 and Manzanita Drive would have to overcome several substantial construction challenges. Some of these challenges may be determined to be so severe that a segment of the alternative route is found to be infeasible. In this area, Alternatives 2, 3 and 4 follow routes that have the highest likelihood of being feasible.

The most serious challenges associated with underground power lines in the Oakland Hills are described in Sections 4.3.1.1 through 4.3.1.5.

4.3.1.1. Crossing the Hayward Fault

This major fault closely follows SR-13 in the Project area, with its defined trace just east of the highway, following Mountain Boulevard in Montclair Village.[45] As stated by the California Geological Survey:

> *The Hayward Fault is considered one of the most dangerous in the world because scientists believe it is due for a large earthquake and because it runs under a densely populated area of California. The California Geological Survey … stated that there's a 31 percent chance the Hayward Fault will produce a magnitude 6.7 or greater earthquake in the next three decades.* [46]

A power line crossing this fault underground would be at serious risk of damage or rupture in an earthquake. While there are engineering options for such a crossing, they involve construction of a large tunnel in the area of the fault, which is not feasible at the Project area due to the density of development and the topography of the area. Without such a tunnel, underground crossing of the Hayward Fault would put these lines at risk of rupture in an earthquake, which is inconsistent with electricity reliability goals of the proposed Project. Therefore, all underground power line alternatives considered in this section include transitions to overhead lines for the crossing of the fault.

An underground crossing of SR-13 is considered and eliminated from EIR analysis in Section 4.4.3.2.

[45] https://earthquakes.berkeley.edu/hayward/
[46] https://www.conservation.ca.gov/index/Pages/HaywardFaultFactSheet.aspx

4.3.1.2. Construction-Driven Road Closures

Construction occurring on the narrow roadways of the Oakland Hills would likely block stretches of each roadway in most active construction zones, requiring residents to use alternate routes to reach their homes or destinations. Construction along these steep slopes would move more slowly than that in the Proposed Project's underground segment on Park Boulevard. The proposed Project would have trenching work progressing at 40 to 100 linear feet per day with overall daily progress expected to be 300 to 400 feet per workday.

On Park Boulevard, one lane of traffic would remain open, but on the underground segments east of SR-13, the roads would be blocked during construction. Especially in the half-mile segment closest to the Hayward Fault, Ascot, Scout, and Colton Roads are very steep and narrow (20 feet) and have multiple sharp turns. Numerous construction vehicles would have to traverse these roads every day, including back-hoes, dump trucks with soil and backfill material, worker vehicles, etc. This traffic would add to the existing commuting and school access traffic during the construction period.

4.3.1.3. Conflicts with Existing Underground Utilities

All roads in the Project area support some type of underground utilities: water, natural gas, and sewer pipelines. In addition, some roads also have underground electric distribution lines and fiber optic lines (data, internet, telephone). Due to the narrowness of these roadways and the need for a 5-foot-wide trench for the duct bank installation, it is likely that existing utilities would have to be relocated within the road to make room for the 115 kV power line conductors. In some instances, constructing the duct bank at a greater depth, below existing utilities, would reduce the number of utility relocations. This deeper burial would likely extend construction timeframes and result in longer road closures. Utility relocations may also result in service outages for residences served by them while lines are being relocated.

4.3.1.4. Installation of Vaults

Underground power lines require large vaults to be installed at intervals of 1,250 feet or less in winding roadways. These vaults are where sections of the underground cable are pulled through the duct banks and spliced together. Vaults for two 115 kV power line circuits are approximately 22 feet by 12 feet and 10 feet tall. Details of a typical vault are shown on Figure 2.1-7 (Underground Vault Details, Preliminary Drawing). After initial splicing and cable pulling, vaults are also used to access the line for operations and maintenance.

The first vault downstream of a line's transition structure would be within approximately 200 feet of the transition structure. PG&E states that the proposed Project's 1-mile four-circuit underground segment would require approximately 5 to 10 vaults to be installed, so each alternative would require between 10 and 30 vaults, depending on their length and number of curves.

The duct banks would widen to approximately 5.5 feet approaching and departing the vaults. The vaults would be precast concrete and would be placed on a crushed aggregate base. When installed, the duct bank would be under the surface of the restored roadway and would not be visible. Each of the power line vaults would have three utility access covers level with the road surface. An illustration of the utility cover is shown on Figure 2.1-7 (Underground Vault Details, Preliminary Drawing). The approximately 39-inch diameter vault access covers are expected to be cast iron.

A telecommunication vault or box (approximately 4 feet wide by 6 feet long and at least 3 feet deep) is required for the underground segment (as it is for the proposed Project). It would be installed within approximately 40 feet of each power line vault. Each telecommunication vault or box cover would consist of two aluminum lids installed level with the adjacent road surface. Final design would determine the size of the telecommunication lids, which typically are 5 to 6 inches larger than the telecommunication box dimensions.

4.3.1.5. Landslides

The Oakland Hills in the Project area have defined landslide zones across more than half of the land. An active landslide could damage or destroy an underground duct bank, unless protective measures are implemented. These measures could include construction of additional infrastructure, e.g., retaining walls for protection of the underground lines. With such measures implemented, an underground double-circuit duct bank is considered feasible in the Oakland Hills. PG&E's PEA includes a landslide study (Appendix E4), and the CPUC has completed a preliminary screening for landslide risk, considering available data. However, more extensive studies would be required to design the specific protective measures for any selected underground segment east of Mountain Boulevard. Specific areas of concern for landslides are identified for Alternatives 2, 3, and 4 in Section 4.5 (Alternatives Analysis).

4.3.2. Overhead-Underground Transition Design Options

There are two engineering design options for implementing an overhead to underground transition for a power line: a transition pole and a transition station. Each underground alternative would require both a *transition station* and a *transition pole*. This is because power lines that have three or more overhead and underground segments along the same circuit (which is the case with all underground alternatives retained for analysis in this EIR) would require the equipment within the transition station to protect the circuit in the event of an electrical fault occurrence along the alignment. To protect the circuit, underground power lines need to be connected with relaying equipment on one end or the other (see Section 2.6.2). Relaying equipment is located at the Moraga and Oakland X Substations and would also be included at a transition station, as needed. Alternatives 2, 3, and 4 would each require a transition station and a transition structure. Alternative 5 would require only a pair of transition poles, because the relaying for this alternative would be at the underground termination in Oakland X Substation.

A **transition station** refers to the equipment needed to support a line that transitions from overhead to underground more than once along its route. Transition stations include relaying equipment, so require more space than a transition pole. A transition station for two circuits would require at least 0.25 acres, and a station for four circuits would require approximately 0.5 acres. A transition station looks like a small substation, and requires a graded, flat area with a level and rocked surface area and perimeter fence. Figure 4.3-2 (Transition Station Examples) in EIR Appendix A provides examples of PG&E transition stations.

A **transition pole** (also called a riser pole) refers to a tubular steel pole (TSP) that supports one or two circuits of a power line as it transitions between an overhead and underground configuration. A "single-circuit" structure (3 conductors make up one circuit) constitutes one power line on the transition pole; two power lines on a single structure constitute a "double-circuit" transition pole (see Figure 2.1-5a, Vertical Single Circuit Transition Structure Tubular Steel Pole, Typical, and Figure 2.1-5b, Vertical Double Circuit Transition Structure Tubular Steel Pole, Typical, in Appendix A). Excavation for each transition pole requires installation of a substantial foundation; excavation would be approximately 4 to 5 feet in diameter and approximately 20 to 30 feet in depth.

The identification of the location of the transition stations and transition poles for each underground alternative described in the following sections was driven primarily by available space at each transition location.

4.3.3. Transition Location Options and Crossing of SR-13

Two potential **transition stations** are included:

- **Manzanita Road Transition Station (for Alternative 4, Skyline-Ascot Underground Alternative)**: The station would serve two circuits. It would be located at the west end of The Hills Swim & Tennis Club parking lot and in the general area of proposed Project Structures RN10/RS10. This transition station would be required only if Alternative 4, the Skyline-Ascot Underground Alternative is selected; it would

serve to transition that alternative to underground. A station of about 0.3 acres would be required for the two circuits to transition to underground. Figure 4.3-3 (Overhead-Underground Transition Locations at Eastern End) illustrates the location of this transition station. The structure designs are illustrated in Figure 2.1-5b (Vertical Double Circuit Transition Structure Tubular Steel Pole, Typical) and Figure 2.1-5c (H-Frame Double Circuit Transition Structure Tubular Steel Pole) in EIR Appendix A.

- **Fire Station Transition Station (Alternative 2 and/or Alternative 3)**: This station would serve either 2 or 4 circuits. If both Alternative 2, Skyline-Colton-Snake Underground Alternative, and Alternative 3, Shepherd Canyon Road Underground Alternative, are used, all 4 circuits would transition to overhead at this location (east of the Hayward Fault crossing). Approximately 0.5 acres would be used, covering about the western half of the existing parking lot. If either Alternative 2, Skyline-Colton-Snake Underground Alternative, or Alternative 3, Shepherd Canyon Road Underground Alternative, are used, 2 or 4 circuits would transition to overhead at this location, requiring approximately 0.3 acres. This transition station location is shown on Figure 4.3-4 (Overhead-Underground Transition at Shepherd Canyon).

Transition poles would all be double-circuit and are included in alternatives defined in this section as follows:

- **Skyline Boulevard Transition Pole (for Alternative 2, Skyline-Snake-Colton Underground Alternative):** This pole would be located at the approximate location of proposed Project Structure RS11. It would allow Alternative 2, the Skyline-Colton-Snake Underground Alternative, to transition to underground. Figure 4.3-3 (Overhead-Underground Transition Locations at Eastern End) illustrates the location of this transition pole. The structure designs are illustrated in Figure 2.1-5b (Vertical Double Circuit Transition Structure Tubular Steel Pole, Typical) and Figure 2.1-5c (H-Frame Double Circuit Transition Structure Tubular Steel Pole) in EIR Appendix A.
- **Saroni Drive Transition Pole (for Alternative 3, Shepherd Canyon Underground Alternative):** As described in Section 4.3.4, the Shepherd Canyon Underground Alternative would transition from overhead to underground along Saroni Drive. The approximate location of this transition pole is shown on Figure 4.3-6 (Alternative 3: Shepherd Canyon Underground Alternative).
- **Scout Transition Pole (for Alternative 4, Skyline-Ascot Underground Alternative, Option 1)**: This transition pole would be along Scout Road about 150 feet north of Ascot Drive. This transition pole would allow the Skyline-Ascot Underground Alternative to transition to overhead to cross the Hayward Fault. This transition pole location is shown on Figure 4.3-7b (Skyline-Ascot Underground Alternative Options).
- **Ascot Transition Pole (for Alternative 4, Skyline-Ascot Underground Alternative, Option 2)**: This transition pole would be located immediately north of Ascot Drive at its intersection with La Cuesta Avenue. This transition pole would allow the Skyline-Ascot Underground Alternative to transition to overhead to cross the Hayward Fault. This transition pole location is shown on Figure 4.3-7b (Skyline-Ascot Underground Alternative Options).
- **Somerset Road and Sims Road Transition Poles (for Alternative 5, Estates Drive Underground Alternative):** These two transition poles would be located at the eastern ends of Somerset Road and Sims Road. Each would allow two circuits of the Estates Drive Underground Alternative to transition underground west of the overhead crossing of the Hayward Fault. The approximate location of these two transition poles is shown on Figure 4.3-8 (Alternative 5: Estates Drive Underground Alternative).

4.3.4. Alternative 1: No Project Alternative

Section 15126.6(e) of the CEQA Guidelines requires consideration of the No Project Alternative to allow decision makers and the public to compare the impacts of approving the proposed project against the impacts of not approving the proposed project. CEQA requires a discussion of what would be reasonably expected to occur in the foreseeable future if the project were not approved.

Under the No Project Alternative, the existing Moraga–Oakland X 115 kV lines would not be replaced. Lifecycle updates would occur in a piecemeal fashion for years, as needed based on regular inspections that identify maintenance issues, including additional aging structure replacement. The North American Electric Reliability Corporation (NERC)[47] recommendations to the industry for clearance and wildfire risk reduction would be applied to each structure, and they would be replaced over an undefined period of time, as needed. Undergrounding of the Project's western segment of the lines would not occur, and replacement structures would be constructed at or near each existing location as needed. The reduction of wildfire risk gained by the underground segment would not occur.

4.3.5. Alternative 2: Skyline-Colton-Snake Underground Alternative

This alternative is illustrated in Figure 4.3-5, Alternative 2: Skyline-Colton-Snake Underground Alternative (EIR Appendix A). It would be similar to PG&E's Alternative B, which follows Manzanita Drive and Colton Boulevard underground, but this alternative would avoid installing underground power lines within the Hayward Fault zone in Montclair Village. Analysis of the impacts of Alternative 2 is presented in Section 4.5.4.

This underground alternative segment would replace two of the existing Moraga–Oakland X 115 kV circuits now located in the existing right-of-way (ROW) from Skyline Boulevard to just east of SR-13. In order to serve all four circuits, two additional circuits would be required to be installed underground using either Alternative 3 (Shepherd Canyon Underground Alternative) or Alternative 4 (Skyline-Ascot Underground Alternative). This combination of two alternatives would meet the same objectives as the proposed Project.

The Skyline-Colton-Snake Underground Alternative would retain the proposed Project Structures RS10/RN10 at Manzanita Drive and Structure RN11 just east of Skyline Drive. From Skyline Drive, the overhead conductors for two circuits would connect with a new transition pole on Skyline Boulevard (not on Manzanita Drive, as in PG&E's Alternative B). The transition pole would be located just west of Skyline Boulevard (approximately the location of proposed Structure RS11). A double-circuit tubular steel pole transition pole would replace proposed Structure RS11 (see Figure 2.1-5b, Vertical Double Circuit Transition Structure Tubular Steel Pole, Typical, in EIR Appendix A).

One double-circuit duct bank would be installed within the defined roadways (see Figure 2.1-6, Underground Duct Bank Cross Section, Preliminary Drawing, and Figure 2.1-7, Underground Vault Details, Preliminary Drawing, for duct bank configuration). EIR Section 2.3.6 describes the underground duct bank construction process.

At the transition pole at Skyline Boulevard, the two circuits would transition to underground and turn into Skyline Boulevard heading north. The circuits would be installed within Skyline Boulevard for approximately 0.5 miles to Colton Boulevard. The underground alignment then would turn south to follow Colton Boulevard for 0.5 miles, then turn into Heartwood Drive for 0.2 miles, then turn back onto Colton Boulevard for 0.2 miles to Snake Road. It would remain in Snake Road for 0.8 miles to the intersection with Shepherd Canyon Road, where it would turn east for about 0.15 miles to the Fire Station Transition Station.

From the Fire Station Transition Station, there are two options:

- To connect with the proposed Project, one set of double-circuit overhead conductors would connect with proposed Project Structures RN20 or RS20. From this point, the route would be the same as the proposed Project.
- To connect with Alternative 5, Estates Drive Underground Alternative (see Figure 4.3-8), the conductors would be overhead south of the Fire Station Transition Station. Conductors would be installed on proposed Project Structures RN20 and RN21. From Structure RN21, the two circuits from Alternative 2

[47] NERC stands for the North American Electric Reliability Corporation, a non-profit organization tasked with ensuring the reliability and security of North America's bulk power system.

would cross SR-13 and use either the Trafalgar Overhead Pole and the Sims Transition Pole (2 circuits) or the Somerset Overhead Pole and the Somerset Transition Pole (2 circuits).

In total, the Skyline-Colton-Snake Underground Alternative would require approximately 2.2 miles of double-circuit duct bank from Skyline Boulevard to the Fire Station Transition Station (see also Figure 4.3-1). This alternative would replace approximately 1.3 miles of the overhead Proposed Project route.

Because this alternative would provide for only 2 circuits, another underground alternative would also be required for the other 2 circuits. Either the Shepherd Canyon Underground Alternative (see Section 4.3.4) or the Skyline-Ascot Drive Underground Alternative (see Section 4.3.5) would support the other 2 circuits. With four circuits underground, these combinations of alternatives would meet the same objectives as the proposed Project.

Upon the completion of construction and energization of the underground alternative, the existing PG&E 115 kV overhead structures and lines would be removed between the transition pole at RS11 and the Fire Station Transition Station.

4.3.6. Alternative 3: Shepherd Canyon Underground Alternative

This alternative is illustrated in Figure 4.3-6, Alternative 3: Shepherd Canyon Underground Alternative (EIR Appendix A). It would follow the same route as a portion of PG&E's Alternative C, following Shepherd Canyon Road underground. However, this alternative is assumed to support two circuits, not four circuits as in PG&E's Alternative C. Analysis of the impacts of Alternative 3 is presented in Section 4.5.5.

This underground alternative would support two circuits of the four existing Moraga-Oakland X 115 kV lines. These two circuits would remain overhead on proposed Project Structures RN10 (just east of Manzanita Drive), RN11 (just east of Skyline Boulevard), and RN12 (between Gunn Drive and Arrowhead Drive). At a transition pole located just east of Saroni Drive on PG&E-owned land about 500 feet northwest of Shepherd Canyon Drive, the two circuits would transition to underground. The underground circuits would be installed in Saroni Drive for about 500 feet to Shepherd Canyon ~~Drive~~Road, then turn into Shepherd Canyon ~~Drive~~ Road for about one mile to the Fire Station Transition Station.

This alternative cannot be installed entirely underground, because similar to PG&E's Alternative C, the easternmost segment ~~of PG&E's Alternative C~~ in Shepherd Canyon ~~Drive~~ Road is expected to be too steep, narrow, and sharply winding to allow installation of an underground line. This alternative would retain about 0.4 miles of overhead double-circuit line between Manzanita Drive and Saroni Drive, in lieu of the 0.9 miles of ~~PG&E's Alternative C~~ potential undergrounding along Shepherd Canyon ~~Drive~~ Road east of Saroni Drive, which is considered and eliminated in the Shepherd Canyon Underground East of Saroni Drive Alternative (see Section 4.4.3.3).

Because this alternative would carry two circuits only, two additional circuits would be required to be installed underground using either Alternative 2 (Skyline-Colton-Snake Underground Alternative) or Alternative 4 (Skyline-Ascot Underground Alternative). With four circuits underground, these combinations of alternatives would meet the same objectives as the proposed Project.

As shown on Figure 4.3-4 (Overhead-Underground Transition at Shepherd Canyon), this alternative would transition to overhead to cross the Hayward Fault crossing west of the Fire Station Transition Station. As described in Section 4.3.1.3, the transition station would be located on Shepherd Canyon Road, across the street from Oakland Fire Station #24, in a parking lot area owned by the City of Oakland. At the transition station, the Shepherd Canyon Underground Alternative would transition from underground to overhead and overhead lines would rejoin the proposed Project at Structures RN20/RS20. From that point, it would continue overhead to proposed Project Structures RN21/RS21.

From Structure RN21, the conductors would continue overhead to the west, and would join either the proposed Project (Structure RN22 at Monterey Boulevard) or the Estates Drive Underground Alternative transition poles at Somerset and Sims Streets (see Section 4.3.6).

In total, the Shepherd Canyon Road Underground Alternative would require approximately 1.1 miles of double-circuit underground construction from the Saroni Drive transition pole to the Fire Station Transition Station.

PG&E has indicated concerns about landslides along Shepherd Canyon Road. This issue is addressed in Section 4.5, Alternatives Analysis (Geology Section).

As with all underground options, relocation of underground utilities may be required, depending on their location and available space in the roadways.

Upon the completion of construction and energization of the underground alternative, the existing PG&E 115 kV overhead structures and lines would be removed between Manzanita Drive or Skyline Boulevard and the Fire Station. A total of approximately one mile of overhead line would be eliminated from the proposed Project.

4.3.7. Alternative 4: Skyline-Ascot Underground Alternative

This alternative was developed by the CPUC in response to scoping comments. This alternative is illustrated in Figure 4.3-7a, Alternative 4: Skyline-Ascot Underground Alternative (EIR Appendix A). Analysis of the impacts of Alternative 4 is presented in Section 4.5.6.

The underground segment would replace two circuits of the four existing Moraga-Oakland X 115 kV circuits between the Manzanita Drive Transition Station and the vicinity of SR-13, where it would transition to overhead east of SR-13. Two additional circuits would be required to be installed underground using Alternative 2 (Skyline-Colton-Snake Underground Alternative) or Alternative 3 (Shepherd Canyon Underground Alternative). With four circuits underground, these combinations of alternatives would meet the same objectives as the proposed Project.

This alternative would transition from overhead to underground at the Manzanita Drive Transition Station (near proposed Structures RN10/RS10). The two circuits would then be installed underground in Manzanita Drive, heading southeast from the transition point. One double-circuit duct bank would be installed within the roadway for this alternative (see Figure 2.1-6, Underground Duct Bank Cross Section, Preliminary Drawing, and Figure 2.1-7, Underground Vault Details, for duct bank configuration). EIR Section 2.3.6 describes the underground duct bank construction process.

From the transition station on Manzanita Drive, the conductors would be installed underground in Manzanita Drive for approximately 0.25 miles southeast to its intersection with Skyline Boulevard, Shepherd Canyon Road, and Pinehurst Road~~the Shepherd Saddle~~. From ~~the Shepherd Saddle~~this intersection, the underground alignment alternative would turn south and follow Skyline Boulevard for approximately 1.3 miles, where it would turn southwest into Ascot Drive. The route would continue underground in Ascot Drive for approximately 1.2 miles. The underground segment between Manzanita Drive and Scout Road passes over 200 homes.

Continuing the installation of 2 circuits underground in Scout Road beyond the intersection of Ascot Drive and Scout Drive is infeasible due to unstable slopes. Therefore, from this intersection of Ascot Drive and Scout Drive, there are two options, described in the following sections. Both transition options are illustrated in Figure 4.3-7b (Alternative 4: Skyline-Ascot Underground Alternative Options).

4.3.7.1. Option 1: Overhead Scout Road

In Option 1, the underground installation would turn into Scout Road and continue for about 150 feet to an existing PG&E distribution pole, where a new transition pole would be installed. This new transition

pole would support the two 115 kV circuits as well as the existing distribution lines. The line would continue overhead for about 1,250 feet along Scout Road. Each new TSP would support both circuits of 115 kV conductor and the distribution lines below.

The 115 kV line would utilize "skip span construction," generally replacing every other existing distribution pole and placing the distribution circuits as "underbuild"[48] on the power line structures. The remaining (skipped) distribution poles not replaced by 115 kV TSPs would remain in place. The 115 kV conductors would span above the distribution conductors on the intervening wood poles.

The power line structures would consist of tubular steel poles on drilled pier concrete foundations. The distribution would be placed on horizontal crossarms with the 115 kV supported on horizontal post insulators. This type of construction would minimize conductor sway and reduce the required vegetation removal. Spans between the power line poles would be range from approximately 300 to 500 feet. To accommodate the distribution underbuild and provide power line conductor clearance over the inter-set distribution poles, the power line poles would be approximately 80 to 90 feet tall.

Where the overhead line meets the existing PG&E ROW, it would connect with proposed Project Structures RN20 or RS20. From Structures RN20/RS20, Option 1 of the Skyline-Ascot Underground Alternative would end.

From Structures RN20/RS20, the 115 kV lines would continue to proposed Project Structures RN21/RS21. At this point, the alternative could either join either the proposed Project (at Structure RN22 at Monterey Boulevard) or connect with the Estates Drive Underground Alternative transition poles at Somerset and Sims Streets (see Section 4.3.6).

4.3.7.2. Option 2: Overhead Across SR-13

This option, which is shown in Figure 4.3-7B, avoids Scout Road entirely. The 2 circuits would continue underground in Ascot Drive past the Montera Middle School and Joaquin Miller Elementary School, and would transition to overhead at a location on the north side of Ascot Drive, opposite the intersection of Ascot Drive and La Cuesta Avenue. A double-circuit transition at this location pole would bring the lines above ground. A new double circuit pole ("Mountain Overhead") would be installed just north of the intersection of Ascot Drive and Mountain Boulevard. This new pole would allow the 2 circuits to cross SR-13 to another new pole on Monterey Road ("Monterey Overhead"), which would be located immediately east of Monterey Road (likely within Caltrans ROW) and about 650 feet south of proposed Project Structure RS22.

From Structures RN22/RS22, the conductors on the 2 circuits could take one of 2 paths:

- They could continue overhead to the west, rejoining the proposed Project (at Structure RN22 at Monterey Boulevard).
- They could continue north to a new double-circuit pole located just east of Monterey Road (between SR-13 and Monterey Road), about 650 feet north of Structure RN22. This new pole would allow connection with the Estates Drive Underground Alternative transition poles at Somerset and Sims Streets (see Section 4.3.6).

4.3.8. Alternative 5: Estates Drive Underground Alternative

This alternative is illustrated in Figure 4.3-8, Alternative 5: Estates Drive Underground Alternative (EIR Appendix A). This alternative was evaluated in PG&E's PEA as the western segment of PEA Alternative B, extending from west of SR-13 to the proposed overhead-to-underground transition location at Park

[48] Underbuild refers to placement of a distribution voltage circuit underneath a power line or transmission circuit on the same structure thereby reducing the number of structures along roadways.

Boulevard and Estates Drive. It would meet the same objectives as the proposed Project. Analysis of the impacts of Alternative 5 is presented in Section 4.5.7.

The Estates Drive Underground Alternative would support all four project circuits. Two circuits would be installed in Somerset Road and two circuits would be installed in Sims Drive. Then at the intersection of Somerset and Estates Drive, all four circuits would be in Estates Drive.

This alternative would begin at proposed Project Structures RN21/RS21, just east of SR-13 where the proposed structures would be unchanged. From these structures, two separate double-circuit lines would cross SR-13 and the Hayward Fault. In order to connect with any of the underground alternatives east of SR-13 (Alternatives 2, 3, or 4), there would have to be an overhead crossing of SR-13 and the Hayward Fault. The alternative would require two new double-circuit structures to be installed just west of SR-13 (see structures identified as Trafalgar OH and Somerset OH on Figure 4.3-8, Alternative 5: Estates Drive Underground Alternative). From the Trafalgar OH structure, the two northern circuits would continue to the Sims Transition Pole and from the Somerset OH structure, the two circuits would continue to the Somerset Transition Pole (see Figure 2.1-5b, Vertical Double Circuit Transition Structure Tubular Steel Pole, Typical, and Figure 4.3-2, Transition Station Examples, in EIR Appendix A).

East of Structures RN21/RS22, the Estates Drive Underground Alternative could connect with the proposed Project or any of the Alternatives 2, 3, and 4 described in Sections 4.3.3, 4.3.4, and 4.3.5 above. The connection of the Estates Drive Underground Alternative with other alternatives is illustrated in Figure 4.3-1.

As shown in Section 4.3.1.3 and Figure 4.3-8 (Alternative 5: Estates Drive Underground Alternative) in EIR Appendix A, the transition poles would be located on an undeveloped hillside in the California Department of Transportation (Caltrans) ROW. One transition pole would be at the east end of Sims Drive (Sims Transition Pole) and the other transition pole would be at the easternmost sharp curve of Somerset Road (Somerset Transition Pol). The alternative transition poles would be similar to the vertical double-circuit tubular steel pole transition poles proposed for the Project (see Figure 2.1-5b, Vertical Double Circuit Transition Structure Tubular Steel Pole, Typical, in EIR Appendix A).

From each of the transition poles, one double-circuit duct bank would be installed within Sims Drive, and another double circuit duct bank would be installed within Somerset Road (see Figure 2.1-6, Underground Duct Bank Cross Sections, Preliminary Drawing, and Figure 2.1-7, Underground Vault Details, Preliminary Drawing, for duct bank configuration). One pair of circuits would be installed under Somerset Road for 0.14 mile, and the other pair of circuits would be installed under Sims Drive and Estates Drive for 0.16 mile. These two roads are very narrow and would likely require closure in segments during construction due to the lack of space to maintain an open lane while trenching. Access to residences further down each road would be limited during construction.

The two pairs of double circuit duct banks would meet at the intersection of Estates Drive and Somerset Road. From this point, all four circuits would continue on Estates Drive for approximately 0.5 miles, where they would rejoin the proposed Project's underground segment at the intersection of Estates Drive and Park Boulevard.

In total, the Estates Drive Underground Alternative would require approximately 0.8 mile of underground construction, replacing approximately 0.6 miles of overhead rebuild construction required for the proposed Project. Relocation of underground utilities may be required depending on space in the roadways.

This alternative would also result in the four proposed TSP single-circuit transition poles at Park Boulevard and Estates Drive to be eliminated. Upon the completion of construction of the underground alternative, the existing PG&E 115 kV overhead structures and lines would be removed west of SR-13.

4.4. Alternatives Considered and Eliminated from Further Analysis

A wide range of alternatives to the proposed Project was considered in order to identify those that appear to be most feasible. These alternatives include all of the alternatives defined in PG&E's PEA (including the PEA alternatives retained and eliminated), as well as other alternatives developed by the CPUC as potential options. Each potential alternative is described in this section, and the reasons each was not fully analyzed are presented. Table 4.4-1 lists the alternatives described in this section.

Table 4.4-1. Alternatives Considered and Eliminated

PG&E Alternatives Analyzed in PEA but Eliminated in EIR (Section 4.4.1)	PG&E Alternatives Eliminated in PEA (Section 4.4.2)	EIR Alternatives Considered and Eliminated (Section 4.4.3)
■ PG&E Alternative A ■ PG&E Alternative B ■ PG&E Alternative D ■ PG&E Alternative E ■ PG&E Alternative F ■ PG&E Alternative G ■ PG&E Alternative H	■ PG&E Water Tank Underground ■ PG&E Pinehurst Underground ■ PG&E Snake Road Underground ■ PG&E Redwood Peak Tunnel ■ PG&E Park Boulevard Underground (between SR-13 and Estates Drive) ■ PG&E Trestle Glen Road Underground	■ Redwood Canyon Underground ■ Underground Crossing of the Hayward Fault ■ Shepherd Canyon Underground East of Saroni Drive ■ HVDC Alternative

4.4.1. PG&E PEA Alternatives Retained for Analysis in PEA

4.4.1.1. PG&E Alternative A: Moraga–Oakland X 3-Circuit Replacement with Moraga–Claremont Reconductoring and Park Boulevard/Lincoln Avenue Underground

This alternative was suggested by PG&E and analyzed in the PEA. It is illustrated in Figure 4.4-1 (PG&E Alternative A: Moraga–Oakland X 3-Circuit Replacement with Moraga–Claremont Reconductoring and Park Boulevard/Lincoln Avenue Underground). This alternative would replace three of the four existing Moraga–Oakland X circuits on two sets of structures in an overhead configuration. This alternative would be approximately 8 miles long in total, including 4.9 miles overhead and 3.1 miles underground. PG&E defined this alternative as differing from the proposed Project by removing one of the four existing circuits and also reconductoring the approximately 3-mile Moraga–Claremont Circuits 1 and 2 115 kV lines ~~taking that circuit~~ to ~~the~~ Claremont Substation.

Two circuits would be placed on a double-circuit structure and one circuit would be placed on the adjacent structure, similar to the existing two sets of structures. The northern circuit and southern circuit would always remain on the northern and southern set of structures, respectively. The middle circuit between these two circuits would move between the northern and southern set of structures, and the northern and southern circuits would move from the outside position to the inside position when the middle circuit is on the other set of structures to minimize right-of-way modification. The three circuits would be built within the proposed Project's right-of-way from Moraga Substation to the intersection with Monterey Boulevard (just west of SR-13).

From Monterey Boulevard, the northern and middle circuits would continue in an overhead configuration on one set of double-circuit structures to the intersection of Estates Drive and Park Boulevard. These two circuits would transition to underground at the northwest corner of Estates Drive (as would the two circuits of the proposed Project). These two circuits would continue down Park Boulevard underground with one single- circuit duct bank on each side of the roadway to Park Boulevard Way. These two circuits would terminate at Oakland X Substation. Each circuit would be installed in a separate duct bank with a minimum 15 feet of separation.

The third circuit would be installed underground in Monterey Boulevard and progress southeast toward Lincoln Avenue. It would continue southwest in Lincoln Avenue, turning northwest on MacArthur Boulevard, which turns into Excelsior Avenue; then north on Kingsley Street, which turns into Park Boulevard

Way. The underground circuit would transition aboveground on a transition structure at Oakland X Substation. This circuit would require approximately 3.1 miles of underground construction.

Because Alternative A includes only 3 circuits and not 4, as in the proposed Project, this alternative would require reconductoring of two portions of the Moraga–Claremont Circuits 1 and 2 115 kV lines (approximately 3 miles total). PG&E stated that this reconductoring would require installation of new structures and conductors and removal of existing structures and conductors, primarily in parks and open space. The eastern end of the reconductoring segment would be within the eastern extent of the Montanera Wilder Conservation Easement and adjacent to the western edge of the Lost Valley residential neighborhood in Orinda. The eastern half of the western end of the reconductoring would cross portions of East Bay Municipal Utility District (EBMUD) watershed and East Bay Regional Park District (EBRPD) Sibley Volcanic Regional Preserve.

Rationale for Elimination

This alternative would be feasible to build, but it would not feasibly attain most of the basic objectives of the Project. Project objectives related to replacing four circuits and minimizing environmental and community impacts would not be met. It would require additional construction activities associated with reconductoring in a different right-of-way, resulting in greater environmental impacts. Additional construction activities would be required within the EBMUD watershed and EBRPD Sibley Volcanic Regional Preserve, which would result in more ground disturbance in sensitive habitats, visual scaring due to construction clearing and disruption to recreation during construction activities. Construction activities for this alternative would be more extensive than the proposed Project, because there would be additional construction activity required to reconductor the Moraga–Claremont line, including additional pull sites and helicopter use and potential structure replacement. It would also require construction activities to install the fourth circuit underground for 3 miles along Monterey Boulevard, Lincoln Avenue, and Excelsior Avenue.

Because approximately one linear mile of this route would be within the Hayward Fault zone, this route would require an innovative underground line design along Monterey Boulevard and in the eastern portion of Lincoln Avenue. This would be required in order to accommodate the movement expected from the maximum credible earthquake on the Hayward Fault without rupture of the underground power line.

4.4.1.2. PG&E Alternative B: Manzanita Drive-Colton Boulevard-Estates Drive Underground

This alternative was suggested by PG&E and evaluated in the PEA. This alternative is illustrated in Figure 4.4-2 (Alternative B: Manzanita Drive-Colton Boulevard-Estates drive Underground – Central Section). Portions of PG&E Alternative B are retained for analysis; see Section 4.3.3 (Alternative 2: Skyline-Colton-Snake Underground Alternative). The segments of this alternative that are not retained for EIR evaluation are along Manzanita Drive, from proposed Project Structures RS10/RN10, to its intersection with Colton Boulevard and the segment along Colton Boulevard, south of the intersection of Colton Boulevard and Snake Road to the transition east of SR-13. The original alternative would have approximately 1.6 miles of lines replaced overhead and approximately 1.8 miles of lines replaced underground.

This alternative would replace the central segment of the proposed Project with four circuits underground. The underground segment would begin at Manzanita Drive near proposed Project Structure RS10. It would then be located underground within Manzanita Drive for 0.75 miles, heading west to Colton Boulevard, with two double duct banks in the roadway. It would continue on Colton Boulevard for 0.6 miles to Mountain Boulevard. It would remain in Mountain Boulevard to a transition location near Montclair Village Square, near the intersection with Scout Road. This transition station would be almost directly on top of the active Hayward Fault.

From this point, PG&E Alternative B would transition to overhead to cross the Hayward Fault. The remainder of this alternative would be the same as Alternative 5, Estates Drive Underground Alternative (see Section 4.3.6).

Rationale for Elimination

This alternative would be feasible to build, but it would not feasibly attain the basic objective of the Project related to minimizing environmental and community impacts. This alternative has the potential to have more severe landslide issues in the central underground portion than would Alternative 2, which is retained for analysis. The potential landslides along this route have the potential to more seriously impact the duct banks containing the underground line and require reconstruction of the duct bank in the event of slope movement. Additionally, this alternative would have much more severe impacts to traffic than the proposed Project, due to the construction and installation of four underground circuits within Colton Boulevard. Also, approximately 0.5 linear miles of this alternative (along Mountain Boulevard) and the transition station would be within the Hayward Fault Zone, which presents an unacceptable risk of damage in an earthquake.

4.4.1.3. PG&E Alternative D: All Overhead Rebuild in Existing Alignment

This alternative was suggested by PG&E and eliminated from analysis in the PEA. This alternative is illustrated in Figure 4.4-3 (Alternative D: All Overhead Replacement in Existing Alignment). This alternative would differ from the proposed Project only in that it would have no underground segment. This alternative would modify only one mile of the proposed Project.

Between the intersection of Park Boulevard and Estates Drive and the Oakland X Substation, new overhead structures would be replaced at or adjacent to the location of the existing structures. The new conductors would be installed on the new structures. New right-of-way may need to be acquired for new structure locations because of the residential development immediately adjacent to the existing structures.

Rationale for Elimination

This alternative would not be feasible to build, given the existing dense residential development in the existing right-of-way west of Estates Drive. Particularly west of Wellington Avenue, the existing towers are in small front, rear, and side yards of homes. It would not attain the basic objective of the Project related to minimizing environmental and community impacts, because it would result in more severe impacts than the proposed Project for the segment west of Estates Drive. Approximately 80 residences between Estates Drive and the Oakland X Substation are located immediately below the conductors and adjacent to structures, and residents may need to be temporarily relocated during construction. This alternative would have substantial impacts on land use from locating replacement structures mainly on residential property because residents would have to be relocated and private property structures and vegetation may be damaged. In this segment, PG&E owns very limited property in fee. Insufficient space is available to install replacement structures within the existing ROW without extensive modification of private properties, including potentially removing residences or impacting adjacent property owner's limited backyard space to install replacement structures. This alternative would not reduce aesthetic or wildfire impacts compared to the proposed Project as no portion of the alternative would be underground.

4.4.1.4. PG&E Alternative E: Proposed Project with Campground Overhead Option

This alternative was suggested by PG&E and retained for analysis in the PEA. This alternative would be the same as the proposed Project except for the two structures northwest of the Eastport Staging Area entrance of EBRPD Sibley Volcanic Regional Preserve, as illustrated in Figure 4.4-4 (PG&E Alternative E: Proposed Project with Campground Overhead Option). The two proposed Project structures (RS8 and RN8) would be moved approximately 325 feet northwest of the proposed locations, introducing an angle

to the lines. The result would be that the overhead line would move farther away from a planned campground near the Eastport Staging Area entrance of EBRPD Sibley Volcanic Regional Preserve. The purpose of this alternative would be to reduce the aesthetics impacts at the EBRPD campground near the Eastport Staging Area entrance.

This alternative would increase the line length by approximately 100 feet. New easements would need to be acquired, and the power lines would move out of PG&E property owned in fee. To maintain CPUC GO 95 compliance, vegetation management – including removal of trees – would be required within EBRPD Sibley Volcanic Regional Preserve and EBRPD Huckleberry Botanical Regional Preserve.

Rationale for Elimination

This alternative would be feasible to build, but it would not feasibly attain the basic objective of the Project related to minimizing environmental and community impacts. This alternative would have more severe impacts than the proposed Project as a result of required vegetation management, including tree removal in EBRPD Sibley Volcanic Regional Preserve and EBRPD Huckleberry Botanical Regional Preserve. Although some visual impact would be reduced from relocating two structures near the EBRPD campground, there would be an increase in biological impacts due to construction activities in EBRPD land.

In a scoping letter received from EBRPD, the agency stated that this alternative would result in additional impacts to the woodland habitat and would require tree removal in Sibley and Huckleberry Regional Preserve. The additional tree removal would result in substantial impacts to biological resources.

4.4.1.5. PG&E Alternative F: Conceptual South Overhead Alignment

This alternative was suggested by PG&E and eliminated from consideration in the PEA. This alternative was not specifically designed or mapped in the PEA; it is a conceptual route that would be located in park lands south of the existing right-of-way. The route is illustrated in Figure 4.4-5 (Alternative F: Conceptual Overhead Alignment).

The South Overhead Alignment Alternative would include overhead and underground segments. This alternative would be approximately 6 miles long in total, including 3.5 miles overhead and 2.5 miles underground.

The overhead segment would require construction of two new double-circuit lines in a new right-of-way. The new ROW would extend southwest from Moraga Substation through open space owned by EBMUD (Indian Valley Preserve Conservation Easement), EBRPD (Reinhardt Redwood Regional Park), and the City of Oakland (Joaquin Miller Park). It would cross SR-13 and the Hayward Fault. The Hayward Fault crosses Lincoln Avenue southwest of its intersection with Monterey Boulevard.

The lines would remain overhead to a transition underground at an undetermined location west of SR-13 near Lincoln Avenue outside of the fault zone. The 2.5-mile-long underground portion would be within Lincoln Avenue southwest to MacArthur Boulevard, continuing northwest into Excelsior Avenue and turning northeast on Kingsley Street and Park Boulevard Way to Oakland X Substation.

Rationale for Elimination

This feasibility of this alternative cannot be assessed because PG&E did not identify a route. However, it may be similar to the CPUC-developed alternative described in Section 4.4.3.1 and also eliminated from consideration. It would not feasibly attain the basic objective of the Project related to minimizing environmental and community impacts. This alternative likely would not be legally feasible based on the need to acquire new ROW through conservation easements.

In comparison with the proposed Project, construction of the new overhead lines portion would require acquisition of at least approximately 3.5 miles of new approximately 150- to 200-foot-wide ROW. New

temporary and permanent access roads would be required for construction and operation. Trees and shrubs would be removed from the ROW. This alternative would have substantial impacts to biological resources due to the removal of vegetation for the new ROW, and to aesthetics because new overheard lines would be installed within protected parklands where recreation users do not expect to encounter industrial facilities and current viewsheds are undeveloped. The additional 1.5 miles of length of the underground portion (as compared with the proposed Project) would result in more severe transportation impacts during construction due to the trenching in more than twice as much distance in city streets that would result in a reduction in available lanes.

4.4.1.6. PG&E Alternative G: Distribution Energy Resources

This alternative was suggested by PG&E and eliminated from consideration as an alternative in the PEA. This alternative would implement improvements to reduce electrical system demand through distributed energy generation to the degree that the Moraga–Oakland X power lines are not needed. A large amount of distributed solar generation and battery storage at near the Oakland X could theoretically supply the electricity currently being provided via the 115 kV power lines. This alternative would need to replace at a minimum the energy demand at Oakland X Substation provided by the four 115 kV circuits with distribution energy resources. As discussed in PG&E's PEA, the forecasted demand at Oakland X Substation is approximately 43.31 MW for 2024 and approximately 103.1 MW in 2039 (PG&E 2024).

PG&E's review of this alternative assumed that the new load would be served using a solar and battery solution over a 24-hour period without weather or seasonal variation and with worst case energy consumption. The new power generation (solar and battery) was assumed to be 100 percent renewable to inform the solar photovoltaic (PV) direct current system size. The power generated by the solar PV system would be stored in a battery that would maintain service of the load when the solar PV system was not generating (lack of sunlight).

To replace the approximately 43.31 MW load, a round number of 50 MW is used for this discussion. To provide a 50 MW constant load, the battery plant size is calculated by multiplying the load (50 MW) times the hours per day (24 hours). A 1.2-gigawatt hour (GWh) battery plant would be required to deliver 50 MW of constant load 24 hours per day.

Battery design generally sizes a battery with an assumed 20 percent degradation over 10 years. Using that progressive degradation, the initial battery plant would be sized to yield a 1.5 GWh battery plant on day 1 (1.2 GWh divided by 80 percent). PG&E would build in additional battery capacity to account for weather events such as extended storms with a conservatively sized 2 GWh battery power plant. Each 250 MW, 1 GWh Tesla Megapack requires 3 acres, and to store energy for the 50 MW load, two Megapacks, or 6 acres, of total battery plant would be needed (PG&E, 2024). Assuming the battery can only be charged by solar, and it cannot be charged from an electrical grid or from onsite diesel generation, then the solar PV plant would need to be capable of charging that battery completely during the day. The worst-case scenario would be wintertime charging, which offers (conservatively) only 2 solar hours per day, which would mean the solar PV direct current plant would need to be approximately 750 MW to charge the 2 GWh batteries. Typically, PG&E has found that 1 MW of solar PV requires approximately 6.89 acres of flat land. The solar PV plant would require approximately 5,167 acres (approximately 8 square miles) of solar fields to replace the load carried by the existing power lines. The 500 MW, 2 GWh battery power plant would be an additional 6 acres. In addition, battery power plants typically are connected to a nonrenewable fuel source such as natural gas or a diesel plant to support load delivery when solar panels are blocked from receiving the solar energy during weather events such as extended storms. If the system was designed for the 2039 load forecast estimated at 103.1 MW, then the values could be doubled for an approximate estimate. Refer to Section 4.4.13 for additional discussion on energy storage.

Rationale for Elimination

This alternative would not be feasible to build and would not feasibly attain the basic objectives of the Project related to accommodating future energy demand and avoiding future reliability issues. The replacement of an approximately 43.31 MW demand at Oakland X Substation by distribution energy resources would need to happen primarily in the City of Oakland. This would require approximately 5,173 acres of solar fields and battery storage primarily within the City of Oakland. Vacant land of this size likely does not exist in Oakland. For example, the Oakland Coliseum property, perhaps the largest undeveloped site in Oakland, is approximately 112 acres (PG&E, 2024). If the entire site were converted to solar generation, it would provide approximately 2 percent of the area required. To replace the current demand, a solar PV and battery plant would require flat areas approximately 46 times the size of the Oakland Coliseum Complex. In addition, the needed area for solar fields would have to more than double to meet demand in 2039. Relying on rooftop solar to meet the 43.31 MW demand is not feasible either. Approximately 42 million kWh of power is generated each year in Oakland through rooftop solar (PG&E, 2024). Providing an additional 43.31 MW of power would take many years to generate though rooftop solar, long after the existing lines would require replacement.

4.4.1.7. PG&E Alternative H: Energy Storage

This alternative was suggested by PG&E and eliminated from consideration in the PEA. This alternative would implement improvements to provide sufficient energy storage in the proposed Project area that the Moraga–Oakland X path would not be needed. This alternative would need to store energy within the East Bay to accommodate the increasing forecast demand of approximately 103.1 MW at Oakland X Substation in 2039 (PG&E, 2024). To supply approximately 100 MW, the load is multiplied by 24 hours and calculates the need for a 2.4 GWh battery plant. This would require approximately 9 acres for battery energy storage facilities, assuming Tesla Megapack technology of 3 GWh at 250 MW is required (PG&E, 2024). The battery storage facility would need to be connected to a power source that could replenish the battery on a continual basis.

Rationale for Elimination

This alternative would not be feasible to build, and it would not feasibly attain the basic objectives of the Project related to accommodating future energy demand, reliability, and minimizing environmental and community impacts. This alternative would not meet the proposed Project objectives. The Moraga–Oakland X path delivers power to two utilities (Port of Oakland and City of Alameda) that are not subject to CPUC jurisdiction. In order for PG&E to provide adequate energy storage to replace the demand at these sites, the energy storage would, need to be installed within the City of Oakland, because the lines serving those utilities are entirely within the city. The City of Oakland may have sufficient vacant land to accommodate 9 acres of Tesla Megapack battery energy storage power plant and generation facilities, but it would require a source of energy to charge the batteries. Energy would have to be delivered to the energy storage through new power lines if not generated, which could have impacts comparable to the proposed Project, or through distribution energy. This alternative is not technically feasible as there is not sufficient land area to provide a power source to charge the energy storage facility.

4.4.2. PG&E PEA Alternatives Eliminated from PEA Consideration

4.4.2.1. PG&E Water Tank Underground Alternative

This alternative was suggested by PG&E and eliminated from consideration in the PEA. It is illustrated in Figure 4.4-6 (Alternatives Eliminated). This alternative would replace approximately 1.2 miles of the eastern overhead section of the proposed Project with an underground route that follows a steep and narrow dirt road through East Bay parklands. This alternative segment would be 3.5 miles underground

(replacing 1.2 miles of the proposed overhead line). This alternative was developed by PG&E in order to reduce wildfire risk and aesthetic impacts of aboveground structures.

This route would follow the proposed Project alignment on the PG&E substation parcel west from Moraga Substation. At the proposed Project Structures RS3/RN3, the route would turn to follow an existing fire road to the northwest across two conservation easements that are anticipated to transfer to EBMUD. The route would continue through a gate where the existing fire road enters EBRPD Sibley Volcanic Regional Preserve and passes an existing water tank (including portions of Round Top Loop Trail and Water Tank Road). At the intersection of Water Tank Road and Skyline Boulevard, it would turn southeast in Skyline Boulevard to its intersection with Manzanita Drive.

Rationale for Elimination

This alternative would not be feasible to build and it would not feasibly attain the basic objective of the Project related to minimizing environmental and community impacts. This alternative would require construction along a new ROW through EBMUD and EBRDP lands, conservation easement modifications, and use of franchise rights. It would involve substantial engineering challenges due to the use of unpaved roadways, and would require engineering improvements that would include substantial grading and widening of existing dirt roads. Installation of retaining walls and reinforcing duct banks would be required to reduce landslide risk on steep and unstable slopes. These additional construction activities through EMBUD and EBRDP lands would result in greater erosion and reduced water quality, more ground disturbance within sensitive habitats, and severe visual land scars due to construction clearing. As a result, this alternative would have more severe impacts than the proposed Project on biological resources, hydrology and water quality, and aesthetics.

4.4.2.2. PG&E Pinehurst Underground Alternative

This alternative was suggested by PG&E and eliminated from consideration in the PEA. It is illustrated in Figure 4.4-6 (Alternatives Eliminated). This alternative would be approximately 3 miles underground. This route would be the same as the Water Tank Underground Route from Moraga Substation to proposed Project Structures RS3/RN3 west of the substation. The route would continue to follow the alignment where it crosses a conservation easement southwest toward the proposed Project Structures RS4/RN4. Near the proposed Project Structures RS4/RN4, the route turns westward and follows a fire road within the conservation easement to the McCosker sub-area of EBRPD Sibley Volcanic Regional Preserve. At this point, the route would follow existing fire roads south and southwest for approximately 0.9 miles along existing unpaved fire roads that include portions of the McCosker Loop Trail, the Gudde Ridge Trail, and the Ninebark Trail and go past the planned group campground before arriving at the Eastport Staging Area at Pinehurst Road. It would then follow Pinehurst Road for approximately 1.4 miles to its intersection with Skyline Boulevard (both paved).

Rationale for Elimination

This alternative would not be feasible to build and would not feasibly attain the basic objectives of the Project related to minimizing environmental and community impacts. This alternative would require a new ROW through EBMUD and EBRDP lands, conservation easement modifications, and use of franchise rights. This alternative would require work to widen existing fire roads and county roads to at least 25 feet. Additionally, it would require civil infrastructure work to address landslides. The increased construction activities in EBMUD and EBRDP land would result in more ground disturbance within sensitive habitats and severe visual land scars due to construction clearing. The construction activities required for road improvement would likely require closure of Pinehurst Road to other traffic and recreational use during construction.

4.4.2.3. PG&E Snake Road Underground Alternative

This alternative was suggested by PG&E and eliminated from consideration in the PEA. Portions of this alternative are retained for analysis; see Section 4.3.3 (Alternative 2: Skyline-Colton-Snake Underground Alternative). It is illustrated in Figure 4.4-6 (Alternatives Eliminated). Two portions of this alternative are not retained for analysis in the EIR: approximately 0.9 miles along Snake Road (between the intersections of Snake Road and Skyline Boulevard and Snake Road and Colton Boulevard) and approximately 0.33 miles along Snake Road and Mountain Boulevard, from the intersection of Snake Road and Shepherd Canyon Road southwest to the intersection of Snake Road and Mountain Boulevard and along Mountain Boulevard.

Rationale for Elimination

This alternative would be feasible to build, but it would not feasibly attain the basic objectives of the Project related to reliability and safety requirements and minimizing environmental and community impacts. This alternative was determined to have more severe potential landslide risk than EIR Alternative 2, which was retained for analysis. Additionally, approximately 0.25 linear miles of this alternative is within the Hayward Fault Zone, which creates unacceptable reliability risks.

4.4.2.4. PG&E Redwood Peak Tunnel Alternative

This alternative was suggested by PG&E and eliminated from consideration in the PEA. This alternative would be approximately 5 miles long in total, including 2 miles overhead and 3 miles underground. The Sacramento Northern Railway used an approximately 3,700- foot-long tunnel under the Oakland Hills between Montclair (approximately at Saroni Drive and Shepherd Canyon Road) and Eastport on Pinehurst Road near EBRPD's Eastport Staging Area where the Pinehurst Underground Route transitions to Pinehurst Road. The underground line would run through the tunnel.

Rationale for Elimination

The alternative would not be feasible to build and would not feasibly attain the basic objectives of the Project related to reliability and safety requirements. The Sacramento Northern Railway tunnel has been filled in, is of unknown structural condition, and may have collapses, thereby posing an increased safety risk. In addition, there is limited space, at either end of the tunnel for the construction that would be required to rebuild the tunnel for power line use, creating a significant engineering challenge

4.4.2.5. PG&E Park Boulevard Underground between SR-13 and Estates Drive Alternative

This alternative was suggested by PG&E and eliminated from consideration in the PEA. This alternative would transition to underground at proposed Project Structures RS22/RN22, just west of SR-13 and would be installed underground northwest in Monterey Boulevard for approximately 0.25 miles, turning west into Park Boulevard for approximately 0.60 miles and ending at Estates Drive where the proposed Project would be underground. It is illustrated in Figure 4.4-6 (Alternatives Eliminated).

Rationale for Elimination

This alternative would not be feasible to build and would not feasibly attain the basic objectives of the Project related to reliability and safety requirements. Park Boulevard north of Estates Drive is supported by three bridges (viaducts) under the roadway that are located within approximately 1,600 feet of Park Boulevard north of Estates Drive. Underground construction in this portion of Park Boulevard would require avoidance and setback from the girders and other bridge structures. PG&E may have to excavate into the hillside along the northwest side of Park Boulevard to accommodate a ROW space for both duct banks. This excavation of steep uphill slopes poses a landslide risk to upslope residential structures along Estates Drive. Another option may be to hang the cables on roadway structures below the viaducts, in the

manner that pipelines are attached below bridges. However, the roadway is in poor condition over the viaducts with many visible cracks, so this option is likely infeasible in this location.

If the duct bank were installed downslope from the three bridge structures on the southeast side of Park Boulevard, PG&E would need to install retaining walls on the downslope side of the hill. This construction could pose a safety risk by undermining the bridge structures.

4.4.2.6. PG&E Trestle Glen Road Underground Alternative

This alternative was suggested by PG&E and eliminated from analysis in the PEA. It is illustrated in Figure 4.4-6 (Alternatives Eliminated). This alternative would be approximately 1.4 miles underground. This underground alternative would follow the proposed Project's underground segment from the intersection of Estates Drive and Park Boulevard, continuing for 0.17 miles southwest along Park Boulevard to the intersection of Trestle Glen Road. At the intersection of Park Boulevard and Trestle Glen Road, the underground route would turn into Trestle Glen Road and remain within Trestle Glen Road for 1.23 miles to its intersection with Grosvenor Place. At that point, it would turn south to the Oakland X Substation.

Rationale for Elimination

This alternative would likely not be feasible to build, and it would not feasibly attain the basic objective of the Project related to minimizing environmental and community impacts. The Park Boulevard underground route provides more construction space and greater flexibility to manage traffic in other lanes. Trestle Glen Road is a narrow street and it currently supports several existing buried utilities. Its narrow width combined with existing utilities would be unlikely to accommodate a four-circuit double-circuit duct bank. In addition, an underground route within Trestle Glen Road is likely to require more vaults, as it is not as straight as Park Boulevard and curving roads require shorter cable segments. While the length of the underground portion (as compared with the proposed Project) would increase only by approximately 0.1 mile, the impacts to utilities would be greater because of having to place the duct bank below the existing utilities and potentially to add a greater number of vaults.

4.4.3. Other Alternatives Considered and Eliminated

4.4.3.1. Redwood Canyon Underground Alternative

This alternative was developed by the CPUC to consider whether there might be an underground alternative between SR-13 and the Moraga Substation that remained in larger and less steep roads. The Redwood Canyon Alternative is illustrated in Figure 4.4-6 (Alternatives Eliminated) and eliminated from further consideration as a part of this EIR.

This alternative would be approximately 11.8 miles long in total, replacing about 3.4 miles of the proposed Project's overhead segment. This underground route would exit the Moraga Substation and follow Don Gabriel Way to El Camino Moraga to Moraga Way. This alternative would then follow Moraga Way southeast for approximately 1.7 miles and continue south on Canyon Road for 1.8 miles until the intersection with Pinehurst Road. This alternative would follow Pinehurst Road south for approximately 2.5 miles until the intersection with Redwood Road. This alternative would continue west on Redwood Road for approximately 2.4 miles until the intersection with Skyline Boulevard. It would continue west on Skyline Boulevard for 0.6 miles until the intersection with Joaquin Miller Road. The route would then follow Joaquin Miller Road west for approximately 1.3 miles until the intersection with Monterey Boulevard. The alternative would continue underground Monterey Boulevard north, paralleling SR-13 until proposed Project structures RS/RN-26, where the underground line would transition to overhead and follow the proposed Project to the west.

Rationale for Elimination

This alternative may be feasible to build, but it would not feasibly attain the basic objective of the Project related to minimizing environmental and community impacts. This alternative would more than triple the length of the Project for the segment that it would replace. This alternative would also require approximately 5 miles of underground construction on roads within the Reinhard Redwood Regional Park which could potentially increase impacts to recreation due to increased construction activity, as well as disturbance from noise, air emissions, and traffic in the Reinhard Redwood Park area. Additionally, approximately one linear mile of this alternative would be underground parallel to and within the Hayward Fault Zone, which is considered to present an unacceptable risk of damage in an earthquake. The proposed Project has no underground segments within the fault zone.

4.4.3.2. Underground Crossing of SR-13 (Across the Hayward Fault) Alternative

Scoping commenters requested consideration of an all-underground alternative. As described in Section 3.7.1.3, the Hayward Fault is an active fault with potential for large-scale movement. Overhead power lines are constructed to sway in an earthquake, without breaking or falling, but when large fault movement occurs, any underground utilities could be ruptured or severely damaged. This is considered to be an unacceptable risk for the four Project circuits, which are important for regional reliability of electricity service.

The PEA in Section 4 (Alternatives) states the following about a potential underground crossing of the Hayward Fault:

> *An innovative, unprecedented design would be required to conceptually accommodate the movement of the lines expected from the maximum credible earthquake on the Hayward Fault. This degree of displacement likely would require construction of a tunnel (of approximately a 10-foot diameter or more) with tracks from which the cables would hang. The tracks would move to accommodate a potential range of displacement. Construction of such a tunnel would be extremely costly but would still leave residual risk. In the general area, either side of the Hayward Fault zone has topography and structures that are not compatible land use for the multi-acre construction work areas required at the ends of a potential tunnel.*

Rationale for Elimination

This alternative would not be feasible to build and would not feasibly attain the basic objectives of the Project related to reliability and safety requirements and minimizing environmental and community impacts. The CPUC considered a potential underground crossing of the Hayward Fault, and determined that it would be infeasible for the following reasons. First, construction of the "tunnel" described by PG&E would require work areas for directional drilling or tunneling equipment, needing several acres on either side of the fault. In the densely developed Project area, there are few available open spaces. The only options identified were the parking lot and baseball field behind Montera Middle School and Joaquin Miller Elementary School (on the east side of the fault) and the Montclair Golf Enterprises driving range and parking lot on the west side of the fault. These areas have ongoing intensive use, and the proximity of the required intensive industrial activity and traffic within two large school yards is considered to be a significant impact.

Second, as implied in the PG&E description, the topography of the area makes a potential bored or tunneled crossing infeasible. Figure 4.4-7 (Underground Crossing of the Hayward Fault) illustrates the significant elevation drop from east to west: there is a difference of over 200 feet of elevation. Even if space could be found at the east and west ends of the boring zone for the tunneling equipment, boring or tunneling at this angle would be infeasible because there is no possible design that would allow digging of the required access to the tunnels or bore pits on either side of the fault.

4.4.3.3. Shepherd Canyon Underground East of Saroni Drive Alternative

This alternative was developed by the CPUC as a part of a complete Shepherd Canyon Underground Alternative. It would use a potential transition pole at either Manzanita Drive or Skyline Boulevard, then continue underground in Shepherd Canyon Drive to the intersection of Shepherd Canyon Road and Saroni Drive.

The Manzanita Drive option would be approximately 0.9 miles long in total, beginning with a transition from overhead to underground at proposed Project Structures RN10/RS10. This underground route would follow Manzanita Drive east for approximately 0.3 miles to the intersection of Shepherd Canyon Road. This option would then follow Shepherd Canyon Road southwest for approximately 0.6 miles to the intersection with Saroni Drive.

The Skyline Boulevard option would be approximately 0.9 miles long in total, transitioning from overhead to underground at proposed Project Structures RN11/RS11. This option would follow Skyline Boulevard east for approximately 0.3 miles to the intersection with Shepherd Canyon Road, then follow Shepherd Canyon Road southwest for approximately 0.6 miles to the intersection with Saroni Drive.

Rationale for Elimination

This alternative is not feasible to build and would not feasibly attain the basic objectives of the Project related to reliability and safety requirements and minimizing environmental and community impacts. Approximately 0.2 miles from intersection of Skyline Boulevard and Shepherd Canyon Road, adjacent to the intersection of Shepherd Canyon Road and Arrowhead Drive, the curvature and steepness of Shepherd Canyon Road presents construction challenges that cannot be overcome. Additionally, both the Skyline Boulevard and Manzanita Drive options would create more substantial impacts to traffic safety along Shepherd Canyon Road east of the intersection with Saroni Drive, because the road would be closed during construction.

4.4.3.4. HVDC Alternative

In response to public comments on the Draft EIR, the CPUC considered rebuilding the existing Moraga to Oakland X alternating current (AC) power lines as a high voltage direct current (HVDC or DC) line; either overhead in PG&E's existing ROW or underground along the alternative route options with an overhead crossing of SR-13.

Replacing the two double-circuit HVAC transmission lines between Moraga Substation and Oakland X with HVDC would require building new HVAC/HVDC converter stations at each end to connect to PG&E's existing HVAC grid. A single new HVDC transmission line would then be constructed between the converter stations overhead following the ROW of the existing HVAC transmission lines or underground along the one of the alternative route options.

From an infrastructure perspective, each converter station would require a 4-to-5-acre site adjacent to the existing substations. The structure housing each converter station would be up to 80 feet tall and include a large array of cooling fans. The new overhead HVDC transmission line would be constructed on a single set of transmission line structures similar in height to those for the proposed Project.

Advantages of utilizing HVDC technology would be: (1) the associated ROW width requirements and number of structures for a single overhead DC transmission line would be reduced from that required for the two double-circuit AC transmission lines in the proposed Project; (2) a single underground duct bank would be required for a HVDC transmission line in lieu of four underground AC transmission lines in the proposed Project resulting in a fewer number of underground duct banks; and (3) HVDC circuits have significantly less power loss than HVAC circuits.

The cost of power losses of HVAC lines becomes increasingly significant as transmission distance increases. Since HVDC lines utilize fewer conductors per circuit (2 instead of 3) the cost per mile for conductors and structures is less for a HVDC line than for a HVAC line. However, the two terminal converter stations required for connecting HVDC with the existing load serving HVAC grid are extremely costly, in the range of several-hundred million dollars for a power transfer similar to the proposed Project. In general, the break-even distance where the savings of HVDC lines equals the added cost of the converter stations is on the order of 300 to 400 miles, the four AC lines in the proposed Project total approximately 20 circuit miles in length (i.e., 4 circuits, 5 miles each).

Rationale for Elimination

As overhead, an HVDC Alternative would reduce the number of overhead structures and conductor, and as underground, the alternative would require only one duct bank. Similar types of construction impacts would occur during construction of a new HVDC power line and removal of the existing 115 kV AC lines, but overall would provide some reduction in the level of construction activities. In addition to space constraints, the large array of cooling fans at the converter stations would generate notable noise impacts when compared to the proposed Project, especially considering the close proximity of dense residential land use around the Oakland X converter station.

The amount of power loss savings for utilizing a HVDC line for the MOX Project would be noticeably insufficient to compensate for the significantly higher cost of the HVDC system.

Replacing the four HVAC transmission lines with a single HVDC line would have several operational impacts. The operation flexibility of the four AC lines would be lost under either planned outages of the DC line for maintenance or unplanned outages due to equipment failure or storm damage, etc. This would lead to total loss of power supply between the Moraga and Oakland X substations that may not be able to be replaced using other existing AC system interconnections, potentially requiring construction or upgrading of additional AC facilities. For these reasons, the HVDC Alternative has been eliminated from full consideration in this EIR.

4.5. Alternatives Analysis

This section presents the impact assessments for the five alternatives retained for analysis in the EIR. Section 4.5.1 presents details about Alternatives 2 through 5. The No Project Alternative is addressed in Section 4.5.2. Sections 4.5.3 through 4.5.7 describe and analyze the impacts of the following alternatives: Alternative 2 (Skyline-Colton-Snake Underground Alternative), Alternative 3 (Shepherd Canyon Underground Alternative), Alternative 4 (Skyline-Ascot Underground Alternative), and Alternative 5 (Estates Drive Underground Alternative).

4.5.1. Components of Alternatives Analyzed

The analysis of the retained alternatives is based on the description and maps presented in Section 4.3 (see Figure 4.3-1, Overview of Alternatives Retained for Analysis).

Approximately 1.5 miles of the overhead segment of the proposed Project, from Manzanita Road to Scout Road, would be replaced by Alternatives 2, 3, or 4. As shown in Table 4.5-1, replacement of the four overhead circuits would require implementation of two of the three alternatives in this area (Alternatives 2 & 3, Alternative 2 & 4, or Alternatives 3 & 4), resulting in between 4.2 and 5.2 miles of trenching in city streets.

Alternative 5 would be an underground segment primarily in Estates Drive, between SR-13 and the proposed underground portion of the Project in Park Blvd. This alternative would replace the approximately 0.5-mile-long overhead portion of the proposed Project between the intersection of Estates Drive and Park Boulevard and Structures RS22/RN22 at Monterey Drive.

As described in Section 4.3, installing the four MOX 115 kV circuits underground would require underground construction under existing streets in the Oakland Hills. Table 4.5-1 also summarizes the other key components of each alternative, along with the proposed Project. The table columns are defined as follow:

- "Overhead-Underground Transitions" define the location or locations at which transitions could occur.
- "Underground Miles and No. of Vaults" affect the construction timeframe and the length of time that construction-related impacts would occur.
- "Steep Slopes" defines the steepness of slopes in which construction would take place. Construction on steep slopes is not always considered to be infeasible; for comparing alternatives, less steep slopes would allow faster construction, reducing impacts related to noise, traffic, dust, and vehicle emissions. Figure 4.5-1 (Slope of Underground Alternatives) shows the approximate slope of the streets within which each underground alternative would be located.
- "Residences Affected in Underground Segment" presents the approximate number of homes with driveways on the streets in which construction would occur. Underground construction would be more disruptive in areas with a greater number of residences.
- "Non-Residential Facilities" lists public facilities, schools, and parks that would be immediately adjacent to construction and would experience the most severe construction impacts.

Table 4.5-1. Alternatives Analyzed: Features and Components

Alternative	Overhead-Underground Transition	Underground Miles; *No. of Vaults* [a]	Steep Slopes	Residences Affected in Underground Segment	Non-Residential Facilities
Proposed Project	■ Estates Drive and Park Boulevard: 4 Transition Poles	1.1 miles *5 to 10 vaults*	No steep slopes on underground segment	Total: 136 homes; 15 multi-family (Park Blvd. North: ~85 homes Park Blvd. South: 45 homes, 8 multi-family Park Blvd. Way: ~6 homes, 7 multi-family)	■ See Table 3.3-3, Sensitive Receptors within 1,000 feet ■ See Table 3.13-2, Schools within 0.25 Miles
1: No Project Alternatives	■ None	None	No underground segment	No underground segment	■ See Proposed Project (above)
2: Skyline-Colton-Snake Underground Alternative	■ Skyline Transition Pole ■ Fire Station Transition Station	2.3 miles *12 to 23 vaults*	<10%: 78% 10-15%: 19% >15%: 3%	~175 homes	■ Forestland Reservoir ■ Oakland Fire Station No. 6
3: Shepherd Canyon Underground Alternative	■ Saroni Transition Pole ■ Shepherd Canyon Transition Station	1.1 miles *5 to 10 vaults*	<10%: 84% 10-15%: 10% >15%: 6%	~28 homes	■ Shepherd Canyon Park ■ Oakland Fire Station No. 24
4: Skyline-Ascot Underground Alternative	■ Manzanita Transition Station ■ Option 1: Scout Transition Pole or ■ Option 2: Ascot Transition Pole	2.9 miles *15 to 29 vaults*	<10%: 64% 10-15%: 29% >15%: 7%	~210 homes	■ Montara Middle School ■ Joaquin Miller Elementary School ■ Marjorie Saunders Park ■ Skyline Gate Staging Area ■ The Hills Swim & Tennis Club
5: Estates Drive Underground Alternative	■ Sims Transition Pole ■ Somerset Transition Pole	0.3 mi. Oakland 0.5 mi. Piedmont *2 to 5 vaults*	<10%: 35% <15%: 65%	~80 homes ~10 multi-family	■ Academia de mi Abuela ■ Corpus Christi School

(a) As described in the Project Description, the proposed Project would require 5 to 10 vaults per mile, but more vaults are required on curving roads so the higher number in the defined range is likely to be required for Alternatives 2 and 4.

4.5.2. Impacts of Alternative 1: No Project Alternative

The existing 115 kV lines between the Moraga and Oakland X Substations were installed in approximately 1908 and 1931. Under the No Project Alternative, these power lines would not be replaced. The existing Moraga–Oakland X 115 kV overhead lines would be left in place. No aboveground lines would be removed, and no power lines would be placed underground.

PG&E would replace individual facilities on an as-needed basis where safety concerns are identified during regular inspections. If inspections identify safety or maintenance concerns with aging power line structures or conductors, repairs or replacements would be made to each separate component. The 18 existing structures that are located within and adjacent to residential yards within Oakland and Piedmont would remain in place.

No project-wide construction impacts would occur, including those associated with the overhead power line replacement, removal of structures, and the underground power line installation within Park Boulevard and Park Boulevard Way. While the project-wide impacts would not occur on the schedule proposed by PG&E, from time to time there would likely be similar construction activities required to replace individual structures as they continue to age and degrade.

The most serious result of the No Project Alternative is that the proposed Project's benefit of reduction of wildfire risk during operation would not occur. This benefit would result from all three aspects of the proposed Project: removing existing structures between the Oakland X Substation and Estates Drive, installing 4 circuits underground in Park Boulevard and Park Boulevard Way, and replacing existing aging structures and conductors between Moraga Substation and Estates Drive (through the Oakland Hills).

4.5.3. Impacts Common to All Alternatives with Underground Components

This section presents a description of the construction required to install the underground alternatives (for Alternatives 2 through 5). Impacts that are specific to each alternative's route or conditions are addressed in Sections 4.4.4 through 4.4.7 (Alternatives 2 through 5). This section first describes underground power line construction as it relates specifically to the underground alternatives defined in Section 4.3. It also describes and evaluates the severity of the potential impacts of most concern related to underground construction: air quality, noise, transportation, and wildfire.

The discussion in this section focuses on the impacts that apply to all underground alternatives and that are most severe or that are anticipated to present most construction challenges. All impact significance conclusions by issue area are presented in Section 4.6 (in Table 4.6-1, Impact Conclusions for All Underground Alternatives).

4.5.3.1. Installing Power Lines Underground

Installation of electric power lines underground rather than overhead requires substantially more intense construction activity, resulting in disturbance to nearby residents. It takes much longer to build than a corresponding length of overhead power line. However, despite these impacts, underground lines are considered for the following reasons:

- Underground lines reduce the risk of lines being an ignition source for wildfire and create few constraints to fire fighting. Underground lines are not exposed to potential vehicle or tree-fall accidents, vandalism, or failures due to weather conditions, such as high winds, that could result in a wildfire ignition.
- Overhead lines can degrade views, so important public viewsheds are considered as potential candidates for underground installation.
- Overhead lines in some locations are impractical because of the density of the built environment and lack of availability of an overhead right-of-way. This is the situation for the westernmost mile of the

proposed Project, west of Estates Drive. In this area, residences have been so densely constructed that rebuilding overhead in this area is infeasible (see Section 4.4.1.3, Alternatives Eliminated).

4.5.3.2. Constraints to Undergrounding Power Lines

Geologic Conditions

As discussed in Section 4.3.1, the feasibility of any underground alternative requires consideration of geologic conditions and the presence of other buried utilities within each right-of-way. Details regarding slope stability and soil conditions are uncertain in the absence of exploratory investigations along each underground alternative route. The extent of unstable soils and landslides in the Oakland Hills is well-documented, but it is not known exactly how each unstable area might affect buried power lines in the roadway; this would be identified prior to construction based on site investigations. If unstable slopes are found in these investigations, site-specific engineering may be required to protect the stability of the road. The visual inspection of the roadways in which these alternative routes would be installed did not identify specific high risk areas. However, landslides can be deep-seated and these areas may not show surface evidence of slope movement.

PG&E defines a series of concerns in PEA Section 4.2.3.2 (Alternative B: Manzanita Drive-Colton Boulevard-Estates Drive Underground). Because of the local geology and soils, the Oakland Hills contain multiple existing landslides and areas of extremely elevated landslide susceptibility, and a landslide resulting in cable displacement would damage the cable and require repair that could take up to 6 months. During this time, the affected circuit (or two circuits, if both are damaged) would be out of service, resulting in a repair and reconstruction process that could affect power delivery to portions of the East Bay for months.

There are engineering measures that could be installed to protect the buried cables. These measures include using thicker and/or reinforced concrete walls in the duct bank. Installation of retaining walls could stabilize roadways where landslide risk exists. In order to define whether or where engineering measures are required, exploratory data from geotechnical investigations would be required. As described by PG&E:

> *Exploratory data from geotechnical investigations would be needed from each landslide shown on Figure 4.2-3 before detailed design could be completed. Extensive soil boring sampling would need to be done to collect the data. Typically, a track-mounted drill rig is used to move along a transect and collect soil samples. A boring sample would need to be taken every 50 to 100 feet along a transect from the duct bank location to the top of the landslide as well as one boring above the landslide. These sampling transects would need to be repeated approximately every 200 feet. Boring sampling would require bringing heavy construction equipment, including drilling rigs, onto residential properties. Because of the steep slopes along this alternative's alignment, grading may need to be performed to provide vehicle access to place the drilling rigs at the sampling locations. Trees and shrubs in the access and sampling areas would need to be removed, which could affect much of the existing vegetation on each property. After access and the work area are established, sampling at each location would take approximately 2 days. When working from the roadway, a single lane closure would be required during the geotechnical investigation activity. The exploratory data would confirm whether a retaining wall is needed at each slide location and, if so, the size of wall needed. Land use restrictions such as no changes to buildings or no new trees would be required for all upslope properties to avoid excess loading of the retaining walls or other load-bearing components that could impact the underground line installation. (PEA, Section 4.2.3.2)*

Space in Roadways

Because of the narrow road widths east of Moraga Drive and Mountain Boulevard (Montclair Village) and Manzanita Drive, none of the alternatives (defined in Section 4.2) could accommodate all four Moraga-

Oakland X circuits. Therefore, for all four circuits to be installed underground, two of the three alternatives in this area (Alternatives 2, 3, or 4) would have to be constructed, each with two circuits (see Figure 4.3-1).

The installation of a duct bank for two circuits would require a trench approximately 4 feet wide and 5 to 10 feet deep (or deeper, depending on existing utility depths). Every approximately 1,000 feet, large splice vaults would be required. These 12 feet wide by 22 feet long vaults (see Figure 2.1-7 in Appendix A) each require excavation of a hole up to 42 feet long by 18 feet wide by 13 feet deep to accommodate the vault and the transition of the circuits to and from the vault. This extensive construction in narrow roads would likely affect existing underground utilities (water, gas, sewer), which may need to be relocated to make room for the 115 V duct bank and the large vaults required to be installed.

While there is adequate space in all alternative roadways for installation of the duct bank and vaults, most of the roads required for the underground alternatives are not wide enough to allow space for a continuous lane of traffic to pass during construction. PG&E states that a minimum traffic lane to allow passage of non-project vehicles would be 10 feet wide. Therefore, the minimum road width to construct a duct bank with two power line circuits and associated vaults while maintaining a 10-foot traffic lane is 34 feet, subject to certain underlying assumptions. While duct bank construction alone may allow vehicle passage during construction, the installation of vaults would require closure of the entire roadway (PG&E, 2025b) during daytime work hours for a period of several days (see additional discussion of vaults and vault excavation below).

PG&E has stated that if any portion of a block is less than 34 feet wide, it is assumed the entire block would require complete road closure. On Skyline Boulevard, Colton Boulevard, Heartwood Drive, Snake Road, Shepherd Canyon Road (west of Saroni Drive), and Ascot Drive between Manzanita Drive and SR-13, and for Sims Drive, Somerset Drive, and Estates Drive (west of Somerset Drive), most blocks are less than 34 feet wide for most of the block length and would require a complete road closure. On these narrow roadways where the underground alternatives are located, PG&E has stated that it may not be possible to reopen a road or lane closure at the end of the workday for safety reasons and space limitations. (PG&E, 2025b; Comment Set E01 in EIR Appendix J)

4.5.3.3. Overhead-Underground Transition Stations and Poles

Transition Requirements for Each Alternative

As described in Section 4.3.2, each underground alternative requires a *transition station* at one end and a *transition pole* at the other end. As also described in Sections 4.3.2.2 and 4.3.2.3, there are different combinations of transition facilities locations that could be used for each underground alternative. Figure 4.5-2 (Overhead Crossings of SR-13: Alternatives) shows the overhead crossings of SR-13 for the various alternatives. Figures 4.3-5 through 4.3-8 present the details for each alternative.

The required transition structures are described as follows (see Figure 4.3-3, Overhead-Underground Transition at Eastern End).

- **Alternative 2: Skyline-Colton-Snake Underground Alternative** would require Skyline Transition Pole and the Fire Station Transition Station.
- **Alternative 3: Shepherd Canyon Underground Alternative** would require the Saroni Transition Pole and the Fire Station Transition Station.
- **Alternative 4: Skyline-~~Colton-Snake~~Ascot Underground Alternative** would require the Manzanita Transition Station and *either* the Scout or Ascot Transition Poles.
- **Alternative 5: Estates Drive Underground Alternative** would require the Sims and Somerset Transition Poles. If this alternative is selected along with other underground alternatives east of SR-13, different overhead lines and structures would be required (see Figure 4.3-8).

Construction Required for Transition Poles or Stations

New transition facilities would create new aboveground power line infrastructure. Construction of these facilities would result in short-term impacts related to construction vehicle emissions, noise, dust, and vehicle traffic, similar to the proposed Project.

To construct the Manzanita Transition Station under or directly adjacent to the lines while in service may require a temporary shoo-fly[49] on either side of the existing power lines to which the power lines could be moved during construction. This would allow for construction under the existing lines, but would require vegetation removal under the temporary lines moved to the shoo-fly.

The Fire Station Transition Station would be located in a Municipal Service Yard parking area owned by the City of Oakland, which has a "non-standard" shape, and PG&E has stated that excavation into the hill to the north may be required to fit required equipment (see EIR Appendix J, Comment Set E01). Vegetation removal may be required to provide a setback around the transition station to be consistent with PG&E's Wildfire Program. Construction of a new replacement City of Oakland Municipal Service Yard also may be required.

The transition poles or stations would require weeks to months of construction at each site. The transition stations at Manzanita Drive and Shepherd Canyon would require the longest construction timeframes, but construction activities at these locations would be primarily outside of road ROWs.

Construction of the transition poles and stations would likely require short-term road closures immediately adjacent to the facilities, but alternate routes are available at all locations. Traffic Control Plans would be developed and implemented to ensure that the roadways remain open, or that alternate routing was defined. PG&E would notify residents in advance of construction and keep them informed through the construction process. There also would be temporary and permanent loss of parking at The Hills Swim and Tennis Club and at the Municipal Service Yard during construction and/or operation of the Manzanita Transition Station and the Fire Station Transition Station, respectively. In addition to the main parking lot at Shepherd Canyon Park, the Municipal Service Yard parking area is informally used as parking by recreational visitors accessing the MRRT and Shepherd Canyon Park.

4.5.3.4. Overview of Impacts of Constructing and Operating Underground Power Lines and Transition Stations/Poles

Installation of underground lines in the populated residential areas of Alternatives 2, 3, 4, and 5 would result in the following construction impacts:

- Underground routes following winding roads would result in disruptive construction activity near a large number of residents for long periods of time. The specific time would depend on the number and spacing of vaults (additional discussion is presented below) and the need to relocate existing buried utilities and the slope of the road, both of which would be greatly increased in comparison with the proposed Project since its underground segment would be in a larger and flatter roadway.
- A substantial level and duration of local traffic disruption due to road closures or access limitations, increasing travel times for residents and impairing response times for emergency services required to use alternative routes during road closures.
- A substantial volume of project-related truck and equipment traffic; trucks would be carrying removed trench spoils down the hills and also would be delivering cables, vaults, concrete, and clean trench fill

[49] A temporary "shoo-fly" may be used to temporarily reroute the conductor and keep existing power line or distribution line conductor suspended while the replacement structure is being installed, or an existing structure is removed. A shoo-fly is created by temporarily relocating existing lines to one or more temporary light-duty steel or wood poles to allow work to occur on the structure being removed or replaced.

along Oakland City streets. Excavators and cranes would be required for removal of spoils and placement of large vaults, respectively.

- Extensive trenching would be required in all roadways supporting buried conductors. The depth of each trench would be determined by the presence of other existing utilities; nearly all city streets support water, natural gas, stormwater, and sewer lines. Some streets also have buried electricity distribution lines and buried fiber optic lines and cables. The 115 kV duct bank would generally have to be installed below other existing utilities, requiring coordination with utility providers and potential service outages that could create safety hazards (e.g., natural gas leaks, sewer pipe or water leaks causing erosion, or telecommunications outages) if existing lines have to be relocated.
- After duct banks and vaults are installed, the streets would require re-paving, which would also require temporary road closures.
- The transition stations and/or transition poles required at each end of the underground segments may be highly visible, depending on their location and the setting.
- Vegetation removal may be required for clearance around temporarily relocated power lines and/or to provide a setback around the transition station(s) to be consistent with PG&E's Wildfire Program, which would result in potential biological and aesthetic impacts.
- Construction along the underground alternatives would move more slowly than undergrounding proposed on Park Boulevard as part of the proposed Project, because (1) more vaults would be required in roads with more curves; (2) the winding, narrow, and steep streets present more construction challenges; and (3) the smaller residential roadways may have more limited construction working hours (PG&E, 2025b).

Trench Construction for Duct Banks

The construction of the underground line within Park Boulevard is described in Section 2.3.6 (Power Line Construction Underground). Within the narrow and winding roads of the Oakland Hills, this trench work, which is required for installation of the duct bank, would result in the following impacts:

- Noise and vehicle exhaust emissions occurring for weeks at a time, closer to hundreds of residences (see Table 4.5-1). The proposed Project's underground segments would be constructed separately for two circuits at a time and in flat terrain, so the construction timeframe would be substantially shorter.
- Extensive shoring within deep trenches for worker safety and protection of existing utilities, similar to the proposed Project.
- Anticipated need for digging by hand (using shovels rather than excavators) to work around underground utilities (water, sewer, gas, electric, cable, etc.) to prevent damage due to the much narrower streets than the proposed Project and greater likelihood that existing utilities could be affected.
- The need to stabilize and secure exposed utility lines to prevent damage or failure and maintain service would add construction time in comparison with the wider and flatter Park Boulevard underground construction segment.
- Potential utility service disruptions to nearby residences that may create hazards (e.g., natural gas or sewer line leaks) where utilities need to be moved or are accidentally damaged.
- Use of heavy steel plates to cover trenches, which may generate noise exceeding annoyance threshold when driven over.
- Temporary blockage of residential driveways while construction is occurring in front of homes.

Vaults and Vault Excavation

Underground power lines need between 5 to 10 vaults per mile (or about one vault every 500 to 1,000 feet) along the alignment to allow access to pull and splice cables and for line inspection and maintenance. Bends in the underground conduit alignment on sinuous roads would increase line pull friction, requiring a greater number of vaults per mile for cable installation compared to a straight alignment.

- **Vault dimensions** (as described in Section 2.3.3) would be approximately 22 feet long by 10 feet wide by 10 feet deep.
- **Excavation for each vault** would require a hole up to 42 feet long by 18 feet wide by 13 feet deep. Each precast vault would require approximately 2 weeks to install. PG&E has stated that the narrow and winding roads may limit access for large trucks required to deliver precast vaults. For sites where delivery trucks or cranes (to lift vaults into place) cannot access the work site, the vaults must be cast in place. The excavation, installation, and concrete curing of the vault would likely require road closures of 3 to 4 weeks per vault, as compared to the assumed 2 weeks of road closures to install a precast vault (PG&E Comment Set E01 in EIR Appendix J).

  When the vaults are installed, the workspace for open trenching operations to install the duct bank between the vaults may extend up to approximately 1,500 feet long by 24 feet wide. At vault locations in narrow roadways, relocation of many existing buried utilities would likely be required.
- **Vault delivery.** Precast vaults would be delivered in sections on flatbed trailers, which would require temporary road closure during their transport to their installation locations.
- **A telecommunication vault** or box (approximately 4 feet wide by 6 feet long and at least 3 feet deep) would be installed within approximately 40 feet of each power line vault.

Design Requirements for Landslides and Earthquakes

As discussed above under "Constraints to Undergrounding Power Lines," the potential for landslides, slope creep, or earthquakes would increase the risk of underground line damage during operational life, and may warrant construction of additional infrastructure, such as thicker duct banks or retaining walls for protection of the underground lines. These requirements cannot be identified until detailed geotechnical investigations are completed.

Overhead-Underground Transition Facilities

Transition facilities (poles or stations) are required at each end of an underground segment. These structures are larger and much more visible than individual power line structures. Transition stations also require more ground disturbance, increasing the likelihood of disturbing habitat or cultural resources. Alternatives 2, 3, and 4 would require these facilities at their east ends (Manzanita or Skyline Boulevard) and also at their western ends, due to need for the lines to pass overhead at SR-13, which follows the Hayward Fault zone. The location of these facilities is illustrated in the maps for each alternative (Section 4.3) and described in Section 4.4.3.2.

Inspection and Maintenance

Operation of an underground power line would require periodic inspection and maintenance of the buried cables. Inspection would occur via man-hole access to vaults. During operation and maintenance (O&M), segments of the road where vaults are located would have to be closed for short periods to establish safe work areas. Underground lines also make it more difficult to locate and implement a repair, potentially resulting in longer power outages.

4.5.3.5. Impacts of Underground Alternatives

The following sections address specific impacts that would occur for all of the underground alternatives (unless otherwise stated). The impacts addressed in detail here are those that are of most concern to the underground alternatives. Table 4.6-1 (Impact Conclusions for All Underground Alternatives) in Section 4.6 describes the severity of the remaining impacts as they related to the underground alternatives.

Aesthetics

Impact AES-3 (In non-urban areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings)

New transition facilities would create new permanent visible power line infrastructure at each location where they would be installed. The significance of the visibility of each facility is evaluated in the following discussion. The Key Observation Points (KOPs) referenced in this discussion may be seen in Appendix A figures for Section 3.2, Aesthetics. Activities and impacts during construction would be similar to those described for the proposed Project. The operational visual impact significance is presented for each of the different transition facilities described below.

Manzanita Transition Station

SIGNIFICANT AND UNAVOIDABLE. The Manzanita Transition Station would be required for Alternative 4 (Skyline-Ascot Underground Alternative). It would be located adjacent to the east side of Manzanita Drive at the intersection with the Project right-of-way (ROW). To construct the Manzanita Transition Station under or directly adjacent to the lines while in service may require a temporary shoo-fly on either side of the existing power lines to which the power lines can be moved during construction. This would allow for construction under the existing lines, but it would require substantial vegetation removal under the temporary lines moved to the shoo-fly, which would result in additional visual impacts.

At this location, as viewed from either KOP 3b (see Figure 3.2-5ab in Appendix A) or Manzanita Drive, visual quality would be Moderate, viewer concern would be High, and viewer exposure would be Moderate to High. Combining these three equally weighted factors results in an overall visual sensitivity of Moderate to High. The power line structure currently shown in Figure 3.2-5b would be replaced with a much larger, fenced transition station.

Overall visual sensitivity is a concluding assessment of an existing landscape's susceptibility to an adverse visual outcome (rated Low to High). A landscape with a High or Moderate to High degree of overall visual sensitivity (as in this case) can accommodate only a lower degree of adverse visual change (as would occur when viewed from KOP 3b) without resulting in a significant Aesthetics impact. A higher degree of visual change (as would occur when viewed from Manzanita Drive) could result in a significant Aesthetics impact when considered within the context of a Moderate to High overall visual sensitivity. If effective mitigation is implemented to address the significant impact, it may be reduced to a level that is less than significant. However, absent effective mitigation, the impact would remain significant and unavoidable (again, as would occur when viewed from Manzanita Drive). The following paragraphs address the different impact outcomes for the views from KOP 3b and Manzanita Drive.

In addition to the replacement of the two existing, shorter (74 feet and 75 feet) lattice structures with two taller tubular steel poles (TSPs; 126 feet and 136 feet tall) at this location, the Manzanita Transition Station would also add a structurally-complex, industrial appearing facility to the existing landscape. While the transition station facilities would be shorter (maximum of 60 feet in height) compared to the proposed TSPs, the collective industrial appearance would be visible from both KOP 3b (partially) on the East Bay Skyline Trail and from Manzanita Drive. From KOP 3b, the overall project dominance would be Co-dominant. However, from Manzanita Drive, the facilities would be more visually prominent and would result in a Co-dominant to Dominant overall project dominance.

Compared to the complex form of the existing lattice towers, the simple, narrow profile of the new replacement TSPs would reduce the structural form contrast but increase the vertical line contrast. However, the addition of the complex structural forms of the transition station facilities would more than offset any TSP visual benefit and result in an increased industrial character overall. As a result, the overall visual contrast associated with this incremental change would be Low to Moderate when viewed from KOP 3b (due to the reduced visibility associated with terrain screening and the elevational difference) but Moderate to High when viewed from Manzanita Drive. Additionally, view blockage/impairment of the background sky (higher value landscape feature) would be slightly increased (Low to Moderate change) when viewed from KOP 3b, but when viewed from Manzanita Drive, the view blockage/impairment of the background ridges, hill slopes, and sky would noticeably increase (Moderate to High change).

Collectively, these incremental visual changes would adversely impact the existing landscape character visible from KOP 3b on the East Bay Skyline Trail but to a lesser degree than when viewed from Manzanita Drive.

When viewed from KOP 3b, combining the equally weighted Co-dominant project dominance, Low to Moderate visual contrast, and Low to Moderate view blockage/impairment results in a Low to Moderate level of overall visual change.

When viewed from Manzanita Drive, combining the equally weighted Co-dominant to Dominant project dominance, Moderate to High visual contrast, and Moderate to High view blockage/impairment results in a Moderate to High level of overall visual change.

Therefore, in the context of the existing landscape's Moderate to High overall visual sensitivity, the Low to Moderate overall visual change that would be experienced at KOP 3b after construction of the Manzanita Transition Station would result in an Aesthetics impact that would be Less than Significant. However, the Moderate to High level of overall visual change that would be experienced from Manzanita Drive would result in an Aesthetics impact that would be significant. There is no feasible, effective mitigation that could reduce the station visibility and associated visual impact on views from Manzanita Drive without introducing other visual impacts because any effective screening of the transition station facility from Manzanita Drive would also result in the substantial screening of the dramatic views of ridges and hill slopes now visible to the east from Manzanita Drive. Therefore, the impact would be significant and unavoidable.

Fire Station Transition Station

LESS THAN SIGNIFICANT. This alternative would result in the construction of a four-circuit transition station in the parking lot of the City of Oakland Municipal Service Yard on Shepherd Canyon Road across from Oakland Fire Station No. 24. The existing landscape includes the parking lot, ancillary buildings, fenced-in Service Yard facilities, existing utility line, telecommunication tower, traffic signal, several street lights, fire station, and road, all surrounded by numerous trees and wooded slopes. As a result of the existing development, visual quality would be Low to Moderate, as would viewer concern associated with motorists on this portion of Shepherd Canyon Road. Viewer exposure would be Moderate. Combining these three equally weighted factors, the overall visual sensitivity of the landscape and viewing circumstances would be Low to Moderate.

The transition station would introduce noticeable industrial character and structural form contrast due to its complex structural design. In addition, excavation into the hill to the north may be necessary to fit required equipment and vegetation removal may be required to provide a setback around the transition station. Based on the analysis approach defined in Section 3.2.3.1, the overall project dominance would be Co-dominant, and the overall visual contrast associated with the facility's form and line characteristics would be Moderate to High. Additionally, view blockage/impairment of the background vegetation and sky would be Moderate.

Collectively, these incremental visual changes in the context of the existing utility facilities and other built landscape features would not substantially alter the existing landscape character visible from Shepherd Canyon Road. The analysis considers the equally weighted Co-dominant project dominance, Moderate to High visual contrast, and Moderate view blockage/impairment. The result is a Moderate level of overall visual change. In the context of the existing landscape's Low to Moderate overall visual sensitivity, the Aesthetics impact would be less than significant.

PG&E may opt to install visual screening (fencing, walls, or vegetation) to hide the new industrial facilities from the road. However, mitigation is not required because the impact is less than significant.

Skyline Transition Pole

LESS THAN SIGNIFICANT. This alternative transition pole would replace an existing 72-foot-tall LSP with a slightly taller 80 to 95-foot-tall transition pole. The transition pole would be located in the same place as the proposed Project Structure RS11, adjacent to Skyline Boulevard. As noted in the discussion of KOP 5, the existing landscape is rated Moderate for visual quality, High for viewer concern, and Moderate for viewer exposure. Combining these three equally weighted factors results in a Moderate to High rating for overall visual sensitivity of the existing landscape. As previously discussed, a landscape with a High or Moderate to High degree of overall visual sensitivity (as is the case here) can typically accommodate only a lower degree of adverse visual change without resulting in a significant Aesthetics impact.

Because of the limited view of the replacement structure (due to screening by foreground vegetation), when approaching from the east, the transition pole would appear slightly larger in scale and exhibit a simpler but more unusual profile relative to the existing lattice structure. The overall project dominance would remain Co-dominant, and the resulting structural form and line contrast would be Low. Also, the associated industrial character would be similar for the existing and replacement structure. As a result, the overall visual contrast associated with the incremental changes would be Low. Additionally, view blockage/impairment of the background vegetation and sky would be similar (Low), and the open, panoramic view toward the distant San Francisco Bay would not be obstructed by the transition pole.

Collectively, these incremental visual changes would not measurably alter the existing landscape character visible from this roadway location. Combining the equally weighted Co-dominant project dominance, Low visual contrast, and Low view blockage/impairment results in a Low to Moderate level of overall visual change. In the context of the existing landscape's Moderate to High visual sensitivity (which can typically accommodate a low or low to moderate level of visual change without resulting in a significant impact), the installation of the Skyline transition pole would result in an Aesthetics impact that would be less than significant.

Saroni Transition Pole

LESS THAN SIGNIFICANT. This alternative would result in the addition of an 80- to 95-foot-tall transition pole to a cleared slope within the existing power line corridor immediately adjacent to Saroni Drive. Visible utility infrastructure at this location includes an existing wood-pole distribution line along Saroni Drive, another wood-pole utility line traversing upslope from the transition pole location, and the overhead transmission line conductors that span Saroni Drive. The existing landscape is rated Low to Moderate for visual quality, Moderate for viewer exposure, and High for viewer concern. Combining these three equally weighted factors results in a Moderate rating for overall visual sensitivity of the existing landscape. A landscape with a Moderate degree of overall visual sensitivity (as is the case here) can typically accommodate a Low or Moderate degree of adverse visual change without resulting in a significant aesthetic impact.

Because of the dense vegetation along Saroni Drive and within the adjacent residential properties, views of the transition pole would be limited to a very few residences in the immediate vicinity of the pole and

local residents driving on Saroni Drive. As noted above, the transition pole would be seen within the context of other existing utility facilities.

The transition pole would introduce an incremental increase in industrial character and structural form contrast due to its unusual design. The overall project dominance would be Co-dominant, and the overall visual contrast associated with the incremental changes would be Moderate to High. Additionally, view blockage/impairment of the background vegetation and sky would be Moderate.

Collectively, these incremental visual changes in the context of the existing utility facilities would not substantially alter the existing landscape character visible from this roadway location. The equally weighted Co-dominant project dominance, Moderate to High visual contrast, and Moderate view blockage/impairment results in a Moderate level of overall visual change. In the context of the existing landscape's Moderate visual sensitivity, the installation of the Saroni transition pole would result in an Aesthetics impact that would be Less than Significant.

Sims and Somerset Transition Poles

LESS THAN SIGNIFICANT. This alternative would replace the existing and proposed Project single location spans of SR-13 (Warren Freeway) with two separate spans in different locations: one to the Sims Transition Pole and one to the Somerset Transition Pole. Each location would require both a new double circuit TSP and a new transition pole. As a result, there would be a double-circuit TSP and two double-circuit 80 to 95-foot-tall transition poles on State property adjacent to the west side of the freeway.

The existing visual quality would be Low to Moderate given the influence of the adjacent freeway, off-ramp, frontage roads, overpass, and a myriad of wood-pole utility lines and light poles. Viewer exposure would also be Low to Moderate given the limited visibility from the adjacent roadways and relatively low view durations associated with the higher travel speeds. The associated motorist viewer concern would also be Low to Moderate given the lack of awareness of, and visual attention to, the structure locations, which would have limited visibility due to vegetative screening and elevational differences. Combining these three equally weighted factors results in a Low to Moderate rating for overall visual sensitivity of the existing landscape and viewing circumstances. A landscape with a Low to Moderate degree of overall visual sensitivity can typically accommodate a degree of adverse visual change ranging from Low up to Moderate to High without resulting in a significant aesthetics impact.

To the extent the structures are noticed, views of the TSPs and transition poles would be limited to brief motorist glances and would be seen within a context of numerous other utility structures. The TSPs and transition poles would introduce noticeable industrial character and structural form contrast due to the unusual, complex design of the transition poles. The overall project dominance would be Co-dominant, and the overall visual contrast associated with the visual changes would be Moderate within the existing structural context. View blockage/impairment of the background vegetation and sky would be Low to Moderate.

Collectively, these visual changes in the context of the existing utility facilities and light poles would not substantially alter the existing landscape character visible from the adjacent roads. The equally weighted Co-dominant project dominance, Moderate visual contrast, and Low to Moderate view blockage/impairment would result in a Moderate level of overall visual change. In the context of the existing landscape's Low to Moderate visual sensitivity (which can typically accommodate a degree of visual change ranging from Low up to Moderate to High without resulting in a significant impact), the installation of the transition poles would result in an aesthetics impact that would be less than significant.

Skyline-Ascot Option 1 (Scout Road Transition Pole)

LESS THAN SIGNIFICANT. This alternative would result in the addition of an 80- to 95-foot-tall transition pole on Scout Road approximately 150 feet northwest of the intersection with Ascot Drive. The existing landscape is rated Moderate for visual quality, which reflects the presence of an existing utility line along

the road. Viewer exposure is rated Moderate, and viewer concern is rated Moderate to High. Combining these three equally weighted factors results in a Moderate rating for overall visual sensitivity of the existing landscape. A landscape with a Moderate degree of overall visual sensitivity (as is the case here), can typically accommodate a Low or Moderate degree of adverse visual change (as is the case here) without resulting in a significant aesthetics impact.

Because of the dense vegetation along Scout Road and within the adjacent residential properties, views of the transition pole would be limited to the very few residents adjacent to the structure and local residents driving on Scout Road. The transition pole would introduce an incremental increase in industrial character and structural form contrast due to its unusual design. The overall project dominance would be Co-dominant, and the overall visual contrast associated with the incremental changes would be Moderate. View blockage/impairment of the background vegetation and sky would be Low to Moderate.

Collectively, these incremental visual changes within the context of the existing utility facilities would not substantially alter the existing landscape character visible from Scout Road. Combining the equally weighted Co-dominant project dominance, Moderate visual contrast, and Low to Moderate view blockage/impairment, results in a Moderate rating for overall visual change. In the context of the existing landscape's Moderate visual sensitivity (which can typically accommodate a Low or Moderate level of visual change without resulting in a significant impact), the installation of the transition pole would result in an aesthetics impact that would be Less than Significant.

Skyline-Ascot Option 2 (Ascot Road Transition Pole and SR-13 Crossing)

LESS THAN SIGNIFICANT. On the east side of the SR-13 (Warren Freeway), this alternative would result in the addition of an 80- to 95-foot-tall transition pole along Ascot Drive at the end of La Cuesta Avenue. The connection of this transition pole with the remainder of the alternative route is described in Section 4.3.5 (Alternative 4).

The existing landscape's visual quality is rated Moderate and is influenced by the existence of numerous wood-pole utility lines and transmission lines at various points along the route as well as the presence of the freeway. Viewer exposure is also rated Moderate, and viewer concern is rated Moderate to High. Combining these three equally weighted factors results in a Moderate rating for overall visual sensitivity of the existing landscape. A landscape with a Moderate degree of overall visual sensitivity (as is the case here) can typically accommodate a Low or Moderate degree of adverse visual change (as is the case here) without resulting in a significant Aesthetics impact.

Because of the dense vegetation in the area, views of the transition pole and TSPs would be somewhat limited to a very few residences in the immediate vicinity of the poles and to local residents driving on the adjacent roads. The greatest visibility and most noticeable change in landscape character would be briefly experienced by motorists on La Cuesta Avenue approaching Ascot Drive. La Cuesta Avenue is a short, residential street serving approximately 13 residences, and a direct view by motorists of the single transition pole would be possible. Also, on the west and east sides of the freeway, the structures would be seen within the context of existing wood-pole utility lines and transmission lines.

The transition pole would introduce noticeable industrial character and structural form contrast due to its unusual design, and the two TSPs would also introduce industrial character to the wooded landscape along Ascot Drive and Monterey Boulevard. The overall project dominance would be Co-dominant, and the overall visual contrast associated with the new structures would be Moderate to High. View blockage/ impairment of the background vegetation and sky would be Moderate.

Collectively, these visual changes within the context of the existing utility facilities (west side of freeway) and limited visibility from the primary roadways adjacent to the alternative, would not substantially alter the overall existing landscape character. Combining the equally weighted Co-dominant project dominance, Moderate to High visual contrast, and Moderate view blockage/impairment, results in a Moderate

rating for overall visual change. In the context of the existing landscape's Moderate visual sensitivity (which can typically accommodate a Low or Moderate level of visual change without resulting in a significant impact), the installation of the transition pole and the SR-13 crossing results in an Aesthetics impact that would be less than significant.

Air Quality

Installation of underground lines in the populated residential areas of Alternatives 2, 3, and 4 would generate emissions of air pollutants from the following types of vehicles and activities: dump trucks, boom trucks, excavators, loaders, concrete trucks, backhoes, welding machines, heavy duty trailers, pick-up trucks, flatbed trucks, road paving machines, graders, street sweepers, etc.

Impact AQ-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

LESS THAN SIGNIFICANT WITH MITIGATION. Impact AQ-2 considers whether construction of the Project or alternatives would 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. This impact is analyzed in Section 3.3, Air Quality for the proposed Project.

The air quality analysis must consider the cumulative emissions of all components of the Project (or alternatives) that may be under construction during the same year. Due to the much more intense construction activity required for installation of underground alternatives, emissions calculations have been completed to consider the cumulative emissions of this construction with other Project components (Aspen, 2025; see EIR Appendix I).

There would be emissions associated with construction of the proposed Project components that would not be replaced by Alternatives 2, 3, and 4. These segments are the overhead power line rebuild east and west of these alternatives, and the underground power line construction along Park Boulevard and Park Boulevard Way. These emissions would still occur under all three alternatives. When combined with the emissions from construction of one or more of the underground alternatives in the central portion of the project, total emissions have the potential to exceed the regional BAAQMD emissions threshold for nitrogen oxides (NOx). The BAAQMD threshold is 54 pounds per day, averaged over each year of construction. If three or more of these phases of construction were to be under construction concurrently, emissions averaged over a year of construction would exceed 54 pounds per day of NOx, which would be a significant impact, even with implementation of all Applicant Proposed Measures (APMs).

In order to reduce daily NOx emissions to below thresholds and eliminate the significant impact, MM AQ-2a is required in the event that any underground alternative is approved. Mitigation Measure (MM) AQ-2a would be required to ensure that Project construction is scheduled such that emissions do not exceed BAAQMD thresholds. With implementation of MM AQ-2a, the air quality impact of any of the underground alternatives would be less than significant.

MM AQ-2a: **Construction Activity Management Plan (for underground alternatives).** PG&E shall develop a construction activity management plan to ensure that regional emissions of NOx do not exceed a rate of 54 pounds per day, averaged over each year of construction. To accomplish this, construction phasing for the underground alternatives would be required to occur on a staggered schedule, such that of the four main construction activities (overhead circuit replacement in the eastern portion, underground replacement in the western portion, two underground replacement alternatives in the central portion), only two of these activities would occur concurrently. For example, construction would be required to be staggered such that each alternative would only be constructed at the same time as either the underground replacement in the western portion of the project,

or the overhead circuit replacement. The construction activity management plan shall reflect PG&E's anticipated final design consistent with the CPUC-approved alternative(s) and provide emissions estimates reflecting the final design.

Impacts of Mitigation Measure MM AQ-2a. If this mitigation measure is implemented, construction activities would be spread over a longer period of time, because the major construction activities would not occur concurrently. While overall construction disturbance within the Project boundaries would be extended in time, the impacts within any one segment would be unchanged. Disturbance effects of each segment are localized and are not expected to extend beyond the immediate construction zone.

Geology and Soils

Impact GEO-3: Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off- site landslide, lateral spreading, subsidence, liquefaction, or collapse.

SIGNIFICANT AND UNAVOIDABLE. As described above, all four underground alternatives are located in areas with known unstable slopes and mapped landslides. Because the underground duct banks and vaults would be located within 5 to 15 feet of the road surface, the current condition of the roadways within which the underground routes would be installed was evaluated. The roadway condition was found to be acceptable for the four underground alternatives retained, though segments of two roads were eliminated from consideration for underground power lines based on this assessment (sections of Snake Road and Scout Road). In addition, the PG&E landslide assessment prepared by InfraTerra (InfraTerra, 2024) was reviewed for the alternatives routes that it covered.

~~PG&E has committed to implementation of APM GEO-3 (Site Specific Landslide Assessment). With this APM, PG&E would identify and implement appropriate design measures if specific the underground power line routes were found to result in the potential for on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.~~

~~However, t~~There is the potential that the geotechnical investigation may identify unstable slopes that were not visible at the road surface. For the most severe of these conditions, ~~the~~ protective design measures could be required that would create offsite impacts to private property or adjacent residences, or extend the construction timeframe by many months. Due to the uncertainty about the extent of the slope stability impacts and the well-known instability of the Oakland Hills, this impact is considered to be significant and unavoidable.

Noise

Impact N-1: Expose persons to or generate a substantial temporary or permanent increase in noise levels in excess of established standards.

LESS THAN SIGNIFICANT WITH MITIGATION. As defined in Table 4.5-1, there are hundreds of residences as well as a large school complex along the underground alternative routes within the cities of Oakland and Piedmont. At 100 feet, the estimated noise level from construction would be approximately 79 dBA and at 50 feet, it would be approximately 84 dBA.

To reduce construction noise, Mitigation Measures MM N-1a and MM N-1b, which specify source-specific noise control techniques and require providing written advance notification to potentially impacted agencies and land uses, are recommended. These controls would ensure that feasible noise reduction strategies are implemented. Impacts would be less than significant with mitigation.

MM N-1a **General Construction Noise Management**. See full text in Section 3.11.4 (Noise, Mitigation Measures)

MM N-1b **Construction Notification**. See full text in Section 3.11.4 (Noise, Mitigation Measures)

Impact N-2: Expose persons to or generate excessive groundborne vibration.

LESS THAN SIGNIFICANT WITH MITIGATION. As described in detail in Section 3.11.3.3 (Noise Impacts), the highest levels of vibration during construction of underground power line components would be caused by impact pile driving in the cities of Oakland and Piedmont. This activity has the greatest potential to cause damage. The use of pile driving would be limited in duration. There are hundreds of residences and a large school complex along the roads where the underground construction would occur. This is also where potential pile driving activities would take place. With implementation of APM NOI-8, the proposed Project construction methods would be modified and monitored to reduce the vibration impact as necessary. Under APM NOI-8, the proposed Project would include a vibration assessment that would consider site-specific factors and be incorporated into project construction. However, because APM NOI-8 lacks specificity in terms of the standards to be met and in defining where additional assessment would be needed, implementation of Mitigation Measure MM N-2a would be required. This measure would focus future vibration assessment to locations of potential pile driving within 150 feet of potentially sensitive structures. The mitigation measure also specifies the standards for avoiding exposure of structures and people to excessive vibration levels, and includes the creation of a vibration control plan. With implementation of MM N-2a, impact N-2 would be less than significant.

MM N-1a **General Construction Noise Management.** See full text in Section 3.11.4 (Noise, Mitigation Measures).

MM N-1b **Construction Notification**. See full text in Noise, Section 3.11.4 (Noise, Mitigation Measures).

Transportation

Impact T-1: Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

SIGNIFICANT AND UNAVOIDABLE. This impact is found to be significant and unavoidable for the Overhead Rebuild segment of the proposed Project (east of the intersection of Estates Drive and Park Boulevard). The impact is significant due to the construction vehicles that would be temporarily blocking roadways within the Oakland Hills based on the construction requirements, as defined in Section 3.15.3.3 (Transportation, Impacts and Mitigation Measures). This impact would be more severe for underground alternatives, because construction would last much longer, would obstruct traffic more directly (due to trenching and vault installation), and in many more locations. These impacts result from temporary road closures, degradation of road conditions due to temporary steel plates being installed, and temporary obstruction of evacuation routes by construction vehicles. The result of this construction activity would be a number of conflicts with programs, plans, ordinances and policies, as summarized in Table 3.15-3 (Section 3.1, Transportation).

Therefore, even with implementation of the following mitigation measures, Impact T-1 would be significant and unavoidable for all underground alternatives (Alternatives 2, 3, 4, and 5).

MM N-1b **Construction Notification.** See full text in Section 3.11.4 (Noise, Mitigation Measures).

MM T-1a **Traffic Management Plan and Safe Transport.** See full text in Section 3.15.4 (Transportation, Mitigation Measures).

MM WF-1b **Limit Construction Requiring Full Road Closures.** See full text in EIR Section 3.18.4 (Wildfire, Mitigation Measures).

MM WF-1c **School Session Construction Timing Restriction.** See full text in EIR Section 3.18.4 (Wildfire, Mitigation Measures).

Impact T-4: Result in inadequate emergency access.

SIGNIFICANT AND UNAVOIDABLE. This impact is found to be significant and unavoidable for the proposed Project due to the construction vehicles that would temporarily block roadways within the Oakland Hills. Construction vehicles and activity could slow the passage of emergency vehicles to multiple locations, based on the construction requirements, as defined in Section 3.15.3.3 (Transportation, Impacts and Mitigation Measures). The impact would be more severe for underground alternatives, because construction would last much longer, would obstruct traffic more directly (due to trenching and vault installation), and would occur in many more locations.

Therefore, even with implementation of the following mitigation measures, Impact T-4 would be significant and unavoidable for all underground alternatives (Alternatives 2, 3, 4, and 5).

MM N-1b **Construction Notification.** See full text in Section 3.11.4 (Noise, Mitigation Measures).

MM T-1a **Traffic Management Plan and Safe Transport.** See full text in Section 3.15.4 (Transportation, Mitigation Measures).

Impact T-5: Create potentially hazardous conditions for residents, people walking, bicycling, or driving or for public transit operations.

SIGNIFICANT AND UNAVOIDABLE. The closure and rerouting of pedestrian and bicycle travel routes under the proposed Project would cause unsafe conditions if the alternative routes are required to be longer or are not suitable for walking or biking. For example, the residential areas along Balboa Drive and Sayre Drive may lose their direct walking or biking connections to the Montclair Railroad Trail and to Montclair Village (see Figures 3.15-3 and 3.15-4). As a result, even with implementation of mitigation measures, construction of any of the underground alternatives could create potentially hazardous conditions for residents, people walking or bicycling, or driving or for public transit operations; therefore, Impact T-5 would be significant and unavoidable, as defined in Section 3.15.3.3 (Transportation, Impacts and Mitigation Measures). The impact would be more severe for underground alternatives than for the proposed Project, because construction would be more intense, would last much longer and would occur in many more locations along roadways.

Therefore, Impact T-5 would be significant and unavoidable for all underground alternatives (Alternatives 2, 3, 4, and 5).

MM N-1b **Construction Notification.** See full text in Section 3.11.4 (Noise, Mitigation Measures).

MM T-1a **Traffic Management Plan and Safe Transport.** See full text in Section 3.15.4 (Transportation, Mitigation Measures).

MM WF-1c **School Session Construction Timing Restriction.** See full text in EIR Section 3.18.4 (Wildfire, Mitigation Measures).

Impact T-6: Interfere with walking or bicycling accessibility.

SIGNIFICANT AND UNAVOIDABLE. This impact is found to be significant and unavoidable for the overhead rebuild segment of proposed Project, because of the construction vehicles that would temporarily block roadways. In this area, where biking and walking on streets is common and there are no sidewalks. The impact would be more severe for underground alternatives, because construction would last much longer, would present more obstructions to walking and biking (due to trenching and vault installation), and would occur in many more locations.

Therefore, even with implementation of mitigation measures, Impact T-6 would be significant and unavoidable for all underground alternatives (Alternatives 2, 3, 4, and 5).

MM N-1b **Construction Notification.** See full text in Section 3.11.4 (Noise, Mitigation Measures).

MM T-1a **Traffic Management Plan and Safe Transport.** See full text in Section 3.15.4 (Transportation, Mitigation Measures).

MM WF-1c **School Session Construction Timing Restriction.** See full text in EIR Section 3.18.4 (Wildfire, Mitigation Measures).

Impact T-7: Substantially delay public transit.

SIGNIFICANT AND UNAVOIDABLE (ALTERNATIVES 2 AND 4). The underground alternatives have several direct overlaps with AC Transit bus Route 642 (Snake Road and Colton Boulevard). This bus runs on an approximately 3.6 mile loop from Montclair Village to Arrowhead Drive, and has afternoon stops also at Montera Middle School (on Ascot Drive). Approximately 1.5 miles of the route overlaps with Alternative 2 (Skyline-Colton-Snake Underground), and an additional 0.2 mile overlaps Alternative 4 (Skyline-Ascot Underground) in the area around Montera Middle School and Joaquin Miller Elementary School.

Potential bus stop closures or relocations on Snake Road, Shepherd Canyon Road, and Arrowhead Drive could affect up to 50 riders per day on AC Transit Line 642. During potential bus stop closures, these riders may need to board or alight at other existing or relocated bus stops.

Impacts would be temporary and would be reduced through implementation of APM TRA-1, which requires obtaining all necessary road permits, including encroachment permits, complying with applicable conditions of approval, providing a Traffic Control Plan to and applying for any permits required by the cities of Oakland and Piedmont, and consulting with AC Transit and other affected transit agencies to reduce potential interruption of transit services. However, because APM TRA-1 does not require a TMP specifying methods for minimizing construction effects on public transit services, or a minimum of 1-month advance coordination with local jurisdictions and transit agencies prior to construction, delays in public transit operations may not be avoided, resulting in significant impacts without mitigation. Therefore, as required by MM T-1a, PG&E would develop a TMP in accordance with the requirements of jurisdictions and local agencies in the Project area; and MM N-1b would require that at least 1-month advance notification be provided to the public and relevant agencies prior to construction.

The implementation of MMs T-1a and N-1b would reduce the magnitude of the impact. However, construction details are not known at this time to determine the locations, duration, or feasibility of specific bus stop closure or relocation or bus rerouting. As a result, construction of Alternatives 2 and 4 could interfere with transit operations and substantially delay public transit services. Therefore, impacts would be significant and unavoidable.

While the impact would remain significant, implementation of MM T-7a (Implement Alternative Transit Routes, below) and MM WF-1c (School Session Construction Timing Restriction; see Section 3.18.4, Wildfire), are recommended.

The resulting impact is significant and unavoidable for Alternative 2 (Skyline-Colton-Snake Underground Alternative) and Alternative 4 (Skyline-Ascot Underground Alternative). There would be no impact on transit associated with Alternative 3 (Shepherd Canyon Underground Alternative) and Alternative 5 (Estates Drive Underground Alternative) because no transit routes overlap with these alternatives.

MM N-1b **Construction Notification.** See full text in Section 3.11.4 (Noise, Mitigation Measures).

MM T-1a **Traffic Management Plan and Safe Transport.** See full text in Section 3.15.4 (Transportation, Mitigation Measures).

MM T-7a **Implement Alternative Transit Routes (for Alternatives 2, 4, and 5 only)**. If Alternatives 2, 4, or 5 is selected, PG&E shall coordinate with AC Transit to develop alternate routes, allowing continuous service on the closest streets. PG&E shall install signage for all bus stops that are relocated, and shall post notification at all bus stops of all route relocations for a 30-day period before relocations begin.

MM WF-1c **School Session Construction Timing Restriction (see Section 3.18.4, Wildfire)**

Utilities and Service Systems

Impact US-1: Require or result in relocated, new, or expanded water, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects.

LESS THAN SIGNIFICANT WITH MITIGATION. Construction within city streets would not create demand for new or expanded utility services or facilities related to gas, water, stormwater, electricity, or telecommunications. However, construction of the underground alternatives is likely to require relocation of some existing utilities. The effects of relocating underground utilities could be significant. However, as explained in detail in Section 3.17.3.3, PG&E would be required to coordinate with other utility providers to identify and remediate potential conflicts with existing underground facilities as defined in Section 4216 of the California Government Code. Even with compliance with the law, the impact would remain significant if potentially affected residents and existing utility providers are not provided with advance notification.

Implementation of Mitigation Measure N-1b would reduce the severity of impacts associated with collocation. With advanced notification, other utility owners would have sufficient time to design and construct new utilities with minimal environmental impacts, if relocation is permanent.

With extensive underground construction, there also exists the potential for collocation accidents, which could result in significant impacts. Even after PG&E implements required coordination through Underground Service Alert and coordination with other utilities, there exists the potential for PG&E's construction activity to cause accidental damage to existing underground utilities during trenching, vault installation, and duct bank installation. Severe damage to existing underground utilities could result in rupture of water, wastewater, or natural gas pipelines, or disconnection of telecommunications facilities. This would result in a significant impact.

MM US-1a (Underground Utilities Accident Response Plan) is recommended to require that PG&E develop a plan for immediate response to an underground utility accident. The plan would help ensure effective response to an accident by coordinating with other utility owners. The plan would provide PG&E with procedures to immediately respond to potential gas leaks and water or wastewater flooding. The plan would also define procedures to ensure notification to affected residents and businesses affected by a potential service outage.

With implementation of MM US-1a and MM N-1b, impacts associated with utilities and service systems would be less than significant.

MM N-1b **Construction Notification.** See full text in Section 3.11.4 (Noise, Mitigation Measures).

MM US-1a **Underground Utilities Accident Response Plan.** See full text in Section 3.17.4 (Utilities and Service Systems, Mitigation Measures).

Wildfire

Impact WF-1: Substantially impair an adopted emergency response plan or emergency evacuation plan.

SIGNIFICANT AND UNAVOIDABLE. The analysis of Impact WF-1 for the proposed Project concludes that the impact is significant and unavoidable for the overhead power line rebuild segment (east of the intersection of Estates Drive and Park Boulevard). As described in Section 3.18.3.3, while PG&E has proposed four APMs that would contribute to construction safety regarding wildfires for the rebuild segment, these APMs do not address all essential components of wildfire evacuation safety, and impacts would be significant. In order to incorporate necessary notification, planning, and timing restriction components, four mitigation measures are recommended:

- MM WF-1a (Prepare Construction Coordination Emergency Evacuation Plan)
- MM WF-1b (Limit Construction Requiring Full Road Closures)
- MM N-1b (Construction Notification)
- MM T-1a (Traffic Management Plan and Safe Transport)

However, as described in the wildfire discussion, even with implementation of these mitigation measures, the construction of the overhead rebuild segment of the Project has the potential to substantially impair an adopted emergency response plan or emergency evacuation plan, and impacts of the proposed Project would remain significant and unavoidable.

The four underground alternatives are located in the same area as the overhead power line rebuild segment. As described above, the construction of the duct banks and installation of vaults would require temporary road closures at multiple times as the construction process moves along each route. Temporary closures would be required for three separate activities: duct bank trenching and installation, vault installation, and repaving. Alternate routes are available and traffic will be diverted to those routes during construction. This diversion would not be considered to be a significant impact on any typical day given the planning that would be required in the mitigation measures listed above. However, the construction of the underground alternatives east of Estates Drive would occur within a very high fire risk area and construction would impair access to evacuation routes in an emergency like a wildfire.

Figure 3.18-7 illustrates the evacuation routes designated by the cities of Oakland and Piedmont. Figure 4.5-3 (Alternate Evacuation Routes in the Oakland Hills) illustrates the potential alternate evacuation routes that could be used during construction of underground alternatives.

While construction equipment could be de-mobilized and plates put across open trenches within an hour, this amount of delay in evacuation is critical, and would require use of less efficient evacuation routes. As a result, the construction of all four underground alternatives would result in significant and unavoidable impacts related to Impact WF-1.

MM N-1b **Construction Notification.** See full text in Section 3.11 (Noise).

MM T-1a **Traffic Management Plan and Safe Transport.** See full text in Section 3.15.4 (Transportation, Mitigation Measures).

MM WF-1a **Prepare Construction Coordination Emergency Evacuation Plan.** See full text in Section 3.18.4 (Wildfire, Mitigation Measures).

MM WF-1b **Limit Construction Requiring Full Road Closures.** See full text in Section 3.18.4 (Wildfire, Mitigation Measures).

Impact WF-2: Exacerbate wildfire risk and thereby expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildfire or the uncontrolled spread of a wildfire.

CONSTRUCTION: LESS THAN SIGNIFICANT. Similar to the proposed Project, implementation of APMs WFR-1 (Construction Fire Prevention Plan) and WFR-2 (Fire Prevention Practices) would minimize the potential for construction activities to start a fire. The APM requires that construction workers are provided with the tools, training, and preparation to address a fire in the event one does start. Impacts related to exposing people to wildfire risks and wildfire pollutants would be less than significant.

OPERATION: BENEFICIAL. The proposed Project is a maintenance project needed to replace older existing 115 kV power line equipment that has reached the end of its useful life. Like the proposed Project, completion of construction of the underground alternatives would result in the replacement of the aging structures currently in place with buried conductors that pose no wildfire risk. The underground alternatives do require overhead facilities at the transition stations and structures, and the overhead crossings of SR-13. The new overhead structures would be more reliable as they would be in new condition, would be made of steel, and be on new foundations. Overall, the operation of alternatives, even with the new overhead components, would reduce the risk of wildfire compared to existing conditions. Impacts would be beneficial.

4.5.4. Impacts of Alternative 2: Skyline-Colton-Snake Underground Alternative

See Section 4.3.3 and Figure 4.3-5 (Alternative 2: Skyline-Colton-Snake Underground Alternative) for a detailed description and map of this alternative. This is the northernmost of the three underground alternatives that could connect the eastern overhead Project segment with a transition station east of the Hayward Fault. As described in Table 4.5-1, it would require 2.3 miles of underground construction in the Oakland Hills and would support two of the four circuits required for the proposed Project.

This alternative provides for two circuits to be installed underground. In order to create a fully underground route for all four circuits between SR-13 and Manzanita Drive, either Alternative 3 (Shepherd Canyon Underground Alternative) or Alternative 4 (Skyline-Ascot Underground Alternative) would also be required.

4.5.4.1. Construction Impacts

See the discussion in Section 4.5.3.5 (Impacts of Underground Alternatives) and Table 4.5-1 (Impacts Common to All Alternatives, Section 4.5.1). Table 4.5-1 estimates that between 12 and 23 vaults would be required along the Skyline-Colton-Snake Underground Alternative. Vault installation requires a trench of up to 42 feet long by 18 feet wide by 13 feet deep, and each vault would require approximately 2 weeks to install. The narrowest areas of roadway along this alternative are in the lower part of Snake Road and portions of Skyline Boulevard, where road width is sometimes less than 25 feet. Colton Boulevard is generally about 30 feet wide.

Impacts of the construction of Alternative 2 are summarized as follows:

- **Air Quality** (Impact AQ-2): *LESS THAN SIGNIFICANT WITH MITIGATION.* Implementation of MM AQ-2a (Construction Activity Management Plan) would reduce Impact AQ-2 to less than significant.
- **Noise** (Impacts N-1 and N-2): *LESS THAN SIGNIFICANT WITH MITIGATION.* Implementation of MMs MM N-1a (General Construction Noise Management), MM N-1b (Construction Notification), and MM N-2a (Vibration Assessment and Control) would reduce all noise impacts to less than significant.
- **Utilities and Service Systems** (Impact US-1): *LESS THAN SIGNIFICANT WITH MITIGATION.* Implementation of MM US-1a: (Underground Utilities Accident Response Plan) and MM N-1b (Construction Notification) would reduce Impact US-1 to less than significant.

- **Wildfire**: *SIGNIFICANT AND UNAVOIDABLE* for Impact WF-1 due to creation of conflict with emergency evacuation plans, even with implementation of MM T-1a (Traffic Management Plan and Safe Transport), MM N-1b (Construction Notification), MM WF-1a (Prepare Construction Coordination Emergency Evacuation Plan), and MM WF-1b (Limit Full Road Closures). There would be a beneficial impact for Impact WF-2 due to replacement of aging infrastructure.
- **Transportation**. As described in Section 4.5.3.5 (under Transportation), construction impacts along these narrow roadways would be extremely disruptive to residents that drive, walk, or bicycle along them regularly. Roads would be closed in segments for many months, and disruption of access at each residence would require constant notification from and communication with PG&E's construction crews. With implementation of mitigation measures described in Section 4.5.3, impact conclusions are as follows:
  - Impact T-1: *SIGNIFICANT AND UNAVOIDABLE* due to construction activity and vehicles blocking or slowing evacuation routes.
  - Impact T-4: *SIGNIFICANT AND UNAVOIDABLE* due to construction emergency access being constrained by construction activity and equipment.
  - Impacts T-5 and T-6: *SIGNIFICANT AND UNAVOIDABLE,* because the construction across the full width of roadways would make walking and bicycling hazardous and less accessible.
  - Impact T-7: *SIGNIFICANT AND UNAVOIDABLE,* because the one bus route in Montclair area (AC Transit Line 642) uses portions of Snake Road, Colton Boulevard, and Heartwood Drive, which are roadways that would also be used for installation of Alternative 2. This transit route would be unavailable during construction within these roads because the remaining available road width would not be adequate for a bus. Mitigation Measures T-7a (Implement Alternative Transit Routes) is recommended to reduce disruption to transit users, but Impact T-7 would remain significant.

4.5.4.2. Operations and Maintenance Impacts

Aesthetics

LESS THAN SIGNIFICANT. The Skyline-Colton-Snake Underground Alternative would have overhead components only at the Skyline Transition Pole and at the Fire Station Transition Station (see Figure 4.3-5). The aesthetics impact of these transition components is described in Section 4.5.3.2 (Overhead-Underground Transition Stations and Poles). In that analysis, Impact AES-3 (potential for substantial degradation of visual character of quality of public views), is found to be less than significant for these two transition structures.

Geology

SIGNIFICANT AND UNAVOIDABLE. Impact GEO-3 would be significant and unavoidable due to widespread unstable slopes in the Oakland Hills and uncertainty about engineering requirements to ensure stable duct banks. The Skyline-Colton-Snake Underground Alternative would require about one-half mile of construction within Skyline Boulevard, north of the Skyline Transition Pole. PG&E did not consider an underground route along Skyline Boulevard due to landslide potential being more concerning than along Manzanita Drive (which parallels Skyline in this half-mile segment; PEA Section 4.2.1.2). During project operation, slope movement in the Oakland Hills could damage underground facilities. While Skyline Boulevard north of the Skyline Transition Pole does show evidence of slope movement both above (northeast of) and below (southwest of) the roadway, the roadway itself is in good condition, showing little evidence of slope movement. There are 15-20 homes on the downslope side of the road. Geotechnical studies would be required, but with the trench installed on the upslope (northeast) side of the road, the road is considered to be safe for an underground system for the purposes of alternatives feasibility consideration.

However, there is the potential that the geotechnical investigation may identify unstable slopes that were not visible at the road surface. For the most severe of these conditions, protective design measures could be required that would create offsite impacts to private property or adjacent residences, or extend the construction timeframe by many months. Due to the uncertainty about the extent of the slope stability impacts and the well-known instability of the Oakland Hills, this impact is considered to be significant and unavoidable. ~~Based on this assessment, the operation of this alternative would have a less than significant impact.~~

4.5.4.3. Impact Conclusion for Alternative 2: Skyline-Colton-Snake Underground Alternative

As described in Section 4.5.3.5, the construction impacts of all underground alternatives within the Oakland Hills would be extremely disruptive and potentially dangerous to residents for a long period of time. Residents would have to use alternate routes, drive over steel plates, plan schedules around driveway blockages, and navigate around construction vehicles. Walking or bicycling along the streets during underground construction would be challenging and hazardous.

Significant and unavoidable impacts would result from:

Construction

- Wildfire Impact WF-1
- Transportation Impacts T-1, T-4, T-5, T-6, and T-7

Operations and Maintenance

- Geology/Soils Impact GEO-3.

Similar to the proposed Project and all underground alternatives, Alternative 2 would have a beneficial impact for wildfire Impact WF-3, reducing wildfire risk during operation.

4.5.5. Impacts of Alternative 3: Shepherd Canyon Underground Alternative

See Section 4.3.4 and Figure 4.3-6 (Alternative 3: Shepherd Canyon Underground Alternative) for a detailed description and map of this alternative. This alternative would be overhead from the Moraga Substation. From Manzanita Drive, the two circuits would remain overhead using Structures RN10, RN11, and RN12. From RN12, the two circuits would transition to underground at Saroni Drive just west of Gunn Drive. From this newly constructed transition pole, Alternative 3 would turn south on Saroni Drive, then west on Shepherd Canyon Road to the Fire Station Transition Station.

This alternative would support two of the four required underground circuits. Therefore, either Alternative 2 (Skyline-Colton-Snake Underground Alternative) or Alternative 4 (Skyline-Ascot Underground Alternative) would also have to be constructed for the complete 4-circuit project.

4.5.5.1. Construction Impacts

See the discussion in Section 4.5.3.5 (Impacts of Underground Alternatives) and Table 4.5-1 (Impacts Common to All Alternatives, Section 4.5.1). Table 4.5-1 estimates that between 5 and 10 vaults would be required along the Shepherd Canyon Underground Alternative. Vault installation requires a trench of up to 42 feet long by 18 feet wide by 13 feet deep, and each vault would require approximately 2 weeks to install. Shepherd Canyon Road is wider than the roads used by the other underground alternatives, and for many construction activities one lane would likely remain open for traffic.

Impacts of the construction of Alternative 3 are summarized as follows:

- **Air Quality** (Impact AQ-2): *LESS THAN SIGNIFICANT WITH MITIGATION.* Implementation of MM AQ-2a (Construction Activity Management Plan) would reduce Impact AQ-2 to less than significant.

- **Noise** (Impacts N-1 and N-2): *LESS THAN SIGNIFICANT WITH MITIGATION.* Implementation of MMs MM N-1a (General Construction Noise Management), MM N-1b (Construction Notification), and MM N-2a (Vibration Assessment and Control) would reduce all noise impacts to less than significant.
- **Utilities and Service Systems** (Impact US-1): *LESS THAN SIGNIFICANT WITH MITIGATION.* Implementation of MM US-1a: (Underground Utilities Accident Response Plan) and MM N-1b (Construction Notification) would reduce Impact US-1 to less than significant.
- **Wildfire**: *SIGNIFICANT AND UNAVOIDABLE* for Impact WF-1 due to creation of conflict with emergency evacuation plans, even with implementation of MM T-1a (Traffic Management Plan and Safe Transport), MM N-1b (Construction Notification), MM WF-1a (Prepare Construction Coordination Emergency Evacuation Plan), and MM WF-1b (Limit Full Road Closures). There would be a beneficial impact for Impact WF-2 due to replacement of aging infrastructure.
- **Transportation**. As described in Section 4.5.3.5 (under Transportation), construction impacts along these narrow roadways would be extremely disruptive to residents that drive, walk, or bicycle along them regularly. Roads would be closed in segments for many months, and disruption of access at each residence would require constant notification from and communication with PG&E's construction crews. In addition, construction of the Saroni Drive transition pole would likely require short-term road closures along Saroni Drive near Gunn Drive. There would likely be road closures and detours required along Shepherd Canyon Drive between the Fire Station and Saroni Drive as the underground line is installed in that segment. With implementation of mitigation measures described in Section 4.5.3, impact conclusions are as follows:
  - Impact T-1: *SIGNIFICANT AND UNAVOIDABLE* due to construction activity and vehicles blocking or slowing evacuation routes. As illustrated in Figure 3.18-7 (Designated Evacuation Routes and Proposed Project Components), Shepherd Canyon Road is a Primary Local Evacuation Route, so construction activity on this street would create a significant degradation of emergency evacuation capacity.
  - Impact T-4: *SIGNIFICANT AND UNAVOIDABLE* due to construction emergency access being constrained by construction activity and equipment.
  - Impacts T-5 and T-6: *SIGNIFICANT AND UNAVOIDABLE,* because the construction would not allow space for safe walking and bicycling along Shepherd Canyon Road. There is a designated Bike Path along Shepherd Canyon Road, between Mountain Boulevard and Saroni Drive. This path would be unavailable during construction.
  - Impact T-7: *LESS THAN SIGNIFICANT,* because there are no transit routes along Alternative 3.

4.5.5.2. Operation and Maintenance Impacts

Aesthetics

LESS THAN SIGNIFICANT. As described in Section 4.5.3.5, the transition pole at Saroni Drive would create a less than significant aesthetics pact, given the context of the location and visual setting of this structure.

Geology

SIGNIFICANT AND UNAVOIDABLE. Impact GEO-3 would be significant and unavoidable due to widespread unstable slopes in the Oakland Hills and uncertainty about engineering requirements to ensure stable duct banks. PG&E (in PEA Appendix E4) presents a landslide study prepared by InfraTerra, Inc. The report on Figure 7 illustrates "Landslide Area 5," including Shepherd Canyon Road. One large active landslide is identified in the report, crossing Shepherd Canyon Road at a point about 0.3 miles north of Fire Station 24. The landslide area appears to cross about 300 linear feet of Shepherd Canyon Road, moving from west to east perpendicular to the road.

PG&E (in PEA Table 4.2-1) states that this landslide raises "Extensive engineering and constructability issues that may make this alternative not economically or technically feasible. Would require extensive geotechnical stabilization of roadway and slopes and may require demolition of homes and restrictions on use of adjacent properties." In PEA Section 4.2.3.3, PG&E states about its Alternative C (Shepherd Canyon): "the prevalence of landslides in the area presents an unacceptable risk to reliability without engineered protection, which likely would be retaining walls based on road width constraints."

The PEA further states that based on predictive landslide models prepared by InfraTerra, the Alternative C underground segment in Shepherd Canyon Road likely would be subject to deformation much greater than 2 inches (which is PG&E's maximum allowable standard for deformation). In order to construct this alternative, PG&E (PEA 4.2.3.3) states that it would require "Retaining walls or other civil infrastructure" along the north side of Shepherd Canyon Road, which "could result in removal of residences. Exploratory geotechnical data would be needed from each landslide shown on Figure 4.2-4 before detailed design could be completed. Extensive soil boring sampling would need to be done."

Geologists from the CPUC consultant team evaluated the InfraTerra report and the statements in the PEA. There is no visible damage to the roadway in the area identified by InfraTerra. The slopes adjacent to Shepherd Canyon are steep, so shallow failures are considered more likely to occur than deep failures. However, these shallow failures may not affect the roadway or utilities buried under the road, especially with a robust concrete duct bank. The CPUC team concluded that this alternative would be feasible and likely constructible without engineering requirements that would affect private property, because the predicted landslide is located on both sides of Shepherd Canyon. The canyon's shape results in the road being effectively buttressed against movement on the opposite side, so it is less likely that a duct bank buried in Shepherd Canyon Road would be damaged.

There remains uncertainty about the potential for unstable slopes to affect the conductors within the duct bank because no specific geotechnical studies have been completed. The geotechnical investigations that PG&E would perform prior to construction would define engineering requirements. Due to the extent of unstable slopes in the Oakland Hills, the uncertainty about the future study results, and the extent of potential engineering requirements, the impact is considered to be significant and unavoidable.

4.5.5.3. Impact Conclusion for Alternative 3: Shepherd Canyon Underground Alternative

As described in Section 4.5.3.5, the construction impacts of all underground alternatives within the Oakland Hills would be extremely disruptive and potentially dangerous to residents for a long period of time. Residents would have to use alternate routes, drive over steel plates, plan schedules around drive-way blockages, and navigate around construction vehicles. Walking or bicycling along the streets during underground construction would be challenging and hazardous.

Significant and unavoidable impacts would result from:

Construction

- Wildfire Impact WF-1
- Transportation Impacts T-1, T-4, T-5, and T-6

Operations and Maintenance

- Geology Impact GEO-3.

Similar to the proposed Project and all underground alternatives, Alternative 3 would have a beneficial impact for wildfire Impact WF-3, reducing wildfire risk during operation.

4.5.6. Impacts of Alternative 4: Skyline-Ascot Underground Alternative

See Section 4.3.5 and Figures 4.3-7A and 4.3-7B for a detailed description and map of this alternative. This alternative would support 2 underground circuits. Therefore, either Alternative 2 (Skyline-Colton-Snake Underground Alternative) or Alternative 3 (Shepherd Canyon Underground Alternative) would also be required for the complete 4-circuit project.

As described in Section 4.3.5.1 and 4.3.5.2, this alternative has two options for its end point east of SR-13 and the Hayward Fault. The options are required because Scout Road, the originally-considered underground route, was found to be extremely susceptible to slope failure and landsliding. Therefore, it is not considered to be a safe location for an underground duct bank. Two options were developed; these options diverge at the intersection of Ascot Road and Scout Road. They are as follows:

- **Option 1** follows Scout Road to the location of the proposed Project Structures RN20/RS20. This option would be underground for about 150 feet on Scout Road, then overhead, with 7 new double-circuit tubular steel poles installed along Scout Road. There would be a transition pole installed just northwest of Ascot Road on Scout Road.
- **Option 2** would remain underground on Ascot Road past Scout Road, to a transition pole north of the intersection of La Cuesta Road and Scout Road. From there, an overhead double-circuit line would be installed across SR-13 to Monterey Road, and then north to proposed Project Structures RS22/RN22.

4.5.6.1. Construction Impacts

See the discussion in Section 4.5.3.5 (Impacts of Underground Alternatives) and Table 4.5-1 (Impacts Common to All Alternatives, Section 4.5.1). Table 4.5-1 estimates that between 15 and 29 vaults would be required along the Skyline-Ascot Underground Alternative. Vault installation requires a trench of up to 42 feet long by 18 feet wide by 13 feet deep, and each vault would require approximately 2 weeks to install. Several of the road segments along Skyline and Ascot Drive are very narrow, and would be fully blocked during vault construction.

Impacts of the construction of Alternative 4 are summarized as follows:

- **Air Quality** (Impact AQ-2): *LESS THAN SIGNIFICANT WITH MITIGATION.* Implementation of MM AQ-2a (Construction Activity Management Plan) would reduce Impact AQ-2 to less than significant.
- **Noise** (Impacts N-1 and N-2): *LESS THAN SIGNIFICANT WITH MITIGATION.* Implementation of MMs MM N-1a (General Construction Noise Management), MM N-1b (Construction Notification), and MM N-2a (Vibration Assessment and Control) would reduce all noise impacts to less than significant.
- **Utilities and Service Systems** (Impact US-1): *LESS THAN SIGNIFICANT WITH MITIGATION.* Implementation of MM US-1a: (Underground Utilities Accident Response Plan) and MM N-1b (Construction Notification) would reduce Impact US-1 to less than significant.
- **Wildfire**: *SIGNIFICANT AND UNAVOIDABLE* for Impact WF-1 due to creation of conflict with emergency evacuation plans, even with implementation of MM T-1a (Traffic Management Plan and Safe Transport), MM N-1b (Construction Notification), MM WF-1a (Prepare Construction Coordination Emergency Evacuation Plan), and MM WF-1b (Limit Full Road Closures). There would be a beneficial impact for Impact WF-2 due to replacement of aging infrastructure.
- **Recreation.** *LESS THAN SIGNIFICANT WITH MITIGATION.* The Redwood Regional Park Skyline Gates Staging Area~~,~~[50,51] ~~also called the Sibley Volcanic Regional Preserve Staging Area,~~ is a large parking lot adjacent to Skyline Boulevard at ~~about~~ 8490 Skyline Boulevard in Oakland. This popular staging area provides access to a number of well-used trails in the East Bay Regional Park~~s~~ District (EBRPD) system via the

[50] https://www.ebparks.org/trails/east-bay-skyline/trail-access-points
[51] https://www.ebparks.org/sites/default/files/SkylineNationalTrail20180523.pdf

East Bay Skyline National Recreation Trail (Wildcat to Lake Chabot). The access point is called the Redwood Skyline Gate. The following mitigation measures would be required and would ensure that impacts are less than significant:

- MM N-1b (Construction Notification)
- MMs REC-3a (Coordinate with Park and Open Space management to provide signage, barriers, and monitors) and REC-5a (Coordinate with recreation facility owners or managers).

Skyline Boulevard is approximately 25 feet wide in the vicinity of this staging area, and vehicular access is available only from northbound or southbound Skyline Boulevard. With appropriate notification as required in the mitigation measures defined above, traffic controls, and signage, short-term closures of access to this staging area would be less than significant.

- **Transportation**. As described in Section 4.5.3.5 (under Transportation), construction impacts along these narrow roadways would be extremely disruptive to residents that drive, walk, or bicycle along them regularly. Roads would be closed in segments for many months, and disruption of access at each residence would require constant notification from and communication with PG&E's construction crews. In addition, construction of the Manzanita Transition Station would likely require short-term road closures along Manzanita Drive, just north of the parking lot for The Hills Swim and Tennis Club. There would be road closures and detours required along Manzanita Drive in the vicinity of the Swim and Tennis Club, along Skyline Boulevard, and especially along Ascot Drive in the segment just east of Scout Road, as the underground line is installed in that narrow and winding segment.

  The underground construction along Skyline Boulevard has the potential to isolate up to about 30 residences along Pine Hills Drive, Pine Hills Lane, and Pine Hills Court (near the Skyline Gate Staging Area). During construction in Skyline Boulevard there may be times during which residences along these roads would have access to their properties only from the opposite direction on Skyline Boulevard due to required construction. Vault construction requires 2 weeks for each vault, and duct bank trenching and conduit installation could move as slowly as 40 feet per day. During construction periods when no vehicles could pass, the residents beyond the construction zones would have no access to their homes and emergency service vehicles could not pass. Implementation of APM TRA-1 (safe transport measures) would be implemented if construction progress required it.

  Impact conclusions are as follows:

  - Impact T-1: *SIGNIFICANT AND UNAVOIDABLE* due to construction activity and vehicles blocking or slowing evacuation routes. As illustrated in Figure 3.18-7 (Designated Evacuation Routes and Proposed Project Components), Skyline Boulevard is defined by the City of Oakland as a Primary Local Evacuation Route and Ascot Drive is a Secondary Local Evacuation Route, so construction activity on this street would create a significant degradation of emergency evacuation capacity.
  - Impact T-4: *SIGNIFICANT AND UNAVOIDABLE* due to construction emergency access being constrained by construction activity and equipment.
  - Impacts T-5 and T-6: *SIGNIFICANT AND UNAVOIDABLE,* because the construction would not allow space for safe walking and bicycling along all streets affected by construction.
  - Impact T-7: *LESS THAN SIGNIFICANT WITH MITIGATION.* Construction could affect AC Transit Route 642, which serves Montera Middle School and Joaquin Miller Elementary School. Because Alternative 4 would require construction in either Scout Road or Ascot Drive, adjacent to the schools, Mitigation Measures N-1b (Construction Notification), MM T-1a (Traffic Management Plan), and MM T-7a (Implement Alternative Transit Routes) would be required to ensure appropriate coordination and planning to ensure that transit delays would not be substantial and no safety concerns would arise around these schools due to effective coordination.

4.5.6.2. Operations and Maintenance Impacts

O&M covers the life of the Project after its initial construction. Impacts during this period include the continuing visual presence of the facility (aesthetics impacts) as well as the periodic need for ongoing maintenance.

Aesthetics

Manzanita Transition Station

SIGNIFICANT AND UNAVOIDABLE. As described in Section 4.5.3.5, under Aesthetics, the half-acre Manzanita Transition Station would create visual blockage of the expansive views to the east that are now available from this location on Manzanita Drive. This would result in a significant and unavoidable impact for Impact AES-3 (In non-urban areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings).

Skyline-Ascot Option 1 (Overhead 115 kV on Scout Road)

LESS THAN SIGNIFICANT. This route option would result in the addition of an 80- to 95-foot-tall transition pole on Scout Road approximately 150 feet northwest of the intersection with Ascot Drive, as well as six overhead 115 kV double-circuit TSPs with distribution underbuild along Scout Road. The transition pole is analyzed in Section 4.5.3.2 (Aesthetics) and its aesthetic impacts are determined to be less than significant.

Each of the six TSPs would replace an existing distribution pole, but the intermediate distribution poles would remain in place. The existing distribution line would be underbuilt on the new TSPs and connect to the shorter intermediate wooden poles. See Section 4.5.3.5 (Aesthetics) for discussion of the impacts related to the transition pole on Scout Road; the impact of that transition pole is determined to be less than significant.

Given the existing landscape's Moderate visual quality, Moderate to High viewer exposure, and High viewer concern, the overall visual sensitivity of the existing landscape would be Moderate to High. Because of the dense vegetation along Scout Road and within the adjacent residential properties, views of the TSPs would be limited to a very few residences in the immediate vicinity of the poles and to local residents driving on Scout Road. Also, the structures would be seen within the context of the remaining intermediate wood poles that would not be replaced. The six TSPs would also introduce industrial character to the wooded landscape along Scout Road. The overall project dominance would be Co-dominant, and the overall visual contrast associated with the incremental changes would be Moderate to High. View blockage/impairment of the background vegetation and sky would be Moderate.

Collectively, these incremental visual changes within the context of the existing utility facilities would not substantially alter the existing landscape character visible from Scout Road. The area has equally weighted Co-dominant project dominance, Moderate to High visual contrast, and Moderate view blockage/impairment, resulting in a Moderate level of overall visual change. In the context of the existing landscape's Moderate to High visual sensitivity, the installation of the six TSPs would result in an Aesthetics impact that would be less than significant.

Skyline-Ascot Option 2 (SR-13 Crossing)

LESS THAN SIGNIFICANT. On the east side of the SR-13 (Warren Freeway), Option 2 would result in the addition of an 80- to 95-foot-tall transition pole along Ascot Drive at the end of La Cuesta Avenue. The aesthetics impacts of this transition pole are addressed in Section 4.5.3.2 (under Aesthetics).

Option 2 includes 1,400 feet of overhead double-circuit line, starting with a short span of approximately 200 feet to a TSP near the intersection of Ascot Drive and Mountain Boulevard. From here, Option 2 would span to the west side of SR-13 to a second TSP on Monterey Boulevard. At this point, the Skyline-Ascot Underground Alternative Option 2 could connect with the proposed Project at Structure RS-22.

Option 2 could also connect with the Estates Drive Underground Alternative with an additional 1,200 feet to connect with the Somerset Transition Pole. The visibility of these new structures would be somewhat limited by vegetative screening along the entire route.

The existing landscape's visual quality is rated Moderate and is influenced by the existence of numerous wood-pole utility lines and transmission lines at various points along the route as well as the presence of the freeway. Viewer exposure is also rated Moderate, and viewer concern is rated Moderate to High. As a result, the overall visual sensitivity of the existing landscape would be Moderate. Because of the dense vegetation along most of the route, views of the TSPs would be somewhat limited to very few residences in the immediate vicinity of the poles and to local residents driving on the adjacent roads. On the west side of the freeway, the structures would be seen within the context of the existing wood-pole utility lines and transmission lines.

The overall project dominance of the new TSPs would be Co-dominant, and the overall visual contrast associated with the new structures would be Moderate to High. View blockage/impairment of the background vegetation and sky would be Moderate.

Collectively, these visual changes within the context of the existing utility facilities (west side of freeway) and limited visibility from the primary roadways adjacent to the alternative (both sides of the freeway) would not substantially alter the overall existing landscape character. The equally weighted Co-dominant project dominance, Moderate to High visual contrast, and Moderate view blockage/impairment results in a Moderate level of overall visual change. In the context of the existing landscape's Moderate to High visual sensitivity, the new overhead line would result in an Aesthetics impact that would be less than significant.

Geology

Option 1: Overhead Along Scout Road. *SIGNIFICANT AND UNAVOIDABLE.* This alternative was initially defined as having a double-circuit underground segment along Scout Road. However, this road was observed as having unstable slopes, both upslope and downslope of the roadway. As a result, the alternative was revised to include only overhead structures along Scout Road, northwest of the Scout Transition Pole.

Scout Road is very narrow (20-25 feet) and the slopes on either side of the road are very steep. Tubular steel poles supporting double-circuit 115 kV lines and distribution underbuild may require additional foundation depth to ensure safe operation given the unstable slopes, but they appear to be feasible given the existence of existing distribution lines and the available foundation construction options for tubular steel poles. However, due to the lack of geotechnical data defining slope stability concerns for these poles, the impact is considered to be significant and unavoidable.

Option 2: Overhead Across SR-13. *SIGNIFICANT AND UNAVOIDABLE.* Option 2 is within an area mapped by the City of Oakland as having a "Moderate Risk" for landslide potential. Due to the lack of geotechnical data defining slope stability, the impact is considered to be significant and unavoidable.

4.5.6.3. Impact Conclusion for Alternative 4: Skyline-Ascot Underground Alternative

As described in Section 4.5.3.5, the construction impacts of all underground alternatives within the Oakland Hills would be extremely disruptive and potentially dangerous to residents for a long period of time. Residents would have to use alternate routes, drive over steel plates, plan schedules around drive-way blockages, and navigate around construction vehicles. Walking or bicycling along the streets during underground construction would be challenging and hazardous, and emergency egress would be constrained while construction is ongoing.

Significant and unavoidable impacts would result from:

Construction

- Wildfire Impact WF-1
- Transportation Impacts T-1, T-4, T-5, and T-6

Operations and Maintenance

- Aesthetics Impact AES-3 (for the Manzanita Transition Station)
- Geology Impact GEO-3

Similar to the proposed Project and all underground alternatives, Alternative 4 would have a beneficial impact for wildfire Impact WF-3, reducing wildfire risk during operation.

4.5.7. Impacts of Alternative 5: Estates Drive Underground Alternative

Section 4.3.6 and Figure 4.3-8 present a detailed description and map of this alternative.

4.5.7.1. Construction Impacts

See the discussion in Section 4.5.3.5 (Construction Impacts Common to All Underground Alternatives) and Table 4.5-1 (Impacts Common to All Alternatives). Estates Drive is approximately 30 feet wide and would require installation of two double-circuit duct banks and associated vaults over about a 2,900-foot length. During construction on Estates Drive, if the road is closed for periods of time for vault installation or other activities, residents and emergency service providers would be able to access all homes using alternate routes. While these routes would take longer than using Estates Drive, access would be maintained.

Sims Road and Somerset Road are the narrowest roads considered for any underground alternatives, at approximately 25 feet wide. Somerset Road would require about 700 feet of construction and Sims Road would require about 600 feet. There are 10-12 multi-family residences beyond the Somerset Transition Pole, so their residents would be blocked from ingress or egress during construction within the narrow street. In addition, there are approximately 10 single-family homes on Somerset Road closer to Estates Drive that would be similarly blocked from ingress or egress during construction.

As described in Section 4.5.3.1 and in Section 2.3.6 (Underground Construction), the underground segment requires 5 to 10 vaults per mile, resulting in the need for at least one vault in each of these roadways. Therefore, both Somerset Road and Sims Road would require installation of one double-circuit duct bank, at least one double circuit vault, and one communications vault. Vault construction for the circuits requires excavation that is 18 feet wide, so it would fill nearly the entire roadway. The communications vault is smaller.

Impacts of the construction of Alternative 5 are summarized as follows:

- **Air Quality** (Impact AQ-2): *LESS THAN SIGNIFICANT WITH MITIGATION.* Implementation of MM AQ-2a (Construction Activity Management Plan) would reduce Impact AQ-2 to less than significant.
- **Noise** (Impacts N-1 and N-2): *LESS THAN SIGNIFICANT WITH MITIGATION.* Implementation of MMs MM N-1a (General Construction Noise Management), MM N-1b (Construction Notification), and MM N-2a (Vibration Assessment and Control) would reduce all noise impacts to less than significant.
- **Utilities and Service Systems** (Impact US-1): *LESS THAN SIGNIFICANT WITH MITIGATION.* Implementation of MM US-1a: (Underground Utilities Accident Response Plan) and MM N-1b (Construction Notification) would reduce Impact US-1 to less than significant.
- **Wildfire**: *SIGNIFICANT AND UNAVOIDABLE* for Impact WF-1 due to creation of conflict with emergency evacuation plans, even with implementation of MM T-1a (Traffic Management Plan and Safe Transport), MM N-1b (Construction Notification), MM WF-1a (Prepare Construction Coordination Emergency

Evacuation Plan), and MM WF-1b (Limit Full Road Closures). There would be a beneficial impact for Impact WF-2 due to replacement of aging infrastructure.

- **Transportation.** Unlike Estates Drive and the roads used in Alternatives 2, 3, and 4, the underground construction in Sims and Somerset Roads would occur within "dead-end" roadways. As a result, during construction in Sims and Somerset Roads, there would be times during which residents along these roads, and the residents beyond construction zones, would have no access to their homes due to required construction. Vault construction requires 2 weeks for each vault, and duct bank trenching and conduit installation could move as slowly as 40 feet per day. During construction periods when no vehicles could pass, the residents beyond the construction zones would have no access to their homes and emergency service vehicles could not pass. Impact conclusions are as follows:
  - Impact T-1: *SIGNIFICANT AND UNAVOIDABLE* due to construction activity and vehicles blocking or slowing evacuation routes. As illustrated in Figure 3.18-7 (Designated Evacuation Routes and Proposed Project Components), Estates Drive is defined by the City of Piedmont as an Evacuation Route, so construction activity on this street would create a significant degradation of emergency evacuation capacity.
  - Impact T-4: *SIGNIFICANT AND UNAVOIDABLE* due to construction emergency access being constrained by construction activity and equipment. There is no feasible mitigation available that would ensure emergency access to residences beyond construction zones on Sims and Somerset Roads, because construction would block all traffic.
  - Impacts T-5 and T-6: *SIGNIFICANT AND UNAVOIDABLE,* because the construction would not allow space for safe walking and bicycling along Sims and Somerset Roads. Estates Drive has a sidewalk, so walking would be safe there, but bicycling would be affected by construction.
  - Impact T-7: *SIGNIFICANT AND UNAVOIDABLE.* Construction could require rerouting of AC Transit Route 33, which has a stop at Estates Drive and Hampton Terrace. Implementation of MM T-7a (Implement Alternative Transit Routes) would be required to ensure appropriate signage and coordination with AC Transit. While Estates Drive is wide enough to allow traffic in one direction during underground duct bank construction, a bus may not be able to pass during vault installation, so the impact would remain significant.

4.5.7.2. Operation and Maintenance Impacts

Aesthetics

LESS THAN SIGNIFICANT. The Estates Drive Underground Alternative would have overhead components as illustrated in Figure 4.3-8. The overhead components would vary depending on whether the proposed Project or Alternatives 2, 3, or 4 are selected. The aesthetics impact of these overhead components is described in Section 4.5.3.2 (Overhead-Underground Transition Stations and Poles). In that analysis, Impact AES-3 (potential for substantial degradation of visual character of quality of public views), is found to be less than significant for all overhead components of Alternative 5.

Geology

SIGNIFICANT AND UNAVOIDABLE. No slope stability studies were provided by PG&E for this alternative. However, the California Department of Conservation EQ Zapp[52] identifies a landslide area along the west side of SR-13, much of which is a Caltrans parcel. This zone includes the ends of Sims and Somerset Roads and the south end of Trafalgar Place. In addition, there is an active landside visible immediately southeast of Estates Drive just south of Somerset Road, where the steep slope has clearly had recent movement into the parking lot below on Park Drive. The historic instability of this area would require geotechnical studies

[52] https://maps.conservation.ca.gov/cgs/informationwarehouse/eqzapp/

prior to installation of the Sims and Somerset Transition Poles and along Estates Drive south of Somerset Drive. These studies would identify appropriate design measures for protection of the duct bank and foundation design to for transition poles. However, given the proximity of apparently active landslides to this alternative, Impact GEO-3 is considered to be significant and unavoidable.

4.5.7.3. Impact Conclusion for Alternative 5: Estates Drive Underground Alternative

As described in Section 4.5.3.5, the construction impacts of all underground alternatives would be extremely disruptive and potentially dangerous to residents for a long period of time. Residents would have to use alternate routes, drive over steel plates, plan schedules around driveway blockages, and navigate around construction vehicles. Walking or bicycling along the streets during underground construction would be challenging and hazardous, and emergency egress would be constrained while construction is ongoing.

Significant and unavoidable impacts would result from:

Construction

- Wildfire Impact WF-1
- Transportation Impacts T-1, T-4, T-5, T-6, and T-7

Operations and Maintenance

- Geology Impact GEO-3

Similar to the proposed Project and all underground alternatives, Alternative 5 would have a beneficial impact for wildfire Impact WF-3, reducing wildfire risk during operation.

4.6. Impact Conclusions for All Underground Alternatives

The impacts of most concern for underground power line construction and operation are described in Section 4.5.3 and impacts specific to each alternative are described in Sections 4.5.4 (Alternative 2), Section 4.5.5 (Alternative 3), Section 4.5.6 (Alternatives 4), and Section 4.5.7 (Alternative 5). Table 4.6-1 provides a summary of all impacts for the underground alternatives, including consideration of the discussions applicable to all alternatives presented in Section 4.5.3. For impacts not addressed in the sections above, the analysis of the proposed Project provides the rationale for the impact significance conclusions presented in Table 4.6-1. Impact conclusions shown in ***bold/underline/italics*** are those that are explained above in Section 4.5.

Table 4.6-1. Impact Conclusions for All Underground Alternatives

Resource	Impacts Evaluated	Impact Significance of Underground Alternatives
Aesthetics	AES-1: Result in a substantial adverse effect on a scenic vista	Less than significant
	AES-2: Substantially damage scenic resources within a state scenic highway	No impact
	AES-3: In non-urban areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings	***Significant and unavoidable (Manzanita Transition Station: Alternative 4)*** Less than significant (all other transitions and crossings of SR-13)
	Impact AES-4: Conflict with applicable zoning and other regulations governing scenic quality	Less than significant

Resource	Impacts Evaluated	Impact Significance of Underground Alternatives
	Impact AES-5: Create a new source of substantial light or glare that would adversely affect daytime or nighttime views	Less than significant
Air Quality	Impact AQ-1: Conflict with or obstruct implementation of an applicable air quality plan	Less than significant
	Impact AQ-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard	***Less than significant with mitigation***
	Impact AQ-3: Expose sensitive receptors to substantial pollutant concentrations	Less than significant
	Impact AQ-4: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people	Less than significant
Biological Resources	Impact BIO-1: 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	Less than significant with mitigation (see Section 3.4.4)
	Impact BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service	Less than significant
	Impact BIO-3: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means	Less than significant with mitigation (see Section 3.4.4)
	Impact BIO-4: 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 (see Section 3.4.4)
	Impact BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance	Less than significant with mitigation (see Section 3.4.4)
	Impact BIO-6: 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
	Impact BIO-7: Create a substantial collision or electrocution risk for birds or bats	Less than significant
Cultural Resources	Impact CUL-1: Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5	Less than significant with mitigation (see Section 3.5.4)
	Impact CUL-2: Cause a substantial adverse change in the significance of unique archaeological resources or archaeological resources as defined in State CEQA Guidelines Section 15064.5	Less than significant
	Impact CUL-3: Disturb human remains, including those interred outside of formal cemeteries	Less than significant
Energy	Impact EN-1: Result in wasteful, inefficient, or unnecessary consumption of energy	Less than significant
	Impact EN-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency	Less than significant

Resource	Impacts Evaluated	Impact Significance of Underground Alternatives
Geology and Soils	Impact GEO-1: Directly or indirectly cause or exacerbate potential substantial adverse effects, including the risk of loss, injury, or death, due to rupture of a known earthquake fault, seismic ground shaking, or liquefaction	Less than significant
	Impact GEO-2: Result in substantial soil erosion or loss of topsoil	Less than significant
	Impact GEO-3: Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off- site landslide, lateral spreading, subsidence, liquefaction, or collapse	***Significant and unavoidable***
	Impact GEO-4: Be located on expansive soil, creating substantial direct or indirect risks to life and property	Less than significant
Greenhouse Gas	Impact GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment	Less than significant
	Impact GHG-2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing greenhouse gas emissions	Less than significant
Hazards and Public Safety	Impact HH-1: Create a significant risk to the public or the environment from the routine use, transport, storage, and disposal of hazardous materials	Less than significant with mitigation (see Section 3.9.4)
	Impact HH-2: Create a significant risk to human health and the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials	Less than significant
	Impact HH-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school	Less than significant with mitigation (see Section 3.9.4)
	Impact HH-4: Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5	Less than significant
	Impact HH-5: Create a significant hazard to air traffic from the installation of new power lines and structures	Less than significant
	Impact HH-6: Create a significant hazard to the public or environment through the transport of heavy materials using helicopters	Less than significant with mitigation (see Section 3.9.4)
	Impact HH-7: Expose workers or the public to excessive shock hazards	Less than significant
Hydrology and Water Quality	Impact HW-1: Violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality	Less than significant with mitigation (see Section 3.10.4)
	Impact HW-2: Substantially decrease groundwater supplies or interfere with groundwater recharge such that the Project may impede sustainable groundwater management of the basin	Less than significant
	Impact HW-3: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion, flooding, or excessive runoff	Less than significant
	Impact HW-4: Risk release of pollutants due to Project inundation in flood hazard, tsunami, or seiche zones	Less than significant

Resource	Impacts Evaluated	Impact Significance of Underground Alternatives
	Impact HW-5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan	Less than significant with mitigation (see Section 3.10.4)
Noise	Impact N-1: Expose persons to or generate a substantial temporary or permanent increase in noise levels in excess of established standards	***Less than significant with mitigation***
	Impact N-2: Expose persons to or generate excessive groundborne vibration	***Less than significant with mitigation***
Paleontological Resources	Impact PAL-1: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature	Less than significant
Public Services	Impact PS-1: Result in substantial adverse impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, or healthcare facilities	Less than significant with mitigation (see Section 3.13.4)
Recreation	Impact REC-1: Increase the use of existing parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated	Less than significant
	Impact REC-2: Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment	Less than significant
	Impact REC-3: Reduce or prevent access to a designated recreation facility or area	Less than significant
Transportation	Impact T-1: Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities	***Significant and unavoidable***
	Impact T-2: Conflict or be inconsistent with State CEQA Guidelines Section 15064.3(b) regarding vehicle miles traveled	Less than significant
	Impact T-3: Substantially increase hazards due to a geometric design feature or incompatible uses	Less than significant with mitigation (see Section 3.15.4)
	Impact T-4: Result in inadequate emergency access	***Significant and unavoidable***
	Impact T-5: Create potentially hazardous conditions for residents, people walking, bicycling, or driving or for public transit operations	***Significant and unavoidable***
	Impact T-6: Interfere with walking or bicycling accessibility	***Significant and unavoidable***
	Impact T-7: Substantially delay public transit	***Significant and unavoidable for Alternatives 2 and 5***
Tribal Cultural Resources	Impact TCR-1: Cause a substantial adverse change in the significance of a Tribal Cultural Resource 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)	No impact
	Impact TCR-2: Cause a substantial adverse change in the significance of a Tribal Cultural 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 § 5024.1	Less than significant with mitigation (see Section 3.16.4)

Resource	Impacts Evaluated	Impact Significance of Underground Alternatives
Utilities and Service Systems	Impact US-1: Require or result in relocated, new, or expanded water, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects	Less than significant with mitigation (see Section 3.16.4)
	Impact US-2: Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years	Less than significant
	Impact US-3: 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 and comply with federal, state, and local management and reductions statues and regulations related to solid waste	Less than significant
	Impact US-4: Increase the rate of corrosion in nearby pipelines	Less than significant
Wildfire	Impact WF-1: Substantially impair an adopted emergency response plan or emergency evacuation plan	***Significant and unavoidable***
	Impact WF-2: Exacerbate wildfire risk and thereby expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildfire or the uncontrolled spread of a wildfire	***Less than significant for Construction*** ***Beneficial for Operation***

A comparison of the number of overhead structures that would remain following construction of the proposed Project and all underground alternatives is shown in Table 4.6-2.

Table 4.6-2. Comparison of Overhead Structures for Proposed Project and All Underground Alternatives

Proposed Project or Underground Alternatives	Moraga Substation to Manzanita Dr. (including poles east of/adjacent to Manzanita Dr.)	West of Manzanita Dr to Estates Dr Transition	TOTAL
Proposed Project	20 poles (10 pairs)	32 (16 pairs), plus 4 transition structures = 36 overhead structures	56
Explanation of Count:	Structures RS1/RN1 to RS10/RN10*	Structures RS11/RN11 to RS26/RN26, plus 4 Transition Structures	
All Underground Alternatives Assuming Alternatives 2, 3, 5: Shepherd Canyon, Skyline-Colton-Snake, and Estates Drive Underground	20 poles (10 pairs)	12 poles	32
Explanation of Count:	Proposed Project East of Manzanita Dr. is the same as the Proposed Project: Structures RS1/RN1 to RS10/RN10	2 transition poles (Skyline, Saroni); Transition Station (Fire Station) = 2 poles; Structures RS20/RN20, RS21/RN21 = 4 poles; 2 New overhead poles near SR-13, Sims + Somerset Transition Poles (= 2 poles)	

Notes: The above count shows the number of overhead poles that would exist after construction. There are a few poles east of Manzanita and 1 pair near Shepherd Canyon that have already been replaced and would not be replaced again with Project construction.

The proposed Project's transition structures at Park Boulevard/Estates Drive are counted as 4 poles.

4.6.1.1. Mitigation Measures Applicable to Alternatives 2 through 5

To reduce or avoid significant impacts, the alternatives considered in this section would also require implementation of the mitigation measures developed for the proposed Project. The mitigation measures listed below would also be applicable to all alternatives (except for the No Action Alternative). With implementation of these measures, the impacts of all alternatives would as stated in Table 4.6-1 above.

- MM AES-3a: Screen construction activities from view.
- MM AQ-2a: Construction Activity Management Plan.
- MM BIO-1a: Special-Status Plants Avoidance.
- MM BIO-1b: Crotch's Bumble Bee Avoidance.
- MM BIO-1c: Monarch Avoidance.
- MM BIO-1d: Northwestern Pond Turtle Avoidance.
- ~~MM BIO-1e: Eagle Avoidance.~~
- MM BIO-3a: Ephemeral Channel Protection and Restoration.
- MM BIO-5a: Tree Trimming and Removal.
- ~~MM BIO-7a: Bird and Bat Collision Reduction.~~
- MM HH-1a: Prepare and Implement a Soil Management Plan.
- MM HH-6a: Prepare and Implement a Helicopter Safety Plan.
- MM N-1a: General Construction Noise Management.
- MM N-1b: Construction Notification.
- MM N-2a: Vibration Assessment and Control.
- MM REC-3a: Coordinate with Park and Open Space management and provide signage, barriers, and monitors to ensure safety of trail and park users.
- MM REC-5a: Coordinate with managers of recreation facilities to restore damaged assets.
- MM T-1a: Traffic Management Plan and Safe Transport.
- MM TCR-2a: Native American Monitoring.
- MM TCR-2b: Unanticipated Discovery of Tribal Cultural Resources.
- MM TCR-2c: Unanticipated Discovery of Human Remains.
- MM US-1a: Underground Utilities Accident Response Plan.
- MM WF-1a: Prepare Construction Coordination Emergency Evacuation Plan.
- MM WF-1b: Limit Construction Requiring Full Road Closures.
- MM WF-1c: School Session Construction Timing Restriction.

4.7. Methodology for Comparison of Alternatives

The methodology used to compare alternatives in this EIR included:

- **Step 1: Identification of Alternatives.** A screening process (described in Section 4.2) is used to identify alternatives to the proposed Project. As required by CEQA, a No Project Alternative is also identified. This range of alternatives was developed in response to public comments during scoping, and is sufficient to foster informed decision-making and additional public participation. Many additional alternatives were considered (see Section 4.4); no other feasible alternatives meeting most of the Project objectives were identified that would lessen or alleviate significant impacts.
- **Step 2: Determination of Environmental Impacts.** The environmental impacts of the proposed Project are identified in Chapter 3, and the environmental impacts of the alternatives are presented in Section 4.5, including the potential impacts of power line construction and operation.
- **Step 3: Comparison of Proposed Project and Alternatives**. The environmental impacts of the proposed Project are compared to those of each alternative to determine the environmentally superior alternative. The environmentally superior alternative is then compared to the No Project Alternative.

4.8. Comparison of the Impacts of the Proposed Project and Alternatives

4.8.1. Alternatives Comparison Process

4.8.1.1. Project Segments Without Alternatives

The alternatives considered in this EIR are described in Section 4.3 and their impacts are defined in Section 4.5. There are no alternatives evaluated for four segments of the proposed Project:

- The eastern portion of the Overhead Power Line Rebuild segment includes the lines between the Moraga Substation and proposed Structures RS1/RN1 through RS9/RN9; no alternatives are considered for this segment.
- At least two of the proposed Project structures RS/RN 20 and RS/RN 21 (4 structures north and south of Scout Drive) would remain in all cases, because of the need for an overhead crossing of SR-13 and the Hayward Fault. Two of these structures could be replaced by the Skyline-Ascot Underground Alternative with its transition pole near Ascot Drive and Mountain Boulevard.
- The Overhead Power Line Removal segment has no alternatives evaluated. This removed segment of the power line would be replaced by the proposed Project's underground segment in Park Boulevard.
- The proposed Project's Underground Power Line along Park Boulevard has no alternatives evaluated.

Several potential alternatives were considered that would have replaced these four segments, but none met the screening criteria defined in Section 4.4. See the descriptions and analysis in Section 4.4.

4.8.1.2. Comparison of Alternative Segments with Each Other and with the Proposed Project

Because each alternative would replace only part of the proposed Project, the alternatives comparison methodology uses the following steps:

- **Step 1:** Compare the three Oakland Hills underground alternatives (Alternatives 2, 3, and 4) to each other and identify the two alternatives with least severe impacts.
  - **Step 1A:** If the Skyline-Ascot Underground Alternative is one of the least impactful alternatives, compare Skyline-Ascot Option 1 with Skyline-Ascot Option 2 to define the option with the least severe impacts.
- **Step 2:** Compare the two underground alternatives with the least severe impacts with the proposed Project.
- **Step 3:** Compare Alternative 5 (Estates Drive Underground Alternative) with the proposed Project segment that it would replace.
- **Step 4:** Define the overall least impact combination of alternatives
- **Step 5:** If the least impact combination of alternatives is not the proposed Project, compare the overall least impact combination of alternatives with the proposed Project.
- **Step 6:** Compare the overall least impact combination of alternatives with the No Project Alternative.
- **Step 7:** If the No Project Alternative is determined to have fewer impacts than the "assembled" least-impact combination of proposed Project and alternatives, identify the alternative with the next least impacts.

These seven steps are undertaken in Section 4.8.2, Alternatives Comparison.

4.8.2. Alternatives Comparison

4.8.2.1. Step 1: Compare Oakland Hills Underground Alternatives

The three Oakland Hills underground alternatives (Alternatives 2, 3, and 4) have the potential to replace slightly different numbers of proposed Project structures, but each would eliminate most of the proposed Project overhead structures between Shepherd Canyon Fire Station 24 and Manzanita Drive.

The major differences among the three alternatives are highlighted in Table 4.8-1.

Alternative 4, the Skyline-Ascot Underground Alternative, would have the most significant impacts of the three alternatives for the following reasons:

- There would be a significant and unavoidable aesthetics impact at the Manzanita Transition Station, which is required for this alternative.
- This is the longest underground route with the most residences affected (over 200). As a result of its length, it would also require the most vaults, which have especially severe construction impacts due to their size. This alternative would have nearly three times more vaults than would the underground segment of the proposed Project.
- The route has a high percentage of steep slopes and very narrow roads (especially along Manzanita Drive and the lower segment of Ascot Road). This would increase the length of construction, exacerbating all construction impacts.
- The alternative would pass the large school complex along Ascot Drive and Scout Drive (Montera Middle School and Joaquin Miller Elementary School).

Table 4.8-1. Summary of Impacts of Alternatives 2, 3, and 4

Alternative	Significant Unavoidable Impacts	Underground Miles; *Estimated No. of Vaults;* Transition Structures	Receptors Affected in Underground Segment
2: Skyline-Colton-Snake Underground Alternative	■ Wildfire Impact WF-1 ■ Transportation Impacts T-1, T-4, T-5, T-6, and T-7 ■ Geology Impact GEO-3	2.3 miles *12 to 23 vaults* Skyline Transition Pole + Fire Station Transition Station	■ ~175 homes ■ Oakland Fire Station No. 6 ■ Forestland Reservoir
3: Shepherd Canyon Underground Alternative	■ Wildfire Impact WF-1 ■ Transportation Impacts T-1, T-4, T-5, and T-6 ■ Geology Impact GEO-3	1.9 miles with Manzanita Transition Pole or 1.0 miles with Saroni Transition Pole *10 to 20 vaults* + Fire Station Transition Station	■ ~75 homes ■ Shepherd Canyon Park ■ Oakland Fire Station No. 24
4: Skyline-Ascot Underground Alternative	■ Aesthetics Impact AES-3 (Manzanita Transition Station) ■ Wildfire Impact WF-1 ■ Transportation Impacts T-1, T-4, T-5, and T-6 ■ Geology Impact GEO-3	2.9 miles *15 to 29 vaults* Manzanita Transition Station + Scout or Ascot Transition Pole	■ ~210 homes ■ Montara Middle School and Joaquin Miller Elementary School ■ Marjorie Saunders Park ■ Skyline Gate Staging Area ■ The Hills Swim & Tennis Club

Therefore, Alternative 4 is eliminated from further comparisons. Alternatives 2 and 3 are retained for comparison with the proposed Project.

4.8.2.2. Step 2: Compare Combined Alternatives (Alternatives 2 & 3) with the Proposed Project

Because the roads in the Oakland Hills are narrow and winding, only two circuits could feasibly be placed in each roadway. Therefore, to replace all four Project circuits, both Alternatives 2 and 3 would be required. As illustrated in Figures 4.3-5 ~~and 4.3-6~~, Alternative~~s~~ 2 ~~and 3~~ would replace proposed Project Structures RS11~~3~~/RN11~~3~~ through RS19/RN19 with new transition poles at Fire Station Transition Station connecting with the underground alternative segment. As illustrated in Figures 4.3-6, Alternatives 3 would replace proposed Project Structures RS13/RN13 through RS19/RN19 with new transition poles at Fire Station Transition Station connecting with the underground alternative segment. This would eliminate 14 structures that are required for the proposed Project, but two additional transition poles would be required, at Saroni Drive and Skyline Boulevard.

The proposed Project would have the following five ***significant unavoidable*** impacts during construction between SR-13 and Manzanita Drive:

- Impact T-1, Conflict with evacuation plan
- Impact T-4, Result in inadequate emergency access
- Impact T-5, Create hazardous conditions for residents, people walking, bicycling, or driving
- Impact T-6, Interfere with walking or bicycling accessibility
- Impact T-7, Substantially delay public transit
- Impact WF-1, Impair an adopted emergency evacuation plan

Alternatives 2 and 3 (combined) would have the following seven ***significant unavoidable*** impacts, six during construction and one during operation (Impact GEO-3):

- Impact T-1, Conflict with evacuation plan
- Impact T-4, Result in inadequate emergency access
- Impact T-5, Create hazardous conditions for residents, people walking, bicycling, or driving
- Impact T-6, Interfere with walking or bicycling accessibility
- Impact T-7, Substantially delay public transit
- Impact WF-1, Impair an adopted emergency evacuation plan
- Impact GEO-3, Be located on unstable slopes

Comparing the significant and unavoidable impacts of these options results in the following key differences:

- The proposed Project's new overhead structures would have some risk of starting a wildfire or inhibiting firefighting. However, Alternatives 2 and 3 combined would eliminate only 12 of the 24 proposed Project structures between Manzanita Drive and SR-13:
  - There is no feasible route for the Shepherd Canyon Underground Alternative to replace Structures RS10, RS11, and RS12 due to the very steep and winding roads of upper Shepherd Canyon Road.
  - As shown in Figure 4.5-2, the overhead crossing of the Hayward Fault would result in the need to retain four overhead structures (Structures RS20/RN20 and RS21/RN21) between the Fire Station Transition Station and SR-13.
- The extensive construction required for undergrounding four circuits in two separate roadways would create significant traffic and access constraints and have the potential to delay evacuation and emergency access if a wildfire or other emergency occurs during construction. Detours and alternate routes would be required, and service outages may be required to resolve conflicts with existing underground utilities.
- As discussed in Sections 4.3 and 4.5, the instability of many slopes in the Oakland Hills presents concerning challenges for which engineering solutions cannot be defined until intrusive investigations are

completed. It is likely that retaining walls would be required along portions of the underground alternatives, which would further increase the extent and duration of construction.

- The proposed Project significantly reduces the wildfire risk associated with the older, existing 115 kV power lines. The underground alternatives would also result in a reduction in wildfire risk, but 20 new structures (10 pairs) would remain aboveground in the segment east of Manzanita Drive and 18 structures (9 pairs) of aboveground structures would remain in the area west of the Fire Station Transition Station.

The alternatives would not reduce or eliminate any significant and unavoidable impacts of the proposed Project and would create new significant and unavoidable impacts related to Transportation (Impact T-7) and Geology and Soils (Impact GEO-3). The underground alternatives would have more severe and a longer duration of construction impacts across a larger geographic area. Coupled with the beneficial impacts to wildfire risk from the proposed Project, the proposed Project's central section is considered environmentally superior to the combination of Alternatives 2 and 3.

4.8.2.3. Step 3: Compare Alternative 5 with the Proposed Project

The Estates Drive Underground Alternative (Alternative 5) would result in elimination of the following proposed Project components:

- Four proposed Project transition poles near the intersection of Estates Drive and Park Boulevard, reducing the aesthetic impact of these new facilities.
- Proposed Project Structures RN23/RS23 through RN26/RS26 (a total of 8 structures at 4 locations) just northwest of Leimert Boulevard, reducing the wildfire and aesthetics impacts of these structures, as well as the construction impacts to residents along Leimert Boulevard.
- Note that proposed Project Structures RS20/RN20 and RS21/RN21 (4 structures) would remain in all cases, because of the need for an overhead crossing of SR-13 and the Hayward Fault.

Alternative 5 would add:

- New overhead structures to cross the Hayward Fault (similar to the proposed Project).
- Two new transition poles at the eastern ends of Somerset and Sims Drives (similar to the proposed Project's transition poles at Park Boulevard and Estates Drive, but in slightly less prominent locations).
- Double-circuit duct banks in both Somerset and Sims Drives up to the intersection with Estates Drive.

The proposed Project in the western portion of the Overhead Rebuild Segment would have the following ***significant and unavoidable*** impacts:

- Impact T-1, Conflict with evacuation plan
- Impact T-4, Result in inadequate emergency access
- Impact T-5, Create hazardous conditions for residents, people walking, bicycling, or driving
- Impact T-6, Interfere with walking or bicycling accessibility
- Impact T-7, Substantially delay public transit
- Impact WF-1, Impair an adopted emergency evacuation plan

Alternative 5 would have the following seven ***significant and unavoidable*** impacts, six during construction and one during operation (Impact GEO-3):

- Impact T-1, Conflict with evacuation plan
- Impact T-4, Result in inadequate emergency access
- Impact T-5, Create hazardous conditions for residents, people walking, bicycling, or driving
- Impact T-6, Interfere with walking or bicycling accessibility
- Impact T-7, Substantially delay public transit

- Impact WF-1, Impair an adopted emergency evacuation plan
- Impact GEO-3, Be located on unstable slopes

The alternatives would not reduce or eliminate any significant and unavoidable impacts of the proposed Project and would create a new significant and unavoidable impact related to Geology and Soils (Impact GEO-3). The significant unavoidable transportation impacts are especially severe on the dead-end streets of Sims and Somerset Drives, because residents and emergency vehicles would be unable to reach residences during all construction activity. Evacuation would also be severely hampered due to the narrow streets. Therefore, Alternative 5 is not considered environmentally superior to the proposed Project.

4.8.2.4. Step 4: Define the CEQA Environmentally Superior Alternative

The Environmentally Superior Alternative is the proposed Project, with the following segments, described from east to west:

- The eastern portion of the Overhead Power Line Rebuild segment from the Moraga Substation to Structures RS9/RN9.
- The proposed Project between Manzanita Drive and the proposed Project transition poles at Estates Drive and Park Boulevard.
- The proposed Project's Underground Power Line along Park Boulevard and Park Boulevard Way.
- The proposed Project's Overhead Power Line Removal segment.

The Environmentally Superior Alternative includes all components of the proposed Project, and no alternatives. This conclusion is based on the extent of construction impacts along two separate alternative routes in the Oakland Hills (Alternatives 2 and 3) that would hamper evacuation and emergency access to residences, create hazards for walkers and cyclists, and conflict with adopted evacuation routes. While the proposed Project does retain all proposed overhead structures, which create a level of wildfire risk, the improvement in risk levels from the current system to the rebuilt system as proposed would be a substantial benefit.

4.8.2.5. Step 5: Compare the Environmentally Superior Alternative with the No Project Alternative

The No Project Alternative (Alternative 1) would avoid impacts from the construction, operation, maintenance, and decommissioning of the proposed Project, as described in Chapter 3. However, it would not meet any of the Project Objectives defined in Section 4.2.1.

As described in Section 4.3.4, lifecycle updates would occur in a piecemeal fashion for years, as needed based on regular inspections that identify maintenance issues, including additional aging structure replacement. Replacement of structures would occur as required and would have similar types of construction activities and potential impacts as described for the Overhead Power Line Rebuild segment of the proposed Project. However, under the No Project Alternative, PG&E would not be required to implement PG&E's APMs or the EIR mitigation measures recommended in Section 4.6.1.1.

Most importantly, the No Project Alternative would not realize the beneficial impacts of the Project relating to reduction of wildfire risk with new overhead replacement structures and the undergrounding of one mile of power line in the City of Oakland. Therefore, the proposed Project is considered environmentally superior to the No Project Alternative.

4.9. Environmentally Superior Alternative

Section 15126.6 of the State CEQA Guidelines requires an EIR identify an "environmentally superior" alternative. If the "no project" alternative is the environmentally superior alternative, then the EIR must identify which of the other alternatives is environmentally superior.

As described in Section 4.7.5.5, the No Project is not the environmentally superior alternative. The proposed Project is environmentally superior to the five alternatives evaluated in Section 4.5, as is shown in Figure 4.8-1. The components of the proposed Project are also illustrated in Figure 2.1-1a and in detail in Figure 2.1-2 (25 pages).

Although this EIR identifies an environmentally superior alternative, it is possible that the CPUC decision-makers could balance the importance of each impact area differently and reach different conclusions. Further, the CPUC decision-makers must consider feasibility factors other than environmental impacts, e.g., costs associated with each alternative, in reaching their final decision on the project. CEQA provides that projects may be approved in spite of one or more significant impacts if "specific economic, social, or other considerations make infeasible" project alternatives or mitigation measures. (Pub. Resources Code, § 21002.)

It is noted that there would be a very significant cost difference between the underground alternatives and the proposed Project. Factors such as population and building density, existing underground utilities, labor costs, terrain, and geology would impact the cost of the underground alternatives. Data from California's investor-owned electric utilities, which include PG&E, have shown that converting overhead distribution and transmission infrastructure to underground is up to 10 times more expensive than installing new overhead lines (CPUC, 2025). Cost is not considered under CEQA, but it may be a consideration in the CPUC's decision about alternatives. (See CEQA Guidelines Section 15126.6(b))

4.10. References

CPUC (California Public Utilities Commission), 2025. CPUC Undergrounding Programs Description. https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/infrastructure/electric-reliability/undergrounding-program-description/. Accessed July 9, 2025.

PG&E (Pacific Gas and Electric Company), 2025a. PG&E Response to CPUC Data Request #7, Part B (A.24-11-005). May 22.

_____, 2025b. PG&E Response to CPUC Data Request #9 (A.24-11-005). June 17.

5. CUMULATIVE SCENARIO AND CUMULATIVE IMPACTS ANALYSIS

5.1. Introduction

A cumulative impact analysis is required under CEQA. Under CEQA Guidelines, "a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts" (14 CCR §15130(a)(1)). An EIR must discuss cumulative impacts if the incremental effect of a project, combined with the effects of other projects is "cumulatively considerable" (14 CCR §15130(a)). Such incremental effects are to be "viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects" (14 CCR §15164(b)(1)). Together, these projects comprise the cumulative scenario for the cumulative analysis.

Both the severity of impacts and the likelihood of their occurrence are to be reflected in the discussion, "but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion of cumulative impacts shall be guided by standards of practicality and reasonableness, and shall focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact" (14 CCR §15130(b)).

For purposes of this EIR, the proposed Project would cause a cumulatively considerable and therefore significant contribution to a cumulative impact if:

- The cumulative effects of other past, current, and probable future projects without the Project are not significant and the Project's incremental impact is substantial enough, when added to the cumulative effects, to result in a significant cumulative impact; or
- The cumulative effects of other past, current, and probable future projects without the Project are already significant and the Project would result in a cumulatively considerable contribution to the already significant effect. The standards used herein to determine whether the contribution is cumulatively considerable include the existing baseline environmental conditions, and whether the project would cause a substantial increase in impacts, or otherwise exceed an established threshold of significance.

5.2. Cumulative Projects and Projections

There are two different methodologies for identifying what would constitute the cumulative scenario. One is to use a "list of past, present, and probable future projects producing related or cumulative impacts" (14 CCR §15130(b)(1)(A)). An alternate method of establishing the cumulative scenario for the analysis is to use a "summary of projects contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area-wide conditions contributing to the cumulative impact" (14 CCR §15130(b)(1)(B)).

The approach used in this EIR is the project list approach, with cumulative projects included in Table 5-1. In addition, analysts considered general plans and other documents, but did not rely on them to establish the cumulative scenario for the analysis. The project list includes those projects found within a geographic area that provides a reasonable basis for evaluating cumulative impacts. The area over which the cumulative scenario is evaluated may vary by resource, based on the nature and range of potential cumulative effects.

The analysis of cumulative effects must consider a number of variables. These include geographic (spatial) limits, time (temporal) limits, and the characteristics of the resource being evaluated. The geographic scope of the analysis is based on the nature of the geography surrounding the proposed Project and the characteristics and properties of each resource and the region to which they apply. In addition, each project in a region will have its own implementation schedule, which may or may not coincide with the proposed Project's schedule.

Table 5-1. Cumulative Projects in the Project Vicinity

Map No.	Project Name	Description/Location	Location in Relation to the Proposed Project	Project Status and Construction Duration	Source of Project Information
1	Wilder Subdivision	The Wilder subdivision (formerly Montanera) is a planned development in the Gateway Valley at the southern end of the City of Orinda at State Route 24 and Wilder Road. Construction of new single-family residences in the subdivision is almost complete.	Approximately 400 feet between the nearest undeveloped lot and project work area (a helicopter landing zone) and approximately 0.8 mile from the power lines	As of November 2023, construction on 230 of the 245 home sites has been completed.	City of Orinda Major Development Projects: https://www.cityoforinda.org/281/Wilder-Subdivision
2	Countryhouse Memory Care Project	The Countryhouse Memory Care project at 1 Wilder Road in the City of Orinda proposes a one- to two- story, 32,084-square-foot building with 38 assisted- living units, a parking area with 16 parking spaces, a vehicle turn-around adjacent to the front and delivery entrances, and landscaping.	Approximately 0.8 mile from the nearest staging area and approximately 1.8 mile from the power lines in City of Orinda	Approved by City Council in January 2021. Construction was scheduled to start in September 2024, as of April 2025, construction has not started.	City of Orinda Major Development Projects: https://www.cityoforinda.org/418/Countryhouse-Memory-Care-Project-1-Wilde
3	2805 Park Boulevard Mixed-Use Building	The development, proposed for 2805 Park Boulevard in the City of Oakland, would be a six-story mixed-use building consisting of a ground floor lobby and 20 apartment units; tree removal and replacement; installation of landscaping throughout the site; and minor site modification.	Approximately 0.5 mile from Oakland X Substation	Approved in July 2022, with new building permits filed in October 2023. No construction timeframe posted.	SF YIMBY: https://sfyimby.com/2023/10/building-permits-filed-for-2805-park-boulevard-oakland.html
4	500 Grand Avenue Project	Redevelopment of a vacant parking lot at 500 Grand Avenue in the City of Oakland with a mixed-use commercial and residential building with 40 residential units.	Approximately 1.1 miles from Oakland X Substation	As of December 2023, the permit had been extended.	500 Grand Avenue Project CEQA Analysis: https://oaklandca.s3.us-west-1.amazonaws.com/oakca1/groups/ceda/documents/report/oak062394.pdf
5	East 18th Street Mixed-use Project	New multi-family mixed-use project proposed at 347 East 18th Street in the City of Oakland. It would include 27 residential units.	Approximately 1.2 miles from Oakland X Substation	Approved in August 2022.	SF YIMBY: https://sfyimby.com/2022/08/permits-approved-for-347-east-18th-street-merritt-oakland.html
6	Brooklyn Basin Development	Signature Development Group is creating more than 3,000 new apartments surrounded by retail and public parks at full buildout at 845 Embarcadero in the City of Oakland. It includes 3,100 residential units, 200,000 square feet of ground-floor commercial space, several marinas, and 30 acres of public parks.	Approximately 1.7 miles from Oakland X Substation	Construction of first two phases complete. Completion of phase 3 by 2024 and phase 4 by 2027.	SF YIMBY: https://sfyimby.com/2021/04/845-embarcadero-under-construction-parcel-a-rising-in-brooklyn-basin-oakland.html

Map No.	Project Name	Description/Location	Location in Relation to the Proposed Project	Project Status and Construction Duration	Source of Project Information
7	Lake Merritt Transit- Oriented Development	Twin-block development at 51 9th Street and 107 8th Street surrounding the Lake Merritt Bay Area Rapid Transit (BART) Station in downtown Oakland. Includes 500,000 square feet of new office space, retail, and community amenities and 557 residential units.	Approximately 1.8 miles from Oakland X Substation	Construction began in fall 2024.	BART: https://www.bart.gov/about/business/tod/lakemerritt
8	Head-Royce School Expansion Project	The Head-Royce School (4315 Lincoln Avenue in the City of Oakland) is proposing an expansion to extend the existing 14-acre campus across Lincoln Avenue to the site of the former Lincoln Children's Center and to develop an integrated 22-acre campus serving a student population of 1,250 at maximum buildout.	Approximately 0.25 mile from nearest staging area	Final Environmental Impact Report (EIR) was released February 2023. Construction began in October 2023 with the new campus to open in fall 2025.	City of Oakland: https://www.oaklandca.gov/projects/head-royce Head Royce School: https://www.headroyce.org/about-us/south-campus
9	Sibley Volcanic Regional Preserve Group Campground (Phase 2 of Alder Creek and Leatherwood Creek Restoration Project)	Construct a group campsite and permanent restroom facilities (Fiddleneck Field) near the East Bay Regional Park District (EBRPD) Eastport Staging Area at Pinehurst Road.	The location of the planned group campsite is adjacent to an existing overhead power lines span between ES9 and ES10 and a potential staging area and helicopter landing zone	Final EIR certified in 2018. Completion of the camp-ground anticipated prior to the start of Project construction; however, construction of camp-ground has not started as of April 2025.*	EBRPD: https://www.ebparks.org/about-us/whats-new/news/park-district-celebrates-grand-opening-alder-creek-and-leatherwood-creek
10	39th Avenue Reservoir Replacement	East Bay Municipal Utilities District (EBMUD) plans to replace the existing 39th Avenue Reservoir (near 39th Avenue and Selkirk Street in the City of Oakland) with a smaller reservoir to increase system reliability and improve water quality and operating efficiency.	Approximately 1.86 miles from structure ES29	The Mitigated Negative Declaration (MND) was certified by EBMUD's Board of Directors on January 22, 2013. Design is scheduled for 2027-2028 followed by construction in 2029-2030.	EBMUD: https://www.ebmud.com/about-us/construction-and-maintenance/construction-my-neighborhood/39th-avenue-reservoir-replacement
11	Central Reservoir Replacement Project	EBMUD is replacing its 154-million-gallon Central Reservoir on a 27-acre site located near 23rd Avenue and 31st Street in the City of Oakland. The old reservoir will be demolished and replaced with new concrete tanks that are approximately 20 feet higher than the existing reservoir.	Approximately 0.5 mile from Oakland X Substation	EBMUD Board of Directors approved the project and certified the EIR in April 2021. Construction is expected from 2026-2032.	EBMUD: https://www.ebmud.com/about-us/construction-and-maintenance/construction-my-neighborhood/central-reservoir-replacement-project
12	Piedmont Community Pool	Piedmont Community Pool in the City of Piedmont is under renovation and enhancement.	Approximately 1 mile from structure EN32	Construction 80% complete as of February 2025.	City of Piedmont: https://piedmont.ca.gov/cms/One.aspx?portalId=13659823&pageId=16935826#camera

Map No.	Project Name	Description/Location	Location in Relation to the Proposed Project	Project Status and Construction Duration	Source of Project Information
13	460 24th St (Pigozzi Project)	Office development on the block between 24th and 25th Streets including 99,788 square feet of office with ground floor retail.	Approximately 2 miles northwest of the Oakland X Substation	Draft EIR released in April 2022.	City of Oakland: https://www.oaklandca.gov/projects/460-24th-st-pigozzi-project
14	1600 School Street Apartment	The project is a four-story 66-unit multi-family residential apartment building and associated improvements that would be located on 2.002 acres (SCH #2022-02-0106)	Approximately 1.8 miles southeast of the Moraga Substation	Notice of Exemption (NOE) released in January 2025. Planning Commission approved project on October 29, 2024. Town Council denied an appeal and approved the project on January 25, 2025.	CEQANet: https://ceqanet.opr.ca.gov/2025010585 Town of Moraga: https://moraga.ca.us/573/1600-School-Street-Apartments
15	Rheem Valley Shopping Center Partial Redevelopment	Reconstruction of an existing 11,167 square foot in-line building which is part of a larger shopping center and adding 7,758 square feet for a new grocery store and separate in-line tenant space. The project also includes construction of two new free-standing pad buildings (4,500 square feet and 2,152 square feet in size).	Approximately 2 miles northeast of the Moraga Substation	NOE released on December 14, 2023. Currently in precon-struction compliance.	CEQANet: https://ceqanet.opr.ca.gov/2023120390 Town of Moraga: https://moraga.ca.us/576/Rheem-Valley-Shopping-Center-Partial-Red
16	Caldecott Tunnel Bores 1, 2, and 3 Rehabilitation and Ventilation Upgrade	The proposed improvements include ventilation system upgrades, tunnel, plenum and adit repairs, safety updates, and electrical system upgrades	Approximately 2 miles northwest of structure work area SWA09	MND released January 6, 2025. Construction anticipated from November 2026 to November 2029	CEQANet: https://ceqanet.opr.ca.gov/2025010114
17	North Oakland Reinforcement Project	The project scope includes: (1) Rebuild existing two Sobrante-Grizzly-Claremont #1 and #2 115 kV lines into four lines. Two of the four lines will bypass Claremont Substation and connect to Oakland D and Oakland L Substations through new underground (UG) cable sections; (2) Build a new UG cable to connect one of the new rebuilt lines to Oakland D; (3) Build a new UG cable to connect one of the new rebuilt lines to Oakland L; (4) Reroute the Moraga-Oakland X #4 line to bypass the Oakland X Substation; (5) Build a new UG cable section to connect the Moraga-Oakland #4 115 kV line to Oakland C; (6) Convert Oakland C to GIS; (7) Replace the Oakland C-X#2 115 kV underground cable with larger size cable; (8) Disconnect existing Oakland D-Oakland L 115 kV cable.	Within existing or new ROW between Contra Costa County and Oakland, within new ROW in Oakland for underground cables, and within or near existing substations in Oakland	Approved in CAISO 2024-2025 Transmission Plan. Anticipated in service Q2 2032.	Defined in CAISO 2024-2025 Transmission Plan: California ISO - 2024-2025 Transmission planning process

Map No.	Project Name	Description/Location	Location in Relation to the Proposed Project	Project Status and Construction Duration	Source of Project Information
18	Moraga 230/115 kV Transformer Bank Addition	The project scope includes: (1) installation of a new 230/115 kV transformer bank at Moraga Substation with minimum 420 MVA for summer normal rating and 462 MVA for summer emergency rating; and (2) upgrade Moraga 115 kV bus and any limiting elements to achieve full bank capacity.	Within Moraga Substation	Approved in CAISO 2024-2025 Transmission Plan. Anticipated in service Q2 2031.	Defined in CAISO 2024-2025 Transmission Plan: California ISO - 2024-2025 Transmission planning process
19	South Oakland Reinforcement Project	The project scope includes new: (1) reconductor Moraga-San Leandro #1, #2, and #3 115 kV lines; (2) reconductor Moraga-Oakland J 115 kV line; and (3) reconductor San Leandro-Oakland J 115 kV line.	Extending from Moraga Substation to cities of Oakland and San Leandro along existing PG&E ROWs	Approved in CAISO 2024-2025 Transmission Plan. Anticipated in service Q2 2032.	Defined in CAISO 2024-2025 Transmission Plan: California ISO - 2024-2025 Transmission planning process
20	PG&E's Community Wildfire Safety Program (CWSP)	Under its CWSP, PG&E uses risk modeling to determine areas of highest wildfire risk and to prioritize where to complete its wildfire safety work. The types of improvements depend on terrain, vegetation, and weather patterns, etc., and include: (1) moving powerlines underground; (2) installing strong poles; (3) overing powerlines; (4) trimming trees. Since launching its 10,000-mile undergrounding program in 2021, PG&E has constructed and energized over 1,040 miles of underground power lines in its service territory.	Areas of high fire risk in the Project area are modeled east of SR-13. Segments of under-grounding and system hardening have been completed in the Oakland Hills but no projects are currently forecasted in the Project area. PG&E states that forecast miles include areas that are in any stage of the planning process and projects are subject to change.	PG&E's CWSP started in 2018 and is ongoing.	PG&E: https://www.pge.com/en/outages-and-safety/safety/community-wildfire-safety-program.html PG&E's interactive mapping: https://vizmap.ss.pge.com/?layer=system-hardening-and-undergrounding-map
21	Caltrans Project 04-3W230	Bridge seismic retrofit at the Park Boulevard Over Crossing and the Broadway Terrace Under Crossing (SR-13 Post Mile 7.4 to 9.07).	Approximately 780 feet northeast of the MOX Project's SR-13 crossing	Construction is expected in 2028.	Caltrans comment letter dated September 16, 2025 (Comment Set A01, EIR Appendix J)
22	Caltrans Project 04-0P890	Bridge seismic restoration at the Bruns Drive Pedestrian Over Crossing Bridge (SR-13 Post Mile 7.9).	Approximately 0.5 mile northeast of the MOX Project's SR-13 crossing	Construction is expected in 2029.	Caltrans comment letter dated September 16, 2025 (Comment Set A01, EIR Appendix J)

* In a scoping comment letter (see EIR Appendix C), East Bay Regional Park District stated that the campground is anticipated to be constructed and completed before construction of the proposed Project, and requested that PG&E coordinate the construction timeline with Park District staff to ensure the project timeline does not conflict with the campground construction or operations.

5.3. Cumulative Effects of the Proposed Project

5.3.1. Introduction

Sections 5.3.2 through 5.3.18 present the cumulative effects analysis for each resource area in the same order as in the impact analysis for the proposed Project in Section 3. The cumulative effects analysis for each resource area first defines the geographic area in which the effects of other projects may combine with those of the proposed Project and then explains the cumulative effects themselves. Table 5-1 Cumulative Projects in the Project Vicinity, identifies the relevant cumulative projects. Figure 5.1 Cumulative Projects (in Appendix A) shows the location of these projects.

A cumulative impact consists of an impact that is the result of the Project impacts evaluated in combination with impacts of other projects. The analysis considers whether the incremental effect of the Project's impacts, combined with the effects of other projects, is cumulatively considerable.

5.3.2. Aesthetics

Geographic Scope

The geographic scope of potential cumulative impacts on aesthetics encompasses the locations from which a viewer could see proposed Project construction or operation, along with views of other visible cumulative projects. For the purposes of the cumulative impact analysis for aesthetics, Table 5-1 and Figure 5-1 (Cumulative Projects) identify ~~19~~ 22 cumulative projects for consideration. Of those ~~19~~ 22 projects, ~~six~~ eight projects (Nos. 1, 8, 9, 17, 18, ~~and~~ 19, 21, and 22) have potential to be visible (during construction and/or operation) within the same field of view as some components of the proposed Project and cause aesthetics impacts that could combine with those of the proposed Project.

Cumulative Analysis

As discussed in Section 3.2.3.3 Impacts and Mitigation Measures, the proposed Project would not result in significant construction or operation/maintenance aesthetics impacts with implementation of APM AES-1 as supplemented by Mitigation Measure AES-3a (for construction impacts). The following paragraphs discuss by impact criterion the potential for the proposed Project, in combination with relevant cumulative projects, to contribute to cumulatively considerable aesthetics impacts.

Regarding Impact AES-1, as discussed in Section 3.2.3.3 Impacts and Mitigation Measures, there are no recognized scenic vistas within the proposed Project viewshed, and the proposed Project would not adversely affect any panoramic views from hillside corridors, including Skyline Boulevard. As a result, there would be no adverse effect on a scenic vista because of proposed Project construction or operation/maintenance, and the resulting aesthetics impact would be Less than Significant. Therefore, the proposed Project would not contribute to cumulatively considerable aesthetics impacts under this impact criterion, and no additional mitigation is required.

Regarding impact AES-2, as noted in Section 3.2.2.2, the PG&E Oakland X Substation could be seen from a small section of I-580, the nearest designated state scenic highway, which passes approximately 600 feet west of the substation. However, because the proposed Project's power line segment would transition underground beginning approximately 1.2 miles east of the substation, aboveground proposed Project replacement structures east of the transition would be largely imperceptible from I-580 because of distance, fleeting view durations, and urban screening and backdrop conditions. Overall, the perceived change would be minor and incremental and, therefore, the proposed Project would not substantially damage scenic resources within a state scenic highway. As a result, the aesthetics impact from construction and operation/maintenance would be Less than Significant. Therefore, the proposed Project would not contribute to cumulatively considerable aesthetics impacts under this impact criterion, and no additional mitigation is required.

Regarding AES-3, as discussed in Section 3.2.3.3, due to the temporary and transient nature of construction as it progresses along the route, limited visibility (due to screening by vegetation and urban structures), and brief view durations (due to travel speeds on adjacent roads) of construction activities, equipment, and materials, the proposed Project, overall, was determined to have a Less-than-Significant construction impact on aesthetics with implementation of APM AES-1 and after implementation of Mitigation Measure AES-3a.

Therefore, the proposed Project, in combination with one or more of the six cumulative projects, would not contribute to cumulatively considerable aesthetics construction impacts, and no additional mitigation is required.

Of the six cumulative projects, two projects (Nos. 1 and 8) would be urban development projects, and one project (No. 9) would be a recreation (campsite) project, neither of which would exhibit visual characteristics like those of the proposed Project.

As a result, the proposed Project, in combination with cumulative projects Nos. 1, 8, and 9, would not result in cumulatively considerable aesthetics operation/maintenance impacts because the casual observer would not perceive any type of visual association between the urban development and recreation projects and the proposed power line rebuild, removal, and power line undergrounding. Therefore, no additional mitigation is required.

Cumulative projects Nos. 17, 18, and 19 would share at least some similar visual characteristics of the proposed Project. Undergrounding of power lines associated with Project No. 20 would result in a beneficial aesthetic impact. Regarding Cumulative Project No. 17 (North Oakland Reinforcement Project), the only element of this project with the potential to cause substantial cumulative aesthetics impacts in combination with the proposed Project would be the Reroute of the Moraga Oakland X #4 line, depending on the determined route and the extent to which associated aboveground structures are visible within the same field of view as the proposed Project (although the proposed Project would result in the relocation underground of existing transmission lines connecting to Oakland X Substation, the Project would still include two aboveground TSP H-frame structures and one TSP where the underground lines surface to connect to the substation). Therefore, given the overall net reduction in visible aboveground transmission facilities, the proposed Project would not result in an adverse visual impact at Oakland X Substation, and the two projects (proposed Project and Cumulative Project No. 17) in combination would contribute to a perceived proliferation of industrial character in that limited portion of the landscape. Therefore, the resulting cumulative impact would be less than cumulatively considerable, and no mitigation is required.

Cumulative Project No. 18 (Moraga 230/115 kV Transformer Bank Addition) would also not be noticeable to the casual observer given the relatively small scale of the project and the existing structural context established by Moraga Substation and adjacent power lines. Therefore, the proposed Project in conjunction with Cumulative Project No. 18 would not result in a substantial cumulative impact, and no additional mitigation is required.

As for Cumulative Project No. 19 (South Oakland Reinforcement Project), the reconductoring of existing lines would typically not be noticed by the casual observer and would result in Less-than-Significant aesthetics impacts. Therefore, the proposed Project in conjunction with Cumulative Project No. 19 would not result in a cumulatively considerable impact, and no additional mitigation is required.

Regarding AES-4, as discussed in Section 3.2.3.3 Impacts and Mitigation Measures, 23 statements of aesthetics guidance, goals, and policies from nine jurisdictions would apply to the proposed Project. Based on the analysis presented in Section 3.2.3.3, the proposed Project would be consistent with all applicable guidance, goals, and policies, which would result in a Less-than-Significant aesthetics impact from proposed Project's construction, operation, and maintenance. Therefore, the proposed Project would not

contribute to cumulatively considerable aesthetics impacts under this impact criterion and no additional mitigation is required.

5.3.3. Air Quality

Geographic Scope

The geographic extent of the cumulative analysis for air quality includes the San Francisco Bay Area Air Basin (SFBAAB). This geographic scope of analysis is appropriate because the majority of the proposed Project emissions and cumulative Project's emissions would be confined to this region. Table 5-1 identifies the locations of each cumulative project in the vicinity of the proposed Project. Projects within the region considered for the cumulative impact analysis include a variety of activities ranging housing developments, mixed-use projects, commercial developments, a community pool, and reservoir projects.

Cumulative Analysis

Cumulative air quality impacts would include the effects of the cumulative projects identified above in Table 5-1. Emissions from cumulative projects would contribute to the air quality impacts when cumulative project emissions occur concurrently with those of the proposed Project and near sensitive receptors. The potential for cumulative air quality impacts would be greatest for any sensitive receptors located in close proximity to two or more work sites that are active at the same time.

Within Table 5-1, Project numbers 10 (39th Avenue Reservoir Replacement), 11 (Central Reservoir Replacement Project), 16 (Caldecott Tunnel Bores 1, 2, and 3 Rehabilitation and Ventilation Upgrade), 17 (North Oakland Reinforcement Project), 18 (Moraga 230/115 kV Transformer Bank Addition), ~~and~~ 19 (South Oakland Reinforcement Project), 21 (Caltrans Project 04-3W230), and 22 (Caltrans Project 04-0P890) have the potential to be constructed at the same time as the proposed Project. PG&E's Community Wildfire Safety Program (Project 20) may also have undergrounding and system hardening projects that would be constructed at the same time as the proposed Project. Therefore, these projects have the potential to contribute to cumulative air quality impacts near the project area. The 39th Avenue Reservoir Replacement would be constructed in 2029-2030; the Central Reservoir Replacement Project would be constructed in 2026-2032; the Caldecott Tunnel Bores 1, 2, and 3 Rehabilitation and Ventilation Upgrade would be constructed from November 2026 until November 2029; the North Oakland Reinforcement Project would be in service in 2032; the Moraga 230/115 kV Transformer Bank Addition would be in service in 2031; and the South Oakland Reinforcement Project would be in service in 2032. The significance of air quality impacts in the SFBAAB depends partially on the timing and scope of the cumulative projects.

The analysis of project impacts for Impact AQ-2: *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard*, and Impact AQ-3: *Expose sensitive receptors to substantial pollutant concentrations*, are inherently cumulative analyses. The analysis considers the cumulative effects of past projects as contributing to existing nonattainment conditions and addresses whether the Project would result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in nonattainment under an applicable federal or state ambient air quality standard. The SFBAAB is in nonattainment for federal ozone and PM2.5 standards, and nonattainment for state ozone, PM10 and PM2.5 standards. The BAAQMD provides project-level thresholds of significance in its CEQA Guidelines for pollutants in which the SFBAAB is in nonattainment. Construction emissions from the Project would not exceed BAAQMD thresholds, and as such, the incremental contribution of the proposed Project construction emissions to the cumulative air quality impacts would not be cumulatively considerable. Additionally, since construction-related emissions would be emissions would be below BAAQMD thresholds, they would not occur at rates likely to cause substantial localized pollutant concentrations for sensitive receptors, and they would be short-term and dispersed across the region. As such, the duration of exposure at any one sensitive

receptor along the proposed Project would be limited, and the potential for the incremental contribution of emissions from the proposed Project that any one sensitive receptor would be exposed to would not be cumulatively considerable. Since the proposed Project would comply with all applicable federal, state, and local regulations, and would not include any notable sources of odors, AQ-1 and AQ-4 would not have the potential to be cumulatively considerable. No additional mitigation is required.

5.3.4. Biological Resources

Geographic Scope

The geographic scope for this cumulative analysis includes the entire extent of all vegetation communities and special-status species of the region, which include their habitat and current active ranges, that could be adversely affected by construction and operations and maintenance of the proposed Project. This geographic scope is appropriate because it accounts for the cumulative degradation or loss of a particular special-status species or habitat resource, vegetation community, aquatic resource, or migration corridor, of the region from all projects that have impacted or would impact these biological resources.

Cumulative Analysis

Table 5-1 lists past, present, and reasonably foreseeable projects that contributed or would contribute to the cumulative conditions of biological resources within the cumulative analysis study area. Projects west of Interstate 580 (which include No. 3, 4, 5, 6, 7, 11, and 13 on Figure 5.1. Cumulative Projects) are in highly urbanized areas. These projects include high-density residential and commercial development, and a reservoir replacement project (No. 11). Though in urban areas, these projects have the potential to impact nesting birds, aquatic resources, and result in tree removal. Implementation of the proposed Project would contribute to impacts to native nesting birds protected under the MBTA and Fish & Game Code, state and federally protected aquatic resources, and oaks and large trees protected by the City of Oakland.

Projects east of Interstate 580 and west of State Route 13 (No. 8, 10, 12, and 17 on Figure 5.1. Cumulative Projects) have similar urbanized areas but at a lesser urban density. These projects include a school expansion (No. 8), reservoir replacement (No. 10), community pool renovation (No. 12), and utility rebuilds and undergrounding (No. 17). Similarly, these projects have the potential to impact nesting birds and result in tree removal. These projects may also impact roosting bats, and the utility rebuild Project has the potential for avian electrocutions and collisions. Implementation of the proposed Project would contribute to impacts to native nesting birds protected under the MBTA and Fish & Game Code, special-status avian species, and oaks and large trees protected by the City of Oakland.

East of State Route 13, there are several other planned urban development projects (Nos. 1, 2, 9, 14, 15, 16, 18, 19, 20, 21, 22 on Figure 5-1. Cumulative Projects). These projects include residential and commercial development (Nos. 1, 2, 14, 15), campground development (No. 9), urban infrastructure rehabilitation (No. 16, 21, 22), and utility upgrades (No. 18, 19, 20). These projects have the potential to impact special-status species or their habitat, vegetation communities, aquatic resources, migration corridors, and locally protected resources. Implementation of the proposed Project would contribute to cumulative impacts to these biological resources.

During botanical surveys conducted by PG&E for the proposed Project, three special-status plant species were identified within the biological study area and the Project was designed to avoid these species. In addition, MM BIO-1a would require additional botanical surveys prior to construction. The Project area provides potential habitat special-status wildlife, including two invertebrates, two amphibians, two reptiles, numerous bird species, and five mammals. Alameda whipsnake and San Francisco dusky footed woodrat are known to occur in the area. Birds have the potential to nest, migrate, and forage through the Project site and surrounding habitat. Similarly, bats have the potential to roost, migrate, and forage in the

area. Impacts to nesting birds and roosting bats is expected to be minimal giving the disturbed nature of the work locations and available surrounding habitat. APMs and Project-specific MMs are included to minimize injury or mortality to wildlife and mitigate for impacts to wildlife habitat. Project operation and maintenance would be conducted with existing staff using existing access to avoid or minimize impacts to special-status species.

The Project area overlaps USFWS-designated critical habitat for Alameda whipsnake, resource management areas/conservation easements, and sensitive natural communities. Most of the Project's habitat impacts would be temporary, and impacted areas would be restored to pre-existing conditions following project activities. The only permanent impacts would be associated with foundations for the replacement structures. Project operation and maintenance (O&M) would be conducted with existing staff using existing access. Temporarily impacted areas and vegetation that may be removed during O&M operations could provide future habitat for species. Minimal riparian habitat and other sensitive communities exist in the Biological Study Area (BSA), defined in Section 5.3. Within the Project footprint, riparian habitat occurs primarily along access roads and near Moraga Substation. The Project would not impact the riparian habitat that it spans. Only minor trimming of riparian habitat would be necessary to provide construction equipment access. Trimming or removal of trees would occur in Coast Live Oak Woodland to accommodate replacement Structures RN26 and RS26. Trees identified for removal are primarily for construction equipment or vehicles access or to provide sufficient space to operate safely within a work area. Trees and other vegetation could provide habitat for special-status species, particularly nesting birds and roosting bats. Though construction for the underground segment may remove trees and other vegetation with potential nesting and roosting habitat within the Project area, the area is already very urbanized, and suitable or better habitat can be found adjacent parkland and residential yards surrounding the underground construction zone. Trees within Park Boulevard's central median do not provide quality habitat for birds and bats given there are roads and vehicle traffic on either side. Urban areas can provide habitat for urban birds protected under the MBTA, and more common bat species, it's unlikely they provide habitat for sensitive bird or bat species. APMs and Project-specific MMs are included to minimize or mitigate impacts to sensitive natural communities.

The Project has been designed to avoid impacts on waterways and wetlands to the greatest extent feasible, and the Project would not remove, fill, or result in the hydrologic interruption to waterways or wetlands. Temporary impacts to an ephemeral drainage (R-11) may occur during construction. No permanent impacts to aquatic resources (both wetlands and waters) are expected to occur. Structures would be located outside the bed, bank, and channel of watercourses. APMs and Project-specific MMs are included to minimize or mitigate impacts to aquatic resources, including restoration of temporary impacts. Project operation and maintenance would be conducted with existing staff using existing access and no impacts to wetlands will occur.

Wildlife may move through the Project area and use breeding habitat during work activities. The eastern portion of the Project footprint has been recognized as an important open space area and essential corridor/linkage by the California Department of Fish and Wildlife, the California Essential Habitat Connectivity, and the Critical Linkage Project. Construction may impede wildlife movement and degrade breeding habitat or nursery sites within and adjacent to work areas. However, construction at any one location would be episodic and not long in duration. Migratory birds and roosting bats may move through the BSA during work activities and may nest or roost in the vicinity. Construction activities may temporarily degrade habitat within the immediate vicinity of the work locations. APMs and Project-specific MMs are included to minimize or mitigate impacts to wildlife movement and migration. There are no known spawning areas for native fish, fawning areas for deer, maternal roosts for bats, or known bird nesting rookeries within the Project area. Project operation and maintenance would be conducted with existing staff using existing access routes and will not create any new barriers to wildlife movement.

Project construction could impact special-status plant and wildlife species through elimination or destruction of foraging, reproductive, and dispersal habitat; direct injury or mortality of special-status species; spread of invasive weeds: impact sensitive habitat, USFWS-designated critical habitat, species modeled habitat, and aquatic resource features; impeded migratory corridors; conflict with local policies; and result in collision or electrocution risk for avian species. The projects listed in Table 5-1 could have construction schedules that overlap with the proposed Project that could result in cumulative impacts to species and their habitat, sensitive habitats and aquatic resources, and migratory corridors. Cumulative impacts on trees and vegetation could result in conflicts with local policies and ordinance. The undergrounding of power lines with Project 20 would reduce cumulative impacts related to collision and electrocution risk to avian species. Projects 17, 18, and 19 could result in cumulative impacts to collision and electrocution risk to avian species. Without the implementation of mitigation, the incremental contribution of the proposed Project to the significant cumulative impact would be cumulatively considerable.

Most of these projects are in previously disturbed or developed areas and only minor impacts are expected to occur to associated biological resources. The severity of the proposed Project's potential adverse effects to biological resources, as well as the incremental contribution of the proposed Project to the substantial cumulative adverse effect, would be reduced through implementation of APMs described in Section 3.4 and in EIR Appendix F (Table F-6 through F-9). These include BAHCP FP-01 through FP-18; AMM Wetland-02; AMM Plant-01 through Plant-08; O&M ITP-5.3 through -5.18, -6.1, -6.4, -6.8, -6.10, -7.1 through -7.9, -7.17 through -7.24; ITP FEIR APM BIO-1 through BIO-7; and MOX APM BIO-1 through BIO-6. The APMs protect plants, animals, species habitats, vegetation communities, and aquatic resources. Measures include preconstruction surveys, biological monitoring, worker training, buffers around sensitive habitat features, measures to prevent entrapment and not impede wildlife movement, and species-specific measures. Erosion control and revegetation requirements are also included. In addition, the Project is required to mitigate for impacts to special-status species modeled habitat and USFWS-designated critical habitat. Though the project is exempt from local regulation and discretionary permits, areas disturbed by project activities will be restored to conditions equal or better than preconstruction conditions.

The severity of the proposed Project potential adverse effects to biological resources would be further reduced through implementation of mitigation measures described in Section 3.4. This includes MMs BIO-1a, BIO-1b, BIO-1c, and BIO-1d~~, and BIO-1e~~, which would require plant surveys by a qualified botanist, conducted during the appropriate blooming period, prior to vegetation removal; a qualified biologist to conduct a survey for Crotch's bumble bees and potential nest sites, and if nests are found, avoid sensitive areas and exclude construction activities; surveys for milkweed species and monarch overwintering sites prior to vegetation removal or ground disturbing activities; and avoid areas where milkweed or overwintering sites are found; and survey for northwestern pond turtle prior to any ground-disturbing activities or vegetation removal within 400 feet of perennial streams, monitoring for nesting behavior if turtles are found, and establishing buffers around potential nesting habitat~~; and protocol-level surveys for eagles and avoidance buffers if nesting eagles are found within one-half mile of project activities~~. In addition, MM BIO-3a would require restoration of temporary impacts to ephemeral channel R-11~~;~~ and MM BIO-5a would require tree trimming and removal to be conducted in accordance with International Society of Arboriculture (ISA) standard and BMPs~~; and MM BIO-7a require utility structures to be designed in compliance with current APLIC standards and PG&E's current Avian Protection Plan~~. With implementation of the APMs and mitigation measures, the incremental contribution of the proposed Project to the substantial adverse cumulative effect would be less than cumulatively considerable.

5.3.5. Cultural Resources

Geographic Scope

Table 5-1 above shows 22~~19~~ projects that are located within an approximately 2-mile radius of the Project site; 4 of these projects are within 0.25 mile of the Project (including laydown areas). The 0.25-mile

geographic scope of analysis is appropriate because impacts to cultural resources occur at or near the site of disturbance and the cultural resources within this area are expected to be similar to those that occur within or near the Project site. Cumulative impacts on cultural resources could occur if other projects, in conjunction with the proposed Project, would have impacts on cultural resources that, when considered together, would be significant.

Cumulative Analysis

Archaeology. Impacts to archaeological resources tend to be site specific and are assessed on a site-by-site basis. As discussed in Section 3.5, Cultural Resources, the Project area does not contain any known unique archaeological resources. The analysis also recognizes the moderate likelihood of inadvertent discovery of unknown resources that may be present within the Project area based on numerous factors, including age of underlying landform, distance from watercourses, micro-topographic variations, proximity to known archaeological sites, and the extent and severity of past disturbances. The analysis in Section 3.5 concurs that PG&E's APMs are appropriate and sufficient to ensure potential impacts to such sites would be less than significant.

Built Environment. Impacts to the built environment, like those for archaeological resources, tend to be site specific and are assessed on a site-by-site basis. As discussed in Section 3.5 Cultural Resources, the Project area has four register-eligible built environment resources. Project activities would neither physically alter, nor impair the historic integrity of these resources with implementation of MM N-2a (Vibration Assessment and Control). The analysis of these resources concluded that with implementation of MM N-2a, potential direct and indirect impacts to such resources would remain less than significant.

Cumulative Impact Conclusion. Projects within 0.25 mile of the Project that were considered for the cumulative impact analysis include a subdivision in Orinda that is almost completely built out (near a helicopter landing zone(HLZ)), expansion of the Head-Royce School campus that is to open in fall 2025 (near a staging area), development of a camping area by EBRPD (near existing overhead power lines and proposed HLZ0, seismic restoration and retrofit of two bridges, and installation of new equipment within Moraga Substation anticipated in 2031. Some of these projects may have the potential for project-specific impacts to cultural resources. However, the proposed Project would have a less-than-significant project-specific impact on cultural resources with implementation of MM N-2a (Vibration Assessment and Control). As such, the incremental effects of the Project, viewed in connection with the incremental effects of the projects listed in Table 5-1 and within 0.25 mile, would not contribute to cumulatively considerable cultural resources impacts and no additional mitigation is required.

5.3.6. Energy

Geographic Scope

The geographic scope of the cumulative scenario-impact analysis for energy would span the State of California, including the ~~19~~ 22 projects listed in Table 5-1. This geographic scope of analysis is appropriate because the construction and operation activities associated with the proposed Project and all other cumulative projects have the potential to use energy resources temporarily or permanently.

Cumulative Analysis

As discussed in Section 3.6, Energy, the incremental effects of the proposed Project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources and would not conflict with any plans for renewable energy or energy efficiency. Thus, the proposed Project would have less than significant energy-related impacts. Although development activities associated with the cumulative projects would require the use of fossil fuels, similar to the fossil fuel demands of the proposed Project, each project could be expected to initiate feasible energy-saving

efficiencies and to comply with applicable building standards, energy policies and regulations to reduce wasteful, inefficient, or unnecessary use of energy resources. As such, the effects of the proposed Project related to energy resources and energy efficiency would not be cumulatively considerable. No additional mitigation is required.

5.3.7. Geology and Soils

Geographic Scope

The geographic extent of the cumulative analysis for geology and soils encompasses the boundaries of the Project's disturbance footprint, work areas, staging areas, access routes, and pull and tension sites.

Cumulative Analysis

As discussed in Section 3.7, Geology and Soils, erosion that could result from Project construction would be minimized with implementation of APM HYD-1, which requires implementation of a SWPPP that would specify measures for construction activities with the potential to cause erosion. During the O&M phase of the Project, the Project components could be exposed to seismic, geologic, and soil hazards; however, the Project components would be designed in accordance with seismic standards and design measures as required under APMs GEO-1 through GEO-3. In addition, under APM GEO-3, any potentially problematic subsurface conditions would be addressed during construction, including the replacement of soft or loose soils with engineered fill or other appropriate soil treatments. With implementation of these measures, the Project would not substantially contribute to cumulative geology and soils impacts.

Within Table 5-1, project numbers 9 (Sibley Volcanic Regional Preserve Group Campground), 17 (North Oakland Reinforcement Project), 18 (Moraga 230/115 kV Transformer Bank Addition), ~~and~~ 19 (South Oakland Reinforcement Project), 21 (Caltrans Project 04-3W230), and 22 (Caltrans Project 04-0P890) are within 0.25 mile of the Project. Similar to the proposed Project, any construction activities that disturb 1 acre or more of land would require the development of a SWPPP, which would include erosion control measures. In addition, these projects would be required to comply with seismic standards and design measures to minimize potential risks to life and property from seismic, geologic, and soil hazards. These standards and design measures would substantially reduce impacts related to geology and soils from Projects 9, 17, 17, 18 and 19, in combination with the proposed Project. In addition, with implementation of the measures discussed above, the proposed Project's contribution to cumulative impacts would be reduced to less than cumulatively considerable.

5.3.8. Greenhouse Gas Emissions

Geographic Scope

Because the direct environmental effect of GHG emissions is influence on global climate change, GHG emissions are by nature inherently a cumulative concern with a cumulatively global scope. Therefore, the geographic extent of the Project's cumulative area of impact would be worldwide.

Cumulative Analysis

The analysis quantifies and discloses GHG emissions consistent with BAAQMD CEQA Guidelines. Because construction-related GHGs would occur early in the overall project lifespan, total GHG emissions from construction were amortized over a typical project lifespan of 30 years and added to operational emissions for comparison to the significance threshold of 10,000 MTCO2e per year. The proposed Project's construction-phase amortized GHG emissions when added to the anticipated change in operational emissions would equate to a rate of 131 MTCO2e/yr. At this level, the combined effects of construction and operation would not represent a cumulatively considerable contribution to the global atmosphere.

The proposed Project would not contribute to cumulatively considerable GHG impacts, and no additional mitigation is required.

5.3.9. Hazards, Hazardous Materials, and Public Safety

Geographic Scope

For the purposes of the cumulative impact analysis for hazards and hazardous materials, projects that are located within an approximately 2-mile radius of the Project site could have impacts from hazards and hazardous material use that could combine with those of the proposed Project. This radius surpasses the search radius of 0.25 mile used for the proposed Project on potential hazardous sites in Section 3.9, Hazards, Hazardous Materials, and Public Safety. This geographic scope of analysis is appropriate because the hazardous materials used for those projects is expected to be similar to the hazardous materials used for the proposed Project. Their proximity to identified historical hazardous materials sites would result in similar potential impacts. Cumulative impacts on hazardous and hazardous materials could occur if other projects, in conjunction with the proposed Project, would have impacts on hazards and hazardous materials that, when considered together, would be significant.

Cumulative Analysis

The Project is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 659962.5. The EDR report identified eight (8) Cortese list sites within 0.25 miles of the proposed Project. However, none of these sites are located within excavation areas and would not be disturbed during construction.

During construction of the proposed Project, potential impacts to hazards, hazardous materials, and public safety could include: the use, transport, storage, and disposal of hazardous materials; the accidental release of hazardous materials; creating a hazard to air traffic from the installation of new power lines and structures; hazards associated with transporting heavy materials using helicopters; and shock hazards. Impacts related to emergency response and evacuation plans and wildland fires are addressed in Section 3.18, Wildfire. Impacts related to emergency access are discussed in Section 3.15, Transportation. PG&E would comply with all applicable regulations regarding the use, transport, and disposal of hazardous materials and all FAA regulations regarding helicopter use.

Construction of the proposed Project would require the limited use of hazardous materials associated with fueling and cleaning construction vehicles. All storage and refueling of these hazardous materials would occur offsite. PG&E would implement APMs to address hazardous material use. The public would be excluded from work areas where equipment is in use or energized lines could be contacted. Additionally, PG&E would comply with CalOSHA regulations that address safety requirements for the protection of workers and others from electric shock in construction, operations, and maintenance.

Construction of the proposed Project also has the potential to encounter contaminated soil. APM-HAZ-5 would implement soil sampling and testing in Project areas where there is a history of contaminated soil. Soil that is known or suspected of contamination would be segregated and require testing procedures. However, even with implementation of APM HAZ-5, there still exists potential for unanticipated contamination, as well as risks associated with the handling, transport, and storage of contaminants, as these risks are not addressed in APM HAZ-5. In addition to PG&E's proposed APMs, PG&E would be required to implement MM HH-1a (Prepare and Implement a Soil Management Plan). MM H-1a would minimize the potential hazards from unexpected, contaminated soil to the public, workers, and schools, resulting in a less than significant impact.

PG&E has completed notification to the Federal Aviation Administration (FAA) regarding the expected heights of its replacement structures. The FAA has determined that no lighting or marking would be required

(see Appendix D). Installation of new structures would not create a significant hazard to air traffic. Helicopters carrying suspended loads are not anticipated to be flown over habitable structures. PG&E states that, while unlikely, final construction plans may require helicopters to transport suspended loads over residences. In the event that construction of the proposed Project does require helicopters to transport suspended loads over residences, PG&E would be required to implement MM HH-6a (Helicopter Safety Plan). MM HH-6a would minimize the potential hazards from transporting suspended loads over residences, resulting in a less than significant impact.

Project construction is not anticipated to require the use or storage of large quantities of hazardous materials. The APMs provide best management practices to address the use and accidental release of hazardous materials and provide protection measures to the public. Project construction would not substantially contribute to cumulative hazards, hazardous materials, and public safety impacts.

Some projects in Table 5-1 have the potential to be constructed at the same time as the proposed Project and, therefore, could contribute to cumulative hazards, hazardous material, and public safety impacts in combination with the proposed Project. These projects could handle or transport hazardous materials, accidentally release hazardous materials, or disturb contaminated soil. The residential developments listed in Table 5-1 could disturb previously contaminated soil or unidentified contaminated soil Similar to the proposed Project, these projects would comply with all applicable rules and regulations regarding hazardous material and helicopter use, potentially contaminated soil, and shock hazards. Compliance with these regulations would reduce impacts on hazards, hazardous materials, and public safety during construction of these projects, in combination with the proposed Project. No project listed in Table 5-1 were determined to have any significant and unavoidable impacts related to hazards, hazardous materials, and public safety. The severity of the Proposed Project potential adverse effects related to hazards, hazardous materials and public safety, as well as the incremental contribution of the Proposed Project to the substantial cumulative adverse effect, would be reduced through implementation of several hazards and hazardous materials mitigation measures. Therefore, with implementation of the measures discussed above, the proposed Project's contribution to cumulative impacts would be reduced to less than cumulatively considerable.

Operations and maintenance activities for the proposed Project would be similar to those occurring with the existing facilities. Operations and maintenance activities would not require the routine use, transport, storage, or disposal of hazardous materials. Operations and maintenance of the project listed in Table 5-1 would be required to comply with all applicable rules and regulations regarding hazardous material and helicopter use, potentially contaminated soil, and shock hazards. Compliance with these regulations would not substantially contribute to the cumulative impact of hazards, hazardous material, and public safety. Therefore, operations and maintenance activities of the proposed Project would not substantially contribute to cumulative hazards, hazardous material, and public safety impacts.

5.3.10. Hydrology and Water Quality

Geographic Scope

The geographic extent of the cumulative analysis for hydrology and water quality includes the watersheds that the Project crosses or is adjacent to, which are the San Leandro Creek, Sausal Creek, and Indian Gulch/Pleasant Valley Creek watersheds for the overhead line rebuild and removal areas; and the Sausal Creek, Indian Gulch/Pleasant Valley Creek, and Oakland Estuary watersheds for the underground line rebuild area. The geographic scope also includes the East Bay Plain Sub-basin of the Santa Clara Valley Groundwater Basin, located in the very westernmost portion of the Project area.

Cumulative Analysis

The Project crosses over or is near several waterbodies. One existing road for temporary construction access would cross an area with a 1 percent annual chance of flooding. The overhead power line rebuild alignment would traverse three tributaries of Sausal Creek, which is the only waterbody crossed by the Project that is listed on the CWA Section 303(d) impaired waters list, with a pollutant category of trash. No trash generated by Project construction would be discharged from Project work areas into any waterbodies.

As explained in Section 5.3, during construction of the proposed Project, potential impacts on water quality include erosion, increased runoff and sedimentation, and the accidental release of hazardous materials from construction equipment, vehicles, and work areas. PG&E would develop a SWPPP; the SWPPP would specify measures for activities with the potential to degrade water quality through erosion and runoff. PG&E's APMs would require training of construction workers on the proper implementation of water quality BMPs and spill prevention and response procedures; the restoration of disturbed areas; measures to control dust and loose soils; the stockpiling of soils so as not to enter waterbodies; and covering of stockpiles prior to precipitation events. Vehicle and equipment refueling would be prohibited within 100 feet from the edge of waterways. MM HH-1a, requiring preparation and implementation of a soil management plan, would minimize the potential for water quality impacts from unexpected contaminated soils that could be disturbed during Project construction.

Water required during construction for dust suppression would be from municipal supplies. Localized effects on groundwater would be negligible from the potential dewatering or an increase in impervious surfaces. Any groundwater collected during construction would be contained, tested, and disposed of in compliance with all applicable regulations.

Project construction would result in a negligible increase in impervious surfaces and is not anticipated to require the use or storage of large quantities of hazardous materials. Therefore, with implementation of the measures discussed above, Project construction would not substantially contribute to cumulative hydrology or water quality impacts.

Within Table 5-1, some projects have the potential to be constructed at the same time as the proposed Project and, therefore, these projects could contribute to cumulative hydrology and water quality impacts in combination with the proposed Project. However, these projects would be subject to the same prohibitions and BMP requirements as apply to the Project. Specifically, similar to the proposed Project, any construction activity that disturbs 1 acre or more of land would require the development of a SWPPP, which would also include water quality BMPs and measures to protect water bodies from erosion, increased runoff and sedimentation, and the accidental release of hazardous materials. These measures would substantially reduce impacts on hydrology and water quality during the construction of these projects, in combination with the proposed Project. In addition, with implementation of PG&E's APMs and MM HH-1a, the proposed Project's contribution to cumulative impacts would be reduced to less than cumulatively considerable.

The proposed Project's O&M activities would not require the use of and would not encounter ground-water; would not necessitate substantial ground disturbance or an increase in impervious surfaces; and would not be completed in flood hazard, tsunami, or seiche zones. Therefore, O&M activities would not substantially contribute to cumulative hydrology or water quality impacts.

5.3.11. Noise

Geographic Scope

Projects and other noise-generating activities near proposed Project activities could create the potential for noise from nearby sources to combine with that of the proposed Project, resulting in an exceedance

of noise standards. Noise sources attributable to cumulative projects may cause adverse effects within approximately one mile of a project site, but the region of greatest influence is typically within 0.5 miles from the boundary of a project. Similarly, vibration sources that typically occur with construction activity have a region of influence that is limited to approximately 200 feet because vibration energy is absorbed by soil and rock. Here, "noise" is intended to include both noise and vibration, unless otherwise stated. This geographic scope of analysis is appropriate because noise attenuates rapidly with distance. Cumulative impacts on noise could occur if other projects, in conjunction with the proposed Project, would have impacts on noise that, when considered together, would be significant.

Cumulative Analysis

Noise from construction is typically a local impact that would affect sensitive receptors in the immediate vicinity of the proposed Project site. Local projects that have the potential to be constructed at the same time as the proposed Project have the potential to contribute to cumulative noise impacts in combination with the proposed Project. Within Table 5-1, Project numbers 10 (39th Avenue Reservoir Replacement), 11 (Central Reservoir Replacement Project), 16 (Caldecott Tunnel Bores 1, 2, and 3 Rehabilitation and Ventilation Upgrade), 17 (North Oakland Reinforcement Project), 18 (Moraga 230/115 kV Transformer Bank Addition), and 19 (South Oakland Reinforcement Project) have the potential to be constructed at the same time as the proposed Project. However, projects 10 and 16 are sufficiently distant from the proposed Project, that sound (which attenuates with distance) is not likely to combine with Project-related construction noise to create a cumulatively significant impact. The Central Reservoir Replacement Project would be constructed in 2026-2032; the North Oakland Reinforcement Project would be in service in 2032; the Moraga 230/115 kV Transformer Bank Addition would be in service in 2031; and the South Oakland Reinforcement Project would be in service in 2032.

Project 11, the Central Reservoir Replacement Project would be constructed in 2026-2032, and would be located approximately 0.5 mile from the Oakland X Substation. The noise levels from the Central Reservoir Replacement Project were determined to be less than significant, and the project is located over 2,000 feet from the Oakland X Substation.

Simultaneous cumulative project construction activity of Projects 17, 18, ~~and~~ 19, 21, and 22 would have the potential to cause overlapping construction noise impacts with construction of the proposed Project. Project 17, the North Oakland Reinforcement Project, if approved by CAISO in the 2024-2025 Transmission Plan, would be anticipated to be in service in 2032. This project would be within existing or new ROW between Contra Costa County and the City of Oakland and within or near existing Oakland substations, including the Oakland X Substation. Project 18, the Moraga 230/115 kV Transformer Bank Addition, if approved by CAISO in the 2024-2025 Transmission Plan, would be anticipated to be in service in 2031. This project would be within the Moraga Substation and includes the installation of a new 230/115kV transformer bank and upgrading the Moraga 115 kV bus. Project 19, the South Oakland Reinforcement Project, if approved by CAISO in the 2024-2025 Transmission Plan, would be anticipated to be in service in 2032. This project would extend from the Moraga Substation to the cities of Oakland and San Leandro along existing PG&E ROW. Construction noise from projects 17, 18, and 19 could be reasonably similar at similar receptor distances to the proposed Project as similar construction equipment would likely be used.

Given the geographic proximity of these projects to the proposed Project, the potential temporal overlap in construction schedules, and the use of similar construction equipment, these projects have the potential to contribute to cumulative noise impacts in combination with the proposed Project. However, the Project's construction would not be continuous along the Project route, but intermittent and periodic activity would occur at widely spaced locations and at intervals of relatively short duration. The locations with the highest potential to contribute to cumulative noise impacts would be the Oakland X Substation and Moraga Substation. Proposed Project construction at each substation would be limited to approximately 5 weeks, with heavy construction equipment use being limited during that timeframe. This would

limit the potential for any one noise sensitive receptor to be affected by noise from heavy construction equipment use from proposed Project construction at the same time as Project 17, 18 or 19 construction. To reduce the incremental contribution of proposed Project construction noise requires the implementation of Mitigation Measures MM N-1a, MM N-1b, and MM N-2a which specify source-specific noise and vibration control techniques and require providing written advance notification to potentially impacted agencies and land uses. Specific to the potential cumulative contributions at the substations, MM N-1a shields staging areas from adjacent noise-sensitive receptors via enclosures, or temporary sound walls, further decreasing the potential impact to sensitive receptors near the Oakland X and Moraga substations. With implementation of these measures, the incremental contribution of the Project would not be cumulatively considerable. O&M activities for the proposed Project would be similar to those occurring with the existing facilities. The proposed changes to the Moraga Substation and the Oakland X Substation are not expected to add significant new sources of noise, as there would be no changes to the buildings, structures or fencing at the substations. As such, there are no anticipated substantial temporary or permanent increase in ambient noise levels at noise sensitive receptors in the vicinity of either substation. O&M activities would not substantially contribute to cumulative noise impacts.

5.3.12. Paleontology

Geographic Scope

Table 5-1 above shows ~~19~~ 22 projects that are located within an approximately 2-mile radius of the Project. Many are at sites that have been previously disturbed. Ground disturbing work at these project sites has the potential to result in impacts to paleontological resources. Paleontological resources are not affected by disturbance at other locations. In terms of cumulative impacts, disturbance from one project would need to occur at or near a separate project to result in a cumulative impact. Therefore, a site-specific geographic scope of analysis is appropriate. The geology, and thus paleontological potential, within the region of the Project is expected to be similar the geology of the Project site. Cumulative impacts on paleontological resources could occur if other projects, in conjunction with the proposed Project, have or would have impacts on paleontological resources that, when considered together, would be significant.

Cumulative Analysis

Most of the Project sits on geological units with very low to low paleontological sensitivity. These units include previously disturbed soils and nonfossiliferous volcanic or metamorphic rocks. The Project area features segments (slightly less than 2 miles in total length) located on geologic units with high paleontological sensitivity and high potential to encounter paleontological resources. This is the underground portion of the Project, which includes previous disturbances from utility installations and road construction.

PG&E's APMs PAL-1 through PAL-4 require the Applicant to retain a qualified principal investigator, to provide a worker environmental awareness training to construction staff, monitor specific construction activities in sensitive areas, and provide procedures to follow in the event of an unanticipated discovery. Implementation of these APMs would avoid directly or indirectly destroying a unique paleontological resource or site or unique geological feature at these drill sites, thereby reducing the Project impact to paleontological resources to less than significant. As such, the Project would not contribute to cumulatively considerable paleontological resources impacts and no additional mitigation is required.

5.3.13. Public Services

Geographic Scope

For the purposes of the cumulative impact analysis for public services, ~~19~~ 22 projects that are located within an approximately 2-mile radius of the Project site would have the potential for impacts to public services that could combine with those of the proposed Project. This geographic scope of analysis is

appropriate because projects within the approximately 2-mile radius are located within the same jurisdictions of the proposed Project and thus are served by the same public service providers. Cumulative impacts on public services could occur if other projects, in conjunction with the proposed Project, have or would have impacts on public services that, when considered together, would be significant.

Cumulative Analysis

During construction, operations, and maintenance the proposed Project could impact public services if it required the provision of new or physically altered governmental facilities, the need for new or physical altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, or healthcare facilities.

As discussed in Section 3.13, Public Services, the proposed Project is primarily a rebuild of an existing powerline. Construction of the proposed Project would significantly impact the provision of fire and police protection. PG&E would implement APMs that would address the risk of fires during construction, thereby reducing the demand for fire protection services. These APMs provide procedures for preventing, responding to, and reporting fires during construction. PG&E would implement security measures such as temporary fencing, surveillance cameras, and security personnel that would reduce the demand for police protection services. Construction personnel required for the Project would not be relocating to the Project area, so there would be no increased demand on schools. Existing healthcare facilities are expected to adequately handle response to worksite accidents and illnesses. Therefore, Project construction would not require new school or healthcare facilities or result in the need to increase staff levels such that new or expanded facilities would need to be constructed.

Some projects in Table 5-1 have the potential to be constructed at the same time as the proposed Project and, therefore, could contribute to cumulative public service impacts in combination with the proposed Project. The residential development projects listed in Table 5-1 would place an additional demand on public services, as these include population growth. However, this increase in demand for services would be anticipated and accommodated through the adoption and implementation of city and county general plans. No projects listed in Table 5-1 were determined to require additional public services facilities to accommodate additional demand for public services.

PG&E would be required to implement APMs and MMs, see Section 3.13 for full text of APMs and MMs. PG&Es APMs would address the risk of fire during construction, but the impacts would still be significant due to lack of advanced notification for service providers. However, implementation of MMs T-1a (Traffic Management Plan and Safe Transport) and MM N-1b (Construction Notification), would allow adequate time for emergency service providers to plan alternative routes around Project construction activities. The temporary nature of the proposed Project construction (35 months) and use of a local workforce that would not be relocating to the Project area would not result in the need for new or expanded public service facilities. The small additional demand of the Proposed Project would combine with the demand placed on public services by the cumulative projects. However, with implementation of mitigation measures described above, the proposed Project's contribution would be reduced. Therefore, the proposed Project's contribution to cumulative impacts would be reduced to less than cumulatively considerable.

Operations and maintenance activities of the Project are anticipated to be similar to the operations and maintenance activities occurring with the existing facilities, and therefore, the impacts of operations and maintenance on public services would be similar to those now occurring. The Overhead Powerline Rebuild segment would result in new equipment being installed to replace existing, older equipment, thus operations and maintenance are expected to occur less frequently in the future. Furthermore, the Overhead Powerline Removal segment would eliminate any operations and maintenance activities for that segment. Operations and maintenance of the underground portion of the Project would include routine and

detailed inspections that may involve short-term lane closures along Park Boulevard and Park Boulevard Way, however these inspections would include traffic control support. Operations and maintenance would require a similar workforce as currently is used by PG&E and no increased need for public services would occur. Thus, operations and maintenance activities would not substantially contribute to cumulative public services impacts.

5.3.14. Recreation

Geographic Scope

Table 5-1 shows one project that is located within the Project area. Some may have the potential for direct and indirect impacts to a recreation facility to occur that would contribute to cumulative impacts associated with the proposed rebuild Project. The EBRPD's planned camping area is adjacent to the existing power line at Structures ES9 and ES10 within the Sibley Volcanic Regional Preserve and could be directly affected. The development of this camping area would be a benefit and not have an adverse impact on recreation; therefore, it would not contribute to an adverse cumulative impact. Temporary closures of trails to allow Project construction work to occur would have a direct but temporary impact. Cumulative recreation impacts consider whether a project would increase the use of existing facilities and lead to their deterioration, require construction of recreation facilities, reduce or prevent access, change the character of a recreational area, or damage trails or facilities. For purposes of the cumulative impact analysis, the 2-mile radius around the Project was considered. Only 6~~4~~ projects have the potential to overlap with the construction period of the Project and only the EBRPD camp site would physically overlap with the Project. Most workers on the listed projects who might use recreation facilities are expected to be resident in the region. Any increase in recreation facility usage by workers would be minor. Access to some trails and the EBRPD camping area would be temporarily limited during active Project construction. None of the other projects in the area that are anticipated to overlap with the Project's construction period would affect recreation resources through closures or result in damage to facilities, nor are the projects in Table 5-1 anticipated to alter the character of a recreational area or damage trails or facilities

Cumulative Analysis

One recreation-related development project is identified within the geographic area of the proposed Project. This is EBRPD's Sibley Volcanic Regional Preserve Group Campground (Phase 2 of Alder Creek and Leatherwood Creek Restoration Project). The EBRPD project would construct a group campsite and restroom facilities. PG&E has identified the planned group camping site as a landing zone/staging area for use during construction of the eastern portion of the proposed Project. The estimated duration of use of the site is four months. PG&E would also need to temporarily block some trails when working around Project structures located adjacent to the trails. This would be a short-term disruption of trail user access.

PG&Es proposed APM REC-1 provides advance notice of closures or limitations through coordination with park facility operators and posting of notices, however, it does not reduce the impact to a less than significant level, because it does not specify how the safety of trail and park users would be ensured at and around active construction areas. Implementation of MM REC-3a would require coordination with park management on the location, timing, and duration of PG&E's use and occupation of park facilities and identification of feasible alternatives if warranted. MM REC-5a requires coordination with facility owners or managers to identify feasible alternatives where warranted and to address any damage to recreation assets.

This coordination would include the identification of reasonable timing and location alternatives, ensure recreation facility safety, and repair any damage. Because only a few of the identified project in the region would occur at the same time as the Project, and only the EBRPD camping area and some recreational trails would be affected intermittently during construction, and impacts would no longer occur at the end

of construction, impacts of the Project would result in a less than considerable contribution to cumulative impacts on recreation.

5.3.15. Transportation

Geographic Scope

The geographic extent of the cumulative analysis for transportation is the local and regional circulation system, including roadways, transit services, bicycle facilities, and pedestrian facilities that provide circulation within the Project area and access to and from the Project area. The regional and local circulation system in the Project area consists of two-lane local roadways (one lane in each direction), city arterials, state routes (SR-13 and SR-24), and one interstate highway (Interstate 580). Alameda-Contra Costa Transit District (AC Transit) is the public transit agency that serves Alameda County and western portions of Contra Costa County. (See Figures 2.1-2, and 3.15-1 through 3.15-4 in Appendix A.) The geographic scope also includes areas that are proposed as helicopter landing zones.

Cumulative Analysis

As discussed in Section 3.15, transportation-related impacts would occur if a project conflicts with a program, plan, ordinance, or policy regarding the circulation system; is inconsistent with guidelines regarding VMT; increases hazards due to design features; results in inadequate emergency access; creates potentially hazardous conditions; interferes with walking or bicycling access; or substantially delays public transit. Road and lane closures would be required for varying lengths of time along several roadways during the Project's 35-month construction period. In addition, construction would require an increase in vehicle trips associated with construction-related workforce traffic, and equipment and material deliveries. The primary impacts from the movement of construction trucks would include short-term and intermittent effects on traffic operations because of slower movements and larger turning radii of the trucks compared to passenger vehicles. Project construction would generate a maximum of 478 one-way trips each day, but these would be distributed across multiple sites in the Project corridor. The increase in vehicle trips, along with road and lane closures, would temporarily affect the functioning of the circulation system, causing temporary disruptions in access.

Because of potential lane and roadway closures, the proposed Project could significantly impair transportation, emergency responses and evacuations during construction. Although of short duration, this would not be consistent with local plans and policies regarding transportation. Traffic control measures and other measures to ensure safety and adequate emergency access would be implemented under PG&E's APMs. Implementation of MM T-1a, would require PG&E to develop a Traffic Management Plan (TMP), including procedures for safe transport, for approval by jurisdictions and local agencies in the Project area; and MM N-1b would require that adequate notification be provided to the public and relevant agencies prior to construction. MM N-1b also requires coordination with the East Bay Municipal Utility District (EBMUD) and the East Bay Regional Park District (EBRPD) to obtain approval for any helicopter landing zones (HLZs) that would be located on EBMUD or EBRPD lands. Use of HLZs would not affect the regional transportation system. In addition, to ensure traffic conflicts between construction activities and school traffic are minimized, MM WF-1c (School Session Construction Timing Restriction) would be required to ensure that construction near schools occurs outside of school hours.

Some projects in the region have the potential to be constructed at the same time as the proposed Project and, therefore, these projects could contribute to cumulative transportation impacts in combination with those of the proposed Project. ~~However, the only~~One project near the proposed Project that could affect road access is the expansion of the Head-Royce School; however, this project~~, which~~ is anticipated to be completed in 2025, ahead of the PG&E construction. The construction of two bridge seismic retrofit projects (Caltrans Projects 04-3W230 and 04-0P890) located on SR-13 approximately 780 feet and 0.5

mile from the proposed Project and to be constructed in 2028 and 2029, respectively, may overlap with the construction of the proposed Project. With implementation of APM TRA-1 and MM T-1a, coordination with the California Department of Transportation (Caltrans) would be required to minimize cumulative construction-related impacts on SR-13 and surrounding roadways. Other PG&E projects involving its power lines, substations, and distribution systems, including PG&E's Community Wildfire Safety Program, may occur during the construction of the proposed Project. Details on the location, extent, and timing of such work is not known, pending approvals from CAISO and project planning and design. These projects would have APMs similar to those applicable to the proposed Project.

As shown in Figure 5-1, Cumulative Projects (in EIR Appendix A), most cumulative projects are not in the immediate vicinity of the proposed Project and would, therefore, not overlap with the cumulative transportation effects of the Project, most notably in the area of the Overhead Power Line Rebuild segment where transportation impacts were found to be significant and unavoidable. Also, the timeframe for construction of projects shown in Figure 5-1 would not all overlap with the construction period of the proposed Project. During construction of the proposed Project, lane or road closures would be of relatively short duration (e.g., 10 days consecutively) and would occur only during working hours.

Similar to the proposed Project, any construction activities within public roadways would require encroachment permits with conditions of approval, including traffic control measures to ensure the safe and efficient flow of vehicle traffic, including public transit (buses), as well as pedestrian and bicycle safety and access. These traffic control measures would substantially reduce potential impacts on the circulation system during the construction of these projects, in combination with the proposed Project. While significant unavoidable impacts to transportation during construction have been identified for the Project itself and underground alternatives (see Section 5.3.15), the implementation of PG&E's APMs, as well as MMs T-1a, N-1b, and WF-1c, the spatial distribution of cumulative projects, and the variation in timing of construction would result in the Project's contribution overall to cumulative transportation impacts being less than cumulatively considerable.

O&M activities would occur intermittently and infrequently such that they would not have cumulatively considerable impacts on transportation, as the cumulative projects are located at some distance from the proposed Project or within existing substations. They would also be nearly identical to existing O&M activities under baseline conditions. For these reasons, the O&M activities' contribution to impacts to transportation would not be cumulatively considerable.

5.3.16. Tribal Cultural Resources

Geographic Scope

This geographic scope of analysis for Tribal Cultural Resources (TCRs) is an approximately 2-mile radius from the Project site and is appropriate, because TCRs can include landscapes and well as specific sites and because the TCRs within this area are expected to be similar to those that occur within or near the Project site. Cumulative impacts on TCRs could occur if other projects, in conjunction with the proposed Project, would have impacts on TCRs that, when considered together, would be significant. Thresholds of significance include causing a substantial adverse change in the significance of a tribal cultural resource.

Cumulative Analysis

Impacts to TCRs tend to be site specific and are assessed on a site-by-site basis. As discussed in Section 3.16 Tribal Cultural Resources, the Project area does not contain any known TCRs. The analysis also recognizes the moderate potential for inadvertent discovery of unknown TCRs that may be present within the Project area. PG&E's APM TCR-1 requires work stoppage if a potential TCR is discovered and consultation with responsible agencies. APM TCR-1 also requires following the procedures of APM CUL-2 to determine eligibility. During consultation with Lisjan Nation, MM TCR-2a, establishment of a Native American

Monitoring program, MM TCR-2b, Unanticipated Discovery of Tribal Cultural Resources, and MM TCR-2c Unanticipated Discovery of Human Remains, have been recommended for implementation and CPUC concurs with this recommendation. Therefore, with the implementation of APM TCR-1, MM TCR-2a, MM TCR-2b and MM TCR-2c impacts to unknown buried resources would be less than significant.

The identified projects in Table 5-1 are within a largely developed area, the development of which would have already affected any tribal cultural landscape, or, in the case of PG&E projects along its existing lines, would not introduce significantly different structures in the environment. Site-specific discoveries would not have a cumulative impacts, as they would occur at separate locations and in a mostly developed area.

Projects identified in Table 5-1 include a variety of types, including housing developments, mixed-use projects, commercial developments, a community pool, and reservoir projects. Some of these projects may have the potential for project-specific impacts to TCRs, if present. However, the Project would have a less than significant contribution to cumulatively considerable TCR impacts because of the implementation of the APMs and MMs noted and because the regional projects are not at sites that overlap with the Project's areas of ground disturbance.

5.3.17. Utilities and Service Systems

Geographic Scope

This geographic scope of analysis is an approximately 2-mile radius from the Project site and is appropriate because projects within the approximately 2-mile radius are within the same cities and counties as the proposed Project and would be served by the same utilities and service systems. Cumulative impacts on utilities and service systems could occur if other projects, in conjunction with the proposed Project, have or would have impacts on utilities and service systems that, when considered together, would be significant.

Cumulative Analysis

During construction of the proposed Project potential impacts to utilities and service systems could include the relocation of water stormwater drainage, electric power natural gas, or telecommunications facilities. Additional potential impacts include a sufficient water supply to serve the Project and reasonably foreseeable future development, generate solid waste in excess of local standards or local infrastructure or impair the attainment of solid waste reduction goals, comply with federal, state, and local management and reduction statutes related to solid waste, and increase the rate of corrosion of nearby pipelines. Construction of the proposed Project would not require new water or stormwater facilities. Daily water demand for the proposed Project would be low and readily supplied from existing supplies. With the conclusion of construction, this need would cease. Existing landfills that would serve the project have a combined remaining capacity of over 100 million cubic yards. Therefore, solid waste generated from the project construction would place a negligible demand on the capacity of local waste management facilities. The proposed Project would not have a significant impact on the rate of corrosion in nearby pipelines. PG&E would implement a cathodic protection system as part of the final design which would reduce the cumulative impacts of corrosion in nearby pipelines. PG&E would be required to implement MM US-1- which would include procedures PG&E would undertake in the event of damage to existing underground utilities. Any need to relocate underground utilities (such as in Park Boulevard) would be coordinated with the utility company to minimize disruption of service.

The cumulative projects include several projects in the vicinity of the proposed Project that may contact and/or disturb underground utilities and/or facilities during construction. No cumulative projects were determined to have significant and unavoidable impacts related to utilities and service system. Residential development projects listed in Table 5-1 would require new and expanded utilities and service system. The proposed Project would not have a significant impact in terms of requiring new or relocated utility

facilities. The proposed Project's potential to adversely impact existing underground utilities would be reduced through implementation of MM N-1b and compliance with the Underground Service Alert requirement, including manually probing for existing buried utilities prior to any ground disturbing activities. Construction activities associated with other cumulative projects in the vicinity of the proposed Project would be required to comply with the Underground Service Alert requirements. The need for other cumulative projects in combination with the proposed Project to relocate existing or require new utilities would have a significant impact. The proposed Project could result in the relocation of existing utilities. PG&E would be required to implement MM N-1b. MM N-1b would require PG&E to coordinate with utility service providers about utilities that may require relocation at least 18 months prior to the start of construction activities. With advanced notification, utility owners would have sufficient time to design and contrast new utilities with minimal environmental impacts, if relocation is permanent. Any need for relocation would be localized and potential service interruptions would be limited. Therefore, the proposed Project would not result in a cumulatively considerable impact to utilities and service systems.

As discussed in Section 3.17, Utilities and Service Systems, operations and maintenance activities are anticipated to be similar to the operations and maintenance activities that occur with the existing overhead facilities. Operations and maintenance activities for the underground portion would include regular underground line inspections. PG&E would coordinate with other utilities prior to any operations and maintenance activities that may affect other utility facilities. Because the proposed Project would result in a reduction of 1 mile of overhead facilities, there would be a reduction in water use for operations and maintenance as compared with the existing facilities. Operations and maintenance activities would not generate significant quantities of solid waste. Furthermore, operations and maintenance activities would include replacing cathodic protection components, which would protect nearby utilities from corrosion. The Overhead Line Rebuild Segment would result in new equipment being installed and as a result operations and maintenance activities are expected to occur less frequently in the future. The Overhead Power Line Removal segment would eliminate operations and maintenance for this segment, resulting in less operations and maintenance activities than compared with the baseline. Operation of the proposed Project would not combine with the impacts from operation of other cumulative projects to result in a significant impact. Therefore, operations and maintenance activities would not substantially contribute to cumulative utilities and service systems impacts.

5.3.18. Wildfire

Geographic Scope

This geographic scope of analysis is an approximately 2-mile radius from the Project site. Table 5-1 lists ~~19~~ 22 projects within the Project area with the potential to have impacts related to wildfire that could combine with those of the proposed Project. While wildfire risk areas extend beyond 2 miles for the Project, this distance is considered reasonable because of the level of fire suppression response that would occur should a fire ignite in this highly developed area. This geographic scope for wildfire of a 2-mile radius from the Project site is also appropriate because the physical environment is generally consistent with that of the proposed Project, consisting of similar terrain, topography, vegetation, and climate as the various segments of the Project. However, most of the identified projects would not occur at the same time as construction of the proposed Project. Cumulative impacts may occur within the vicinity of the proposed Project due to the similar physical setting and similar fire risks associated with cumulative project activities.

Cumulative Analysis

The cumulative analysis for wildfire considers four potential impacts that could result from a project: substantial impairment of an adopted emergency response plan or evacuation plan; exacerbation of wildfire risks that could expose residents to pollutants from a wildfire; exposure of people or structures

to significant risks such as downstream flooding or landslides from post-fire conditions; and requiring installation or maintenance of infrastructure that may exacerbate fire risk.

The proposed Project would incorporate APM WFR-1 (Construction Fire Prevention Plan) and APM WFR-2 (Fire Prevention Practices) to reduce the risk of accidentally igniting a fire during construction and to have measures for fire suppression if needed. APM WFR-1 would require workers to be trained in fire prevention practices; have water tanks or water trucks; have fire suppression equipment on all construction vehicles; monitor weather conditions and have appropriate work restrictions during red flag conditions (such as requiring additional water resources); and coordinate with fire agencies and emergency responders of temporary lane and road closures. Construction vehicles would be required to park away from dry vegetation. Any work involving heat, sparks, or flames (e.g., welding, cutting, grinding) would require removal of flammable material such as grass, leaf litter, dead or dying trees from within 10 feet of the work area. Construction personnel would be trained and equipped to extinguish small fires if they were to occur during construction. In low-fire risk weather (typically between December and April), simultaneous construction projects are unlikely to cause a wildfire, as construction crews would be required to implement fire safety practices in accordance with Chapter 33 of the California Fire Code (Safety During Construction and Demolition) (Western Fire Chiefs Association, 2025; California Fire Code, 2019). Because of potential delays on evacuation routes owing to the presence of construction equipment and activities, the proposed Project could impair emergency responses and evacuations during construction. Although of short duration, this would still not be consistent with local plans and policies regarding emergency access and routes. Advanced notification and coordination with fire departments and the public with implementation of MMs T-1a (Traffic Management Plan and Safe Transport), N-1b (Construction Notification), WF-1a (Prepare Emergency Evacuation Plan), WF-1b (Limit Construction Requiring Full Road Closures), and WF-1c (School Session Construction Timing Restriction) would reduce impacts to emergency access and evacuation, but not to a level that is less than significant for the Overhead Power Line Rebuild segment.

The cumulative projects listed in Table 5-1 are expected to include construction activities that are similar in nature to the proposed Project, such as the use of heavy machinery and equipment and presence of construction workers that could temporarily increase the risk of accidental fire ignitions. Most of these projects are not near the Project's work areas in the Oakland Hills. The Project's impacts to emergency access and evacuation would not likely combine cumulatively with the cumulative projects' impacts because most of the cumulative projects would not include lane or road closures at the same time or in the same geographic area. As shown in Figure 5-1 (Appendix A), cumulative projects in the region around the proposed Project are not in the immediate vicinity of the Project. Their effects on local egress and ingress in areas around these cumulative projects would be localized and not overlap with those of the Project. Cumulative projects also would be required to comply with local permitting requirements and fire safety regulations that would ensure that impacts relating to wildfire risks would not be cumulatively considerable. The cumulative projects that may temporarily affect road access would also be required to implement traffic control measures within public roadways. Therefore, when considered with other cumulative projects, the Project's contribution to impacts to evacuation or emergency access plans and policies would not be cumulatively considerable.

O&M activities would occur intermittently and infrequently such that they would not have cumulatively considerable impacts on evacuation, as the cumulative projects are located at some distance from the proposed Project or within existing substations. They would also be nearly identical to existing O&M activities under baseline conditions. Operation of the power line would also result in beneficial impacts by reducing the overall risk of wildfire. For these reasons, the O&M activities' contribution to impacts to evacuation or emergency access plans and policies would not be cumulatively considerable.

5.4. Cumulative Effects of Alternatives

All of the retained alternatives are located in the same general area as the proposed Project and would involve similar types of construction activities. However, the extent of excavation in roads would increase construction equipment use, the amount of spoils hauling and disposal needed, and the number of haul trips. The alternatives would increase the need to relocate underground utilities and would affect traffic flow in more locations during construction at specific sites. Different roadways would be impacted by the alternatives, but they would be in the general geographic area of the proposed Project. The projects listed in Table 5-1 could potentially combine with an alternative to result in a cumulative adverse effect. Given the proximity of the alternative to each other and their lengths, impacts of each alternative in combination with other projects in the region would be similar. Therefore, the cumulative analysis presented above for the proposed Project would also apply to all of the alternatives, and the adverse cumulative effects that are described for the proposed Project would also occur with all of the alternatives. Cumulative impacts would be less with the No Project alternative, as Project-related construction impacts would not occur. Cumulative impacts under the Underground alternatives would be greater than the proposed Project owing to the increased amount of excavation, with its increased use of construction equipment and trucks, the potential for more utility service interruptions to accommodate utility relocations, and the need to restrict or control traffic flows around active construction sites.

5.5. References

California Fire Code, 2019. Chapter 33 Fire Safety During Construction and Demolition. https://up.codes/viewer/california/ca-fire-code-2019/chapter/33/fire-safety-during-construction-and-demolition#33. Accessed April 11, 2025.

PG&E (Pacific Gas and Electric Company), 2024a. Proponent's Environmental Assessment for Pacific Gas and Electric Company's Moraga–Oakland X 115 kV Rebuild Project. Application A.24-11-005. November 15. https://ia.cpuc.ca.gov/environment/info/aspen/moraga-oakland/moraga-oakland.htm.

Western Fire Chiefs Association, 2025. California Fire Season: In-Depth Guide. https://wfca.com/wildfire-articles/california-fire-season-in-depth-guide. Accessed April 11, 2025.

6. OTHER CEQA REQUIREMENTS

Chapter 6 includes discussion of additional topics required by CEQA. These include Section 6.1, Significant and Unavoidable Environmental Effects, which summarizes the conclusions presented in Chapter 3, Section 6.2, Significant Irreversible Environmental Changes, Section 6.3, Growth Inducing Effects, and Section 6.4, Energy Consumption.

6.1. Significant and Unavoidable Environmental Effects

6.1.1. Significant Direct Effects of the Project

Section 15126.2(b) of the CEQA Guidelines requires that an EIR identify significant environmental effects which cannot be avoided by the Project, even with implementation of mitigation measures. The environmental impacts of the proposed Project are described in the environmental analysis sections in Chapter 3. Impacts that are significant and cannot be reduced to less than significant levels through the application of feasible mitigation measures would be characterized as significant and unavoidable impacts.

Note that these conclusions apply to the Project as proposed, Alternative 2: Skyline-Colton-Snake Underground Alternative, Alternative 3: Shepherd Canyon Underground Alternative, Alternative 4: Skyline-Ascot Underground Alternative, and Alternative 5: Estates Drive Underground Alternative, but not to the No Project Alternative. Alternatives 2, 3, 4, and 5 would create a new significant and unavoidable geology and soils impact due to slope instability/landslide/liquefaction risk (Impact GEO-3) and a new significant and unavoidable visual operational impact (Impact AES-3) for the Manzanita Transition Station (Alternative 4 only).

The following significant and unavoidable impacts to Transportation and Wildfire would occur during construction of the proposed Project:

Impact T-1: Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

Impact T-1 is found to be ***significant and unavoidable*** for the overhead portion of the proposed Project. The impact is significant due to the construction vehicles that would be temporarily blocking roadways within the Oakland Hills based on the construction requirements, as defined in Section 3.15.3.3 (Transportation, Impacts and Mitigation Measures). These impacts result from temporary road closures, degradation of road conditions due to temporary steel plates being installed, and temporary obstruction of evacuation routes by construction vehicles. The result of this construction activity would be a number of conflicts with programs, plans, ordinances and policies, as summarized in Table 3.15-3 (Section 3.1, Transportation).

Impact T-4: Result in inadequate emergency access.

Impact T-4 is found to be ***significant and unavoidable*** for the Project due to the construction vehicles that would temporarily block roadways within the Oakland Hills. Even with implementation of mitigation, construction vehicles and activity could slow the passage of emergency vehicles to multiple locations, based on the construction requirements, as defined in Section 3.15.3.3 (Transportation, Impacts and Mitigation Measures).

Impact T-5: Create potentially hazardous conditions for residents, people walking, bicycling, or driving or for public transit operations.

The closure and rerouting of pedestrian and bicycle travel routes under the proposed Project would cause unsafe conditions if the alternative routes are longer or are not suitable for walking or biking, such as the residential areas along Balboa Drive and Sayre Drive that may lose their direct connections to the Montclair Railroad Trail and to the Montclair Village. As a result, even with implementation of mitigation measures, construction of the overhead power line rebuild could still create potentially hazardous conditions for residents, people walking or bicycling, or driving or for public transit operations; therefore, Impact T-5 would be ***significant and unavoidable,*** as defined in Section 3.15.3.3 (Transportation, Impacts and Mitigation Measures).

Impact T-6: Interfere with walking or bicycling accessibility.

Construction of the overhead power line rebuild would require temporary road and/or lane closures, which would affect walking and bicycling accessibility. Even with implementation of these mitigation measures, the closure and rerouting of pedestrian and bicycle travel routes could still cause unsafe conditions. Alternate routes would be longer and less suitable for walking or biking. This is especially true of the residential areas along Balboa Drive and Sayre Drive, which may lose their direct connections to the Montclair Railroad Trail and to Montclair Village. As a result, even with implementation of mitigation measures, construction of the overhead power line rebuild could still interfere with walking or bicycling accessibility; therefore, Impact T-6 would be ***significant and unavoidable***.

Impact T-7: Substantially delay public transit.

The implementation of MMs T-1a and N-1b would reduce the magnitude of the impact. However, construction details are not known at this time to determine the locations, duration, or feasibility of specific bus stop closure or relocation or bus rerouting. As a result, project construction could interfere with transit operations and substantially delay public transit services. Therefore, impacts would be ***significant and unavoidable***.

Impact WF-1: Substantially impair an adopted emergency response plan or emergency evacuation plan.

Although most temporary road closure locations would have ingress and egress available on both sides of the closures that could be used in the event of an evacuation, the required use of alternate routes would increase evacuation times for persons living or working near the closure sites due to the longer and less direct drive times. Increases in evacuation times would also occur on routes that remain open due to increases in evacuation demand on the remaining open routes, thus affecting the evacuation times for persons not otherwise near the road closures. Road closures east of SR-13 that are on critical evacuation routes or could potentially obstruct evacuation routes would impair an emergency evacuation plan or emergency response plan, causing a significant and unavoidable impact.

In a wildfire event requiring emergency evacuation, construction vehicles may be blocking multiple roadways in the Oakland Hills. While they may be able to be moved in less than one hour, any road blockage in a wildfire emergency would create a significant and unavoidable impact. Even with implementation of mitigation measures, the construction of the overhead rebuild segment of the Project has the potential to substantially impair an adopted emergency response plan or emergency evacuation plan, and Impact WF-1 would remain ***significant and unavoidable***.

6.1.2. Significant Cumulative Effects

According to section 15355 of the State CEQA Guidelines, the term *cumulative impacts* "refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." Individual effects that may contribute to a cumulative impact may be from a single project or several separate projects. Individually, the impacts of a project may be relatively minor, but when considered along with impacts of other closely related or nearby projects, including newly proposed projects, the effects could be cumulatively considerable.

This EIR has considered the potential cumulative effects of the Project for each issue area and for alternatives in Chapter 5. Impacts of these projects are cumulatively considerable when they are combined with impacts from past, present, and reasonable future projects.

A detailed analysis of the cumulative effects of the proposed Project is presented in EIR Chapter 5 (Cumulative Scenario and Cumulative Impacts Analysis), including a discussion for each of the 17 environmental categories. Each environmental issue area has determined that the proposed Project's contribution to cumulative impacts would not be cumulatively considerable, and therefore cumulative impacts would be less than significant with implementation of mitigation measures, as described in EIR Chapter 5.

6.2. Significant Irreversible Environmental Changes

Pursuant to Section 15126.2 (d) of the CEQA Guidelines, an EIR must address significant irreversible environmental changes and irretrievable commitments of resources that would be caused by implementation of the proposed Project. These changes include uses of non-renewable resources during construction and operation, long-term or permanent access to previously inaccessible areas, and irreversible damages that may result from project-related accidents.

Implementation of the proposed Project would result in the consumption of energy in the form of fuel needed for vehicles and equipment used during construction. Additional energy would be required for the manufacture of new materials for the Project, some of which would not be recyclable at the end of the proposed Project's lifetime. The energy required for the production of these materials also would result in an irretrievable commitment of natural resources. The anticipated equipment, vehicles, and materials required for construction of the proposed Project are detailed in Section 2 (Project Description). Operation and maintenance activities would consist of routine inspection, repair, and maintenance activities, which would be conducted similar to the existing facilities modified as part of this Project. Therefore, the operation and maintenance of the proposed Project would not cause a substantial increase in the consumption or use of nonrenewable resources.

Implementation of the proposed Project would result in the permanent loss of approximately 0.06 acres of vegetation and habitat, which equals 0.1 percent of the total land (58.96 acres) temporarily disturbed within the right-of-way for construction (see Table 2.3-4, Estimated Disturbance Within Vegetation Communities). Assuming that the mitigation measures for biological resources recommended in this EIR would be implemented, Project-induced loss of vegetation and habitat would be less than significant (see Section 3.4 Biological Resources).

Construction and operation of the proposed Project would require the use of a limited amount of hazardous materials such as fuel, lubricants, and solvents. Additionally, during Project construction and operation preexisting soil or groundwater contamination potentially could be encountered. All hazardous materials would be stored, handled, and used in accordance with the mitigation measures recommended in this EIR and applicable federal, State, and local regulations, including a construction-phase Storm Water Pollution Prevention Plan (SWPPP). Assuming appropriate implementation of these plans and practices, as well as Mitigation Measure HH-1a (Prepare and Implement a Soil Management Plan) recommended in Section

3.9 (Hazards and Hazardous Materials), potential environmental accidents associated with the proposed Project would be less than significant.

6.3. Growth-Inducing Effects

The discussion on growth-inducing effects must address "ways in which the proposed Project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment" (CEQA Guidelines Section 15126.2(e)).

Growth-inducing effects of a project are considered significant if the project directly causes population growth beyond that considered in local and regional land use plans or another relevant population growth projection. Effects would also be significant if the proposed Project would provide the means to allow for population growth beyond that considered in local and regional land use plans or another relevant population growth projection.

PG&E's proposed Project would upgrade existing 115 kV power lines between Moraga and Oakland X Substations in the City of Orinda, unincorporated areas of Contra Costa County, and the cities of Oakland and Piedmont within Alameda County. With regard to the proposed Project, potential growth-inducing impacts would arise primarily from direct and indirect employment associated with construction of Project facilities.

The proposed Project would not contribute directly to the creation of permanent jobs or housing in the PG&E service area; it is a construction project of limited duration and, as discussed below, would not result in in-migration or long-term job creation.

Growth Caused by Direct and Indirect Employment

The daily workforce necessary for construction of the proposed Project is anticipated to be up to a maximum of 117 personnel working on peak construction days, and the average daily workforce would consist of approximately 62 personnel. The actual numbers would vary from day to day, depending on the tasks being executed and the number of active construction locations. Removing existing structures and power lines and installing new and replacement structures and lines while minimizing power outages would require a complex construction schedule. It is expected that multiple locations would be under construction simultaneously and that different activities would be occurring at different locations. To be conservative, the maximum estimated average daily workforce is assumed for the proposed Project duration. If a substantial number of workers were to relocate permanently, this would have the potential to cause population growth. However, a large local construction workforce is available within reasonable commute distance of the proposed Project. The construction workforce can be drawn from the large population centers in Contra Costa and Alameda Counties.

During construction, few if any workers are expected to relocate permanently to the area; as a result, no new demand for local housing is expected to be attributable to the proposed Project. Because personnel are not expected to permanently relocate as a result of Project implementation, the Project would not result in new demand for local public services or facilities that serve the proposed Project route and region. Following construction, no new personnel are anticipated to be added to the utility's permanent workforce to operate and maintain project facilities once the Project is complete. This is because much of the proposed Project is to replace existing power lines and facilities with upgraded power lines and facilities.

Alameda and Contra Costa Counties have a combined estimated construction workforce of nearly 97,000 persons (U.S. Census Bureau, 2023a; 2023b). Due to the size of the labor force in the region, it is assumed that much of the labor force required for construction would come from within the region, with specialty tradespersons potentially temporarily relocating from elsewhere.

The number of workers in the construction trades locally is indicative of the labor pool that may be available to work on the Project. In addition to the labor pool in the immediate vicinity of the Project, the larger regional labor pool can be tapped as well, as construction workers typically work throughout the region in which they reside.

At the peak of construction-related activities, the proposed Project would require an estimated maximum of 117 workers per day. The workforce needed for the Project is a small portion of the available construction workforce found in Contra Costa and Alameda Counties. The majority of these workers would be expected to commute between their homes and individual work sites or assembly points. A limited number of construction personnel may choose to stay at local hotels during construction in lieu of commuting.

Although many skills required for construction of Project components are available locally, other skills are specialized and specific to the electrical industry. Workers with the required specialized skills often relocate temporarily from elsewhere to work on a project. If workers move to the area from out of state, they would require housing. There is an adequate supply of temporary accommodations in the area to accommodate out-of-town (non-commuting) personnel, if needed, as at a minimum there are approximately 180 hotel rooms in Contra Costa County (Trip.com, 2025). Therefore, no growth in residential housing or services would occur. Activities associated with the construction of the proposed Project would not increase demand for housing, induce population growth, or be considered growth-inducing.

Operation and maintenance of PG&E's power line rebuild would require routine and ongoing maintenance. These activities would be similar in nature and extent to those currently occurring on the existing lines. Any potential increase in duration, intensity, or frequency would be nominal and would not create long-term employment opportunities. Therefore, operation and maintenance activities would not result in a permanent increase in the local population, increase demand for housing, or be considered growth-inducing.

Conclusions Regarding Growth-Inducement

The construction and operation of PG&E's proposed Project would not result in a permanent increase in the local population or demand for housing or be considered growth inducing from a community growth perspective. Construction of the proposed Project would not result in a significant in-migration of workers or create long-term jobs; therefore, the construction phase of the Project is not considered to be growth inducing.

6.4. Energy Consumption

Pursuant to Appendix F (Energy Conservation) of the CEQA Guidelines, an EIR must address potential energy impacts of proposed Projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy.

Chapter 3.6, Energy, provides a detailed analysis of impacts on energy as a result of construction, operation, and maintenance of the Project. PG&E's proposed Project would upgrade approximately 5-miles of 115kV power lines between Moraga Substation and Oakland X Substation. The Project spans the City of Orinda, unincorporated Contra Costa County, City of Oakland, and the City of Piedmont. As stated above in Section 6.1 (Significant and Unavoidable Environmental Effects) construction activity associated with the Proposed Project or any of the alternatives would require the consumption of fuel for construction vehicles, construction equipment, and helicopter use. Additionally, construction would require the manufacture and delivery of new materials, which would require energy use. Based on their composition, some of the structures and conductors to be removed would be recyclable. Also, as part of Project construction, disassembled elements from existing structures would be recycled, as well as wood guard poles and other

solid waste, such as replaced substation fence sections, damaged steel from pole assemblies, conductor segments, conductor reels, pallets, and broken hardware, as feasible. As well, at the end of the Proposed Project's lifetime, some materials installed as part of the project would be recyclable, similar to those recycled during Project construction. Recycling would reduce the energy needs of materials production, as compared to manufacturing materials from new raw materials such as ore or petroleum. Maintenance and operations and inspection of the Proposed Project would not change appreciably from PG&E's existing activities in Project area and thus would not cause a substantial increase in the consumption or use of nonrenewable resources. No increases in inefficiencies or unnecessary energy consumption are expected to occur as a direct or indirect consequence of the project.

6.5. References

PG&E (Pacific Gas and Electric Company), 2024. Proponent's Environmental Assessment for Pacific Gas and Electric Company's Moraga–Oakland X 115 kV Rebuild Project. Application A.24-11-005. November 15. https://ia.cpuc.ca.gov/environment/info/aspen/moraga-oakland/moraga-oakland.htm.

Trip.com, 2025. Contra Costa County Properties. https://us.trip.com/hotels/list?city=20337&cityName=Contra%20Costa%20County&country=66&provinceId=10125&searchWord=Contra%20Costa%20County&checkin=2025%2F05%2F16&checkout=2025%2F05%2F17&crn=1&adult=2&children=0&ages=&spm=10320665784.hohSearchBox-1. Accessed May 16, 2025.

U.S. Census Bureau, 2023a. American Community Survey 1-Year Estimates Comparison Profiles, Economic Characteristics, Alameda County, California. https://data.census.gov/table/ACSDP1Y2023.DP03?g=050XX00US06001. Accessed April 22, 2025.

_____, 2023b. American Community Survey 1-Year Estimates Comparison Profiles, Economic Characteristics, Contra Costa County, California. https://data.census.gov/table/ACSDP1Y2023.DP03?g=050XX00US06013. Accessed April 22, 2025.

7. MITIGATION MONITORING AND REPORTING PLAN

The CPUC is the CEQA Lead Agency. In that role, if the Proposed Project or an alternative is approved, the CPUC is responsible for ensuring that monitoring and reporting on required mitigation occurs. This section describes the implementation of the CPUC's typical mitigation monitoring process.

As the Applicant and project proponent, PG&E would be responsible for implementing all applicable measures, including the adopted mitigation measures and conditions of project approval, as well as conditions imposed in any permits or regulations administered by other responsible agencies.

The Mitigation Monitoring and Reporting Plan (MMRP) for the proposed Project (or approved alternatives) establishes the approach to implementing the mitigation measures and Applicant Proposed Measures (APMs) identified in the EIR. If the project is approved and the MMRP described below is adopted by the CPUC, a detailed Mitigation Monitoring, Compliance, and Reporting Program (MMCRP) would be developed, as described in Section 7.2: Content and Organization of the MMCRP. The MMCRP would be the mechanism for CPUC implementation of the MMRP.

The MMRP is presented in Table 7-1 (see Section 7.6). Table 7-1 is organized first by environmental topic (i.e., Aesthetics, Biological Resources, etc.) and subsequently by APM or mitigation measure. Table 7-1 includes:

- APMs and Mitigation Measures that PG&E must implement as part of the proposed Project or any approved Alternative
- Monitoring and reporting requirements
- Effectiveness criteria
- Timing and location of implementation for each measure

The CPUC's mitigation monitoring approach is to develop a more detailed Mitigation Monitoring, Compliance, and Reporting Program (MMCRP) after approval of the project or an alternative. The MMCRP meets the requirement of CEQA Guidelines section 15097 and would establish the approach to implementing the adopted mitigation measures and APMs identified in the EIR, as described in Section 7.2 below. The MMCRP defines the detailed mechanisms used by the CPUC to comply with CEQA's requirements for mitigation monitoring.

The MMCRP would define the CPUC's environmental monitoring and reporting activities throughout project construction, including during site rehabilitation and restoration after construction is completed. It would detail how and when the mitigation measures would be implemented. As well, the MMCRP would identify duties and responsibilities of the various parties, communication protocols to follow, and record management requirements. The MMCRP would be prepared and instituted prior to any notices to proceed (NTPs) being issued or the initiation of any construction.

7.1. Authority for Mitigation Monitoring

7.1.1. California Public Utilities Commission

The California Public Utilities Code confers authority upon the CPUC to regulate the terms of service and the safety, practices, and equipment of utilities subject to its jurisdiction. It is CPUC practice, pursuant to its statutory responsibility, to protect the environment and to require that mitigation measures stipulated as conditions of approval be properly implemented, monitored, and reported on. This requirement is codified statewide as Section 21081.6 of the Public Resources Code, which requires a public agency to adopt a mitigation monitoring or reporting program, or both, when it approves a project that is subject to preparation of an EIR and where the EIR for the project identifies significant adverse environmental effects. CEQA Guidelines Section 15097 describes agency requirements for mitigation monitoring or reporting.

The purpose of the detailed MMCRP is to ensure that the measures adopted to mitigate or avoid significant impacts of a project are implemented, and to report on their implementation. The CPUC views the MMCRP as a working guide to facilitate implementation of mitigation measures imposed by the approving agencies measures and any measures proposed by the Applicant, and to provide for the monitoring, compliance, and reporting activities of the CPUC and its designated monitors.

As described above, the CPUC will address its responsibilities under Public Resources Code Section 21081.6 when it takes action on PG&E's application for a Permit to Construct. If the Commission approves the proposed Project or an alternative, it also will adopt the MMRP, and it will include the mitigation measures as a condition of approval. The MMRP would be incorporated into the MMCRP.

7.2. Content and Organization of the MMCRP

If the proposed Project or an alternative is approved, the CPUC would develop the MMCRP in accordance with the description in this section. The MMCRP would serve as a self-contained guide for implementing the program throughout project construction.

The Final MMCRP would contain a concise overview and description of the approved project, outline its physical locations and geographic limits, and, to the extent known, provide the project schedule. It would include all adopted mitigation measures and would specify the master reference document(s) that the monitors and the Applicant would use in carrying out the program (e.g., the Final EIR, detailed working maps and plans, issued permits, etc.). The APMs to which PG&E has committed would be incorporated to the extent they have not been superseded by specific mitigation measures in the EIR (as described in the individual resource area sections of the EIR).

The MMCRP would include a list of the agencies having jurisdiction over various aspects of the project, and a description of where these respective jurisdictions occur. For example, the MMCRP would state which California Department of Fish and Wildlife regional office has jurisdiction and provide contact information, including the designated representative's name, address, email, and telephone and fax numbers.

The MMCRP would also define the manner in which PG&E's monitoring team would interact with the CPUC staff and consultants. In addition, the MMCRP would define PG&E's required submittals to the agencies, and protocol for interactions among agency and PG&E team members.

The MMCRP would be structured as follows:

1. **Introduction**
    a. Authority and Purpose of the Program
    b. Jurisdictional Agencies
    c. Project Description
    d. Organization of the MMCRP
2. **Roles and Responsibilities**
    a. Monitoring Responsibility
    b. Enforcement Responsibility
    c. Mitigation Compliance Responsibility
    d. Communications
    e. Dispute Resolution
    f. PG&E Roles
        i. Identification of the qualified PG&E team members who would verify that all adopted measures and conditions have been successfully implemented.
        ii. Organization of the PG&E team, including specifying duties, roles, and responsibilities.
        iii. Identification of primary PG&E contacts for CPUC environmental monitoring staff liaison.

3. General Monitoring and Compliance Procedures

a. Environmental Monitors
b. Construction Personnel
c. General Reporting Requirements
    i. PG&E Compliance Levels for internal reporting
    ii. PG&E Daily Incident Summary format and protocol
    iii. PG&E Weekly Monitoring Report format and content
    iv. PG&E Annual Monitoring Report format and content
d. Records Management and Public Access to Records

4. Mitigation Measure Tables

7.3. Roles and Responsibilities

Responsibility for implementing the adopted measures rests with PG&E, unless otherwise specified in the measure.

As Lead Agency under CEQA, the CPUC is responsible to monitor an approved project to ensure that required mitigation measures and APMs are implemented. The required mitigation monitoring program would be implemented through the MMCRP. The purpose of mitigation monitoring is to ensure that the mitigation measures adopted by the CPUC are implemented and that mitigated environmental impacts are reduced to the level identified in the EIR.

The CPUC may delegate duties and responsibilities for monitoring to environmental monitors or consultants, if any, working on behalf of cooperating or responsible agencies. As well, some monitoring responsibilities may be assumed by responsible agencies, where areas or resources under their jurisdiction are potentially affected or involved.

PG&E would deploy its own monitors for its own purposes, to ensure implementation of its commitments and execution of its responsibilities. The number of PG&E construction monitors assigned to the project would be determined by the utility and would depend on the number of concurrent construction activities underway, their locations, and the types of resources potentially affected. The CPUC would ensure that persons assigned monitoring duties by PG&E are qualified to undertake those duties.

When a mitigation measure requires that a study or plan be developed during the design or pre-construction phase of the project, PG&E must submit the final study or plan to CPUC for review and approval. Any study or plan that requires approval of the CPUC must allow at least 60 days for adequate review. Other agencies and jurisdictions with authority over aspects of the project or particular resources may require additional review time. It would be the responsibility of the CPUC environmental monitoring team to confirm that appropriate opportunities for agency reviews have occurred and required approvals obtained.

During the course of construction, circumstances may arise that require deviations from the project as approved. The CPUC, along with its environmental monitors, would evaluate any proposed deviations from the approved project to ensure they are consistent with CEQA requirements. Depending on its nature, a requested deviation would be processed as a Minor Project Refinement (MPR) or be the subject of a Petition for Modification (PFM) submitted by the Applicant.

MPRs would be strictly limited to minor project changes that do not trigger additional permit requirements, do not increase the severity of an impact or create a new significant impact, and are within the geographic scope of the EIR's analysis.

If a project change would create or have the potential to create a new significant impact, increase the severity of an impact, or occur outside the geographic area evaluated in the EIR, the Applicant would be required to submit a PFM. The CPUC would evaluate the PFM under CEQA, as appropriate to determine what form of supplemental environmental review would be required.

7.3.1. Enforcement Responsibility

The CPUC would be responsible for monitoring implementation of the MMCRP and enforcing the procedures adopted. Generally, this would be done through the Environmental Monitors assigned by the agencies. In addition, if the agencies' Environmental Monitors note conditions or situations falling within the purview of other agencies, they may notify the appropriate agencies or individuals about any problems, and report these to the CPUC.

As the State's regulator of investor-owned utilities, CPUC has the authority to halt any construction, operation, or maintenance activity associated with the project if the activity is determined to be a deviation from the approved project or the adopted mitigation measures.

7.3.2. Compliance Responsibility

PG&E would be responsible for successfully implementing all the adopted mitigation measures in the MMCRP. The MMCRP would contain criteria that define whether mitigation is successful. Standards for successful mitigation also are implicit in many mitigation measures that include such requirements as obtaining permits or avoiding a specific impact entirely. Other mitigation measures include success criteria that are listed in a table at the end of each resource impact evaluation section of the EIR. Additional mitigation success thresholds may be established through the review and approval of specific plans required under mitigation measures and by another agency with applicable jurisdiction during that agency's permitting process.

PG&E would inform CPUC and the Environmental Monitors in writing of any mitigation measures that are not or cannot be successfully implemented and provide alternative approaches for successful mitigation implementation. The CPUC, in coordination with its Environmental Monitors, would review the alternative approach to determine if it is adequate and whether an MPR or PFM would apply.

7.4. Dispute Resolution

The following procedure will be observed for dispute resolution between CPUC staff and the Applicant: Disputes and complaints should be directed to the CPUC Project Manager for resolution. Should this informal process fail, the CPUC Project Manager may initiate enforcement or compliance action to address deviations from the approved project.

7.5. General Monitoring Procedures

7.5.1. Environmental Monitors

Many of the monitoring procedures would be conducted during the construction phase of the Project. The CPUC and Environmental Monitors are responsible for integrating the mitigation monitoring procedures into the construction process in coordination with PG&E. To oversee the monitoring procedures and to ensure success, the Environmental Monitors assigned must be onsite during construction activity having the potential to create a significant environmental impact or other impact for which mitigation is required. The Environmental Monitors are responsible for ensuring that all procedures specified in the monitoring program are followed.

7.5.2. Construction Personnel

A key element in the success of mitigation and mitigation monitoring is the full cooperation of construction personnel and supervisors. Successful implementation of many of the mitigation measures requires

specific actions and behaviors on the part of the construction supervisors or crews. To ensure success, the following actions, detailed in specific mitigation measures included in the MMCRP, would be taken:

- Procedures to be followed by construction companies engaged to do the work would be written into their contracts with PG&E. Subcontractors to the construction companies will have the same provisions added to their contracts. ~~Procedures to be followed by construction crews would be written into a separate agreement that all construction personnel would be asked to sign, denoting consent to the procedures.~~
- A Worker Environmental Awareness Program (WEAP) would be conducted to inform and train construction personnel about the requirements of the monitoring program (as detailed in the MMCRP). The CPUC Environmental Monitors would verify that each crew member received the required training.
- Training procedures for third-party subcontractors (such as concrete delivery, porta-potty delivery/ cleaning, etc.) shall be provided to the CPUC for review and approval, and the CPUC Environmental Monitors would verify implementation.
- A written summary of mitigation monitoring procedures would be provided to construction supervisors for all mitigation measures requiring their attention.

7.5.3. Reporting Procedures

Detailed weekly reports would be prepared and submitted to CPUC by the CPUC environmental monitoring team. These would include detailed information on construction activities, compliance activities observed by the Environmental Monitors and others documented by PG&E, any issues and their resolution, and photographs of relevant activities and conditions.

PG&E is required to have its own monitors for particular resources, depending on project needs and activities. These monitors provide daily reports/surveys that are entered into PG&E's field record environmental database ~~(FRED)~~ system. ~~It is assumed that FRED or a similar database would be employed on this project.~~ CPUC Environmental Monitors would have access to the reports. Construction is not allowed to start in a particular area until the required pre-construction surveys and flagging/staking are completed per the MMCRP, and the CPUC Environmental Monitor has validated compliance.

PG&E is to provide the CPUC with written weekly and annual reports of the project, which shall include progress of construction, resulting impacts, mitigation implemented, and all other noteworthy elements of the project.

7.5.4. Public Access to Records

The CPUC provides public access to records and reports used to track the monitoring program. Monitoring records and reports would be made available for public inspection by the CPUC on request. The CPUC and PG&E would develop a filing and tracking system. For additional information on mitigation monitoring and reporting for the project, the Energy Division of the CPUC would maintain an Internet website, accessible at:

https://ia.cpuc.ca.gov/environment/info/aspen/moraga-oakland/moraga-oakland.htm

To facilitate the public's awareness, the CPUC would make weekly reports available on the website.

7.6. Mitigation Monitoring and Reporting Program

Table 7-1. Mitigation Monitoring and Reporting Program

Aesthetics	
APM AES-1	**Aesthetics Impact Reduction During Construction**
Location:	All Project sites
Monitoring/Reporting Action:	PG&E to implement aesthetics impact reduction measures
Effectiveness Criteria:	Aesthetics impact reduction measures are implemented as part of the Project
Responsible Agency:	CPUC
Timing:	During construction activities
APM AES-1	**Aesthetics Impact Reduction During Construction.** All Project sites will be maintained in a clean and orderly state. Nighttime lighting will be directed away from residential areas and have shields to prevent light spillover effects. Upon completion of Project construction, Project staging and temporary work areas will be returned to pre-Project conditions, including regrading of the site and revegetating or repaving of disturbed areas to match pre-existing contours and conditions.
APM AES-2	**Use of Dulled Galvanized Finish or Corten Steel on Replacement Structures and Non-Specular Conductors**
Location:	Replacement power lines structures and non-specular conductors
Monitoring/Reporting Action:	PG&E to apply dulled galvanized finish or Corten steel
Effectiveness Criteria:	Dulled galvanized finish or Corten steel is implemented as part of the Project
Responsible Agency:	CPUC
Timing:	During construction activities
APM AES-2	**Use of Dulled Galvanized Finish or Corten Steel on Replacement Structures and Non-Specular Conductors.** Use of a factory-dulled galvanized finish or Corten steel on replacement power line structures and non-specular (non-reflective) conductors will reduce the potential for a new source of glare and visual contrast resulting from the Project.
Mitigation Measure AES-3a	**Screen Construction Activities from View**
Location:	Construction yards, staging areas, and material and equipment storage areas
Monitoring/Reporting Action:	PG&E to install screening fencing or demonstrate that a yard should be exempt. For exemptions, PG&E to identify sites on maps demonstrating visibility and provide to CPUC at least 60 days prior to start of construction.
Effectiveness Criteria:	Prior to use of yards and other project areas, visual screening shall be installed.
Responsible Agency:	CPUC
Timing:	60 days prior to the start of construction
MM AES-3a	**Screen construction activities from view.** Construction yards, staging areas, and material and equipment storage areas shall be visually screened using temporary screening fencing. Fencing shall be of an appropriate structure, material, and color for each specific location, as determined in coordination with the appropriate local (County or City) authority. This requirement shall not apply if PG&E can demonstrate that installing temporary fencing will introduce a safety hazard or that construction yards are located away from areas of high public visibility including public roads, residential areas, and public recreational facilities. For any site that PG&E proposes to exempt from the screening requirement, PG&E shall define the site on a detailed map demonstrating its visibility

Aesthetics	
	from nearby roads, residences, or recreational facilities submitted to the CPUC for review and approval at least 60 days prior to the start of construction at, or use of, that site.

Agriculture and Forestry Resources	
APM AGR-1	**Minimize Impacts on Active Agricultural Areas.**
Location:	Project lands under agricultural (grazing) operations
Monitoring/Reporting Action:	PG&E to notify agricultural landowners prior to construction. Grazing lands are restored to pre-project conditions per agreements with agricultural landowners.
Effectiveness Criteria:	Notification occurs to agricultural landowners to minimize disruption to grazing operations and grazing lands are restored to pre-project conditions.
Responsible Agency:	CPUC
Timing:	During construction activities

APM AGR-1 Minimize Impacts on Active Agricultural Areas.

- Prior to construction, PG&E will provide written notice to agricultural landowners outlining construction activities, preliminary schedule, and timing of restoration efforts.
- PG&E will coordinate with landowners to minimize construction-related disruptions to grazing operations. To the extent reasonably feasible, PG&E will schedule construction activities to minimize disruptions to grazing.
- PG&E will restore grazing land temporarily impacted by construction to pre-project conditions following completion of construction, including areas impacted by establishment of temporary staging, laydown and storage areas, overland access, guard structures, and pull sites. The responsibility of performing these various tasks may be stipulated in an agreement between PG&E and the landowner.

Air Quality	
APM AIR-1	**Dust Control During Construction**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement dust control measures
Effectiveness Criteria:	Dust control measures are implemented as part of the approved Project
Responsible Agency:	CPUC
Timing:	During construction activities

APM AIR-1 Dust Control During Construction. PG&E will implement measures to control fugitive dust consistent with BAAQMD's Basic Best Management Practices (BAAQMD, 2023) as follows:

- All exposed surfaces within the active construction area (for example, parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day as necessary to contain dust.
- All haul trucks transporting soil, sand, or other loose material offsite will be covered.
- All visible mud or dirt trackout onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- All grading activities shall be suspended when average wind speeds exceed 20 mph. If excavating soils when average wind speeds exceed 20 mph, soil piles will be lightly sprayed with water to contain dust to the work area.

Air Quality

- Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations.
- Where project activities are within 1,000 feet of residential areas, PG&E will also implement the following additional BMPs, consistent with BAAQMD's Enhanced BMPs (BAAQMD, 2023):
- Limit the simultaneous occurrence of excavation, grading, and ground-disturbing construction activities.
- Minimize the amount of excavated material or waste materials stored at the site.
- Stabilize soil where project grading occurred and the area is inactive for at least 14 calendar days. Soil stabilization measures may include wood mulch, gravel, seeding or application of other non-toxic soil stabilizer consistent with APM HYD-1.

APM AIR-2	**Asbestos Management**
Location:	Load-bearing structures to be removed
Monitoring/Reporting Action:	Asbestos testing and notification of results
Effectiveness Criteria:	Asbestos testing is implemented as approved, and notification occurs to the EFS and BAAQMD
Responsible Agency:	CPUC and BAAQMD
Timing:	Notification to EFS 45 days prior to work commencing. BAAQMD notification 10 working days prior to work (demolition) commencing.

APM AIR-2 **Asbestos Management.** If any load-bearing structure (poles, towers, concrete pads) is to be removed, this project will require asbestos testing and notification to BAAQMD. Notify the Environmental Field Specialist (EFS) at least 45 days prior to work commencing. BAAQMD must be notified at least 10 working days prior to work (demolition) commencing. If the construction start date changes, notify the EFS immediately as notification to BAAQMD may need to be resubmitted. EFS is responsible for obtaining any necessary permits from BAAQMD prior to the start of work.

APM AIR-3	**Minimize Construction Equipment Exhaust**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement exhaust minimization measures
Effectiveness Criteria:	Exhaust minimization measure is implemented as approved
Responsible Agency:	CPUC
Timing:	During construction activities

APM AIR-3 **Minimize Construction Equipment Exhaust.** PG&E will minimize construction equipment exhaust as follows:

- Use low-emission or electric construction equipment where feasible.
- Ensure that cranes, off-highway trucks, and tractors/loaders/backhoes used during project construction will comply with Tier 4 emissions standards, pending availability.

Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following startup that limit their availability for use following startup. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction supervisors will include briefings to crews on vehicle use as part of precon-

Air Quality	
	struction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.
MM AQ-2a	**Construction Activity Management Plan (*Alternatives 2, 3, 4, and/or 5 only*)**
Location:	Construction areas of the underground alternatives (Alternatives 2, 3, 4, and/or 5)
Monitoring/Reporting Action:	PG&E to develop and implement a construction activity management plan
Effectiveness Criteria	Construction activity management plan is implemented as approved
Responsible Agency	CPUC
Timing:	During construction activities
MM AQ-2a:	**Construction Activity Management Plan.** PG&E shall develop a construction activity management plan to ensure that regional emissions of NOx do not exceed a rate of 54 pounds per day, averaged over each year of construction. To accomplish this, construction phasing for the alternatives would be required to occur staggered such that of the four main construction activities (overhead circuit replacement in the eastern portion, underground replacement in the western portion, two underground replacement alternatives in the central portion), only two of these activities would occur concurrently. For example, construction would be required to be staggered such that each alternative would only be constructed at the same time as either the underground replacement in the western portion of the project, or the overhead circuit replacement. The construction activity management plan shall reflect PG&E's anticipated final design consistent with the CPUC-approved alternative(s) and provide emissions estimates reflecting the final design.

Biological Resources	
Field Protocols (FPs) from the Bay Area Habitat Conservation Plan (BAHCP)	
FP-01	**Field Protocol 01**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to hold training on habitat conservation plan
Effectiveness Criteria:	Training is implemented as approved
Responsible Agency:	CPUC
Timing:	Prior to start of construction
FP-01	**Field Protocol 01.** Hold annual training on habitat conservation plan requirements for employees and contractors performing covered activities in the HCP Plan Area that are applicable to their job duties and work.
FP-02	**Field Protocol 02**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to use designate vehicle and equipment parking areas
Effectiveness Criteria:	Vehicles and equipment parking designation is implemented as approved
Responsible Agency:	CPUC
Timing:	During construction activities
FP-02	**Field Protocol 02.** Park vehicles and equipment on pavement, existing roads, or other disturbed or designated areas (barren, gravel, compacted dirt).
FP-03	**Field Protocol 03**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to use existing access and ROW roads and minimize development of new accesses and ROW roads

Biological Resources	
Effectiveness Criteria:	Existing access and ROW roads are utilized as approved, minimal development of new access and ROW roads occurs
Responsible Agency:	CPUC
Timing:	During construction activities
FP-03	**Field Protocol 03.** Use existing access and ROW roads. Minimize the development of new access and ROW roads, including clearing and blading for temporary vehicle access in areas of natural vegetation.
FP-04	**Field Protocol 04**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to locate off-road access routes and work sites to minimize impacts on natural resources
Effectiveness Criteria:	Off-road access routes and work sites that minimize impacts to natural resources are implemented as approved
Responsible Agency:	CPUC
Timing:	During construction activities
FP-04	**Field Protocol 04.** Locate off-road access routes and work sites to minimize impacts on plants, shrubs, and trees, small mammal burrows, and unique natural features (e.g., rock outcrops).
FP-05	**Field Protocol 05**
Location:	State and federally owned wildlife areas, ecological reserves, or conservation areas
Monitoring/Reporting Action:	PG&E to notify conservation landowner
Effectiveness Criteria:	Notification is implemented as approved
Responsible Agency:	CPUC
Timing:	At least two business days prior to construction activities
FP-05	**Field Protocol 05.** Notify a conservation landowner at least 2 business days prior to conducting covered activities on protected lands (state and federally owned wildlife areas, ecological reserves, or conservation areas); more notice will be provided if possible or if required by other permits. If the work is an emergency, as defined in PG&E's Utility Procedure ENV-8003P-01, PG&E will notify the conservation landowner within 48 hours after initiating emergency work. While this notification is intended only to inform the conservation landowner, PG&E will attempt to work with the conservation landowner to address landowner concerns.
FP-06	**Field Protocol 06**
Location:	Pipes and culverts
Monitoring/Reporting Action:	PG&E to inspect pipes and culverts. PG&E to contact a biologist if a covered species is suspected or discovered
Effectiveness Criteria:	Potential for covered species to seek refuge or shelter in pipes and culverts is minimized
Responsible Agency:	CPUC
Timing:	During construction activities
FP-06	**Field Protocol 06.** Minimize potential for covered species to seek refuge or shelter in pipes and culverts. Inspect pipes and culverts of diameter wide enough to be entered by a covered species that could inhabit the area where pipes are stored for wildlife species prior to moving pipes and culverts. Immediately contact a biologist if a covered species is suspected or discovered.

Biological Resources	
FP-07	**Field Protocol 07**
Location:	Unpaved roads
Monitoring/Reporting Action:	PG&E to implement speed limits
Effectiveness Criteria:	Speed limits are implemented as approved
Responsible Agency:	CPUC
Timing:	During construction activities
FP-07	**Field Protocol 07.** Vehicle speeds on unpaved roads will not exceed 15 miles per hour [mph].
FP-08	**Field Protocol 08**
Location:	All work sites
Monitoring/Reporting Action:	PG&E to prohibit trash dumping, firearms, open fires (such as barbecues), hunting, and pets (except for safety in remote locations) at work sites
Effectiveness Criteria:	Activities are prohibited
Responsible Agency:	CPUC
Timing:	During construction activities
FP-08	**Field Protocol 08.** Prohibit trash dumping, firearms, open fires (such as barbecues), hunting, and pets (except for safety in remote locations) at work sites.
FP-09	**Field Protocol 09**
Location:	Construction areas in State Responsibility Areas
Monitoring/Reporting Action:	PG&E to implement fire suppression equipment
Effectiveness Criteria:	Fire suppression equipment is implemented as approved
Responsible Agency:	CPUC
Timing:	During fire season
FP-09	**Field Protocol 09.** During fire season in designated State Responsibility Areas, equip all motorized equipment with federally approved or state-approved spark arrestors. Use a backpack pump filled with water and a shovel and fire-resistant mats and/or windscreens when welding. During fire "red flag" conditions, as determined by the California Department of Forestry and Fire Protection, curtail welding. Each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C. Clear parking and storage areas of all flammable materials.
FP-10	**Field Protocol 10**
Location:	All project areas
Monitoring/Reporting Action:	PG&E to minimize activity footprint and minimize the amount of time spent at a work location
Effectiveness Criteria:	Time spent at work locations is minimized
Responsible Agency:	CPUC
Timing:	During construction activity
FP-10	**Field Protocol 10.** Minimize the activity footprint and minimize the amount of time spent at a work location to reduce the potential for take of species.
FP-11	**Field Protocol 11**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement erosion and sediment control best management practices (BMPs)
Effectiveness Criteria:	BMPs are implemented as approved
Responsible Agency:	CPUC

Biological Resources	
Timing:	During construction Activities
FP-11	**Field Protocol 11.** Utilize standard erosion and sediment control BMPs (pursuant to the most current version of PG&E's *Stormwater Field Manual for Construction Best Management* Practices) to prevent construction site runoff into waterways.
FP-12	**Field Protocol 12**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement stockpile soil control measures
Effectiveness Criteria:	Stockpile soil control measures are implemented as approved
Responsible Agency:	CPUC
Timing:	During construction activities
FP-12	**Field Protocol 12.** Stockpile soil within established work area boundaries and locate stockpiles so as not to enter water bodies, stormwater inlets, other standing bodies of water. Cover stockpiled soil prior to precipitation events
FP-13	**Field Protocol 13**
Location:	Open trenches or steep-walled holes in construction areas
Monitoring/Reporting Action:	Field crews to inspect open trenches or steep-walled holes prior to initiating daily activities. Biologist to be notified if any species are discovered
Effectiveness Criteria:	Daily inspections are implemented as approved
Responsible Agency:	CPUC
Timing:	During construction activities
FP-13	**Field Protocol 13.** Fit open trenches or steep-walled holes with escape ramps of plywood boards or sloped earthen ramps at each end if left open overnight. Field crews will search open trenches or steep-walled holes every morning prior to initiating daily activities to ensure wildlife are not trapped. If any wildlife are found, a biologist will be notified and will relocate the species to adjacent habitat or the species will be allowed to naturally disperse, as determined by a biologist.
FP-14	**Field Protocol 14**
Location:	Construction areas located in grassland habitats for covered species
Monitoring/Reporting Action:	PG&E to revegetate grasslands habitats for covered species
Effectiveness Criteria:	Habitats for covered species are revegetated as approved
Responsible Agency:	CPUC
Timing:	During construction activities
FP-14	**Field Protocol 14.** If the covered activity disturbs 0.1 acre or more of habitat for a covered species in grasslands, the field crew will revegetate the area with a commercial weed-free seed mix.
FP-15	**Field Protocol 15**
Location:	Vernal pools, wetlands, streams, or waterways
Monitoring/Reporting Action:	PG&E to prohibit refueling within established buffer zones for vernal pools, wetlands, streams, or waterways
Effectiveness Criteria:	Buffer areas are implemented as approved
Responsible Agency:	CPUC
Timing:	During construction activities
FP-15	**Field Protocol 15.** Prohibit vehicular and equipment refueling 250 feet from the edge of vernal pools and 100 feet from the edge of other wetlands, streams, or waterways. If refueling must be conducted closer to wetlands, construct a secondary containment area

Biological Resources	
	subject to review by an environmental field specialist and/or biologist. Maintain spill prevention and cleanup equipment in refueling areas.
FP-16	**Field Protocol 16**
Location:	Vernal pools, wetlands, ponds, or riparian areas
Monitoring/Reporting Action:	PG&E to establish buffer zones for vernal pools, wetlands, ponds, or riparian areas
Effectiveness Criteria:	Buffer zones are implemented as approved
Responsible Agency:	CPUC
Timing:	During construction activities
FP-16	**Field Protocol 16.** Maintain a buffer of 250 feet from the edge of vernal pools and 50 feet from the edge of wetlands, ponds, or riparian areas. If maintaining the buffer is not possible because the areas are either in or adjacent to facilities, the field crew will implement other measures as prescribed by the land planner, biologist, or HCP administrator to minimize impacts by flagging access, requiring foot access, restricting work until dry season, or requiring a biological monitor during the activity.
FP-17	**Field Protocol 17**
Location:	Construction areas requiring tree removal
Monitoring/Reporting Action:	PG&E to establish exclusion zones
Effectiveness Criteria:	Exclusion zones are implemented as approved
Responsible Agency:	CPUC
Timing:	During construction activities
FP-17	**Field Protocol 17.** Directionally fell trees away from an exclusion zone[52] if an exclusion zone has been defined. If this is not possible, remove the tree in sections. Avoid damage to adjacent trees to the extent possible. Avoid removal of snags and conifers with basal hollows, crown deformities, and/or limbs over 6 inches in diameter.
FP-18	**Field Protocol 18**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to avoid nests with eggs/and or chicks
Effectiveness Criteria:	Avoidance of nests with eggs and/or chicks is implemented as approved
Responsible Agency:	CPUC
Timing:	During construction activities
FP-18	**Field Protocol 18.** Nests with eggs and/or chicks will be avoided: contact a biologist, land planner or Avian Protection Program manager for further guidance.
Species-specific Avoidance and Minimization Measures (AMMs) from the BAHCP	
AMM Wetland-2	**Avoidance and Minimization Measure Wetland-2**
Location:	Wetlands, ponds, and riparian areas
Monitoring/Reporting Action:	PG&E to establish 50-foot buffers near wetlands, ponds, and riparian areas, if possible
Effectiveness Criteria:	Buffers and/or minimization measures are implemented as approved
Responsible Agency:	CPUC
Timing:	During construction activities

[52] Per the BAHCP, an exclusion zone is an area marked with fencing, signage, stakes, or flagging. Exclusion zones are "do not enter" areas, except as instructed by a biologist or the BAHCP Administrator. The exclusion zone distance is a guideline that may be modified by the biologist, based on site-specific conditions (including, but not limited to, habituation by the species or background disturbance levels) (see also ITP FEIR APM BIO-7, Table 3.4-11).

Biological Resources	
AMM Wetland-2	**Avoidance and Minimization Measure Wetland-2.** Identify wetlands, ponds, and riparian areas and establish buffers. Maintain a buffer of 50 feet around wetlands, ponds, and riparian areas. If maintaining the buffer is not possible because the areas are either in or adjacent to facilities, the field crew will implement other measures as prescribed by the biologist or HCP administrator to minimize impacts. These measures include flagging access, requiring foot access, restricting work until the dry season, requiring a biological monitor during the activity, or excavating burrows in ROWs where trenching will occur. Activities must maintain the downstream hydrology to the wetland, pond, or riparian area. Additional minimization measures may be implemented with prior concurrence from USFWS.
AMM Plant-01	**Avoidance and Minimization Measure Plant-01**
Location:	Construction areas requiring vegetation management, pole clearing, or within 100 feet of an MBZ[53]
Monitoring/Reporting Action:	PG&E to restrict herbicide use within 100 feet of MBZ
Effectiveness Criteria:	Herbicide use is restricted as approved
Responsible Agency:	CPUC
Timing:	During construction activities
AMM Plant-01	**Avoidance and Minimization Measure Plant-01.** No herbicides will be used for vegetation management, pole clearing, or any other purpose within 100 feet of an MBZ (except vegetation management's direct application to cut stumps when greater than 25 feet from an MBZ and in conformance with applicable pesticide regulations).
AMM Plant-02	**Avoidance and Minimization Measure Plant-02**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to restrict locations of heavy equipment
Effectiveness Criteria:	Heavy equipment is located in approved areas
Responsible Agency:	CPUC
Timing:	During construction activities
AMM Plant-02	**Avoidance and Minimization Measure Plant-02.** Heavy equipment shall remain on access roads or other previously disturbed areas unless otherwise prescribed by a land planner, biologist, or HCP administrator.
AMM Plant-03	**Avoidance and Minimization Measure Plant-03**
Location:	Areas of excavation
Monitoring/Reporting Action:	PG&E to implement stockpile soil procedures
Effectiveness Criteria:	Stockpile soil procedures are implemented as approved
Responsible Agency:	CPUC
Timing:	During construction excavation activities
AMM Plant-03	**Avoidance and Minimization Measure Plant-03.** Stockpile separately the upper 4 inches of topsoil during excavations associated with covered activities. Stockpiles topsoil will be used to restore the disturbed ROW.
AMM Plant-04	**Avoidance and Minimization Measure Plant-04**
Location:	Construction areas greater than 0.1 acre within a MBZ
Monitoring/Reporting Action:	PG&E to implement physical exclusion barriers
Effectiveness Criteria:	Physical exclusion barriers are implemented as approved
Responsible Agency:	CPUC

[53] MBZ is defined in BAHCP Chapter 10 (Glossary) as "Map Book Zone," which is an area of occupied or potentially occupied plant habitat as determined by previous PG&E botanical surveys (PG&E Response to CPUC Data Request #1, January 31, 2025).

Biological Resources	
Timing:	During construction activities
AMM Plant-04	**Avoidance and Minimization Measure Plant-04.** When covered activities greater than 0.1 acre in size within a MBZ will have direct impacts on covered species, work with the crew to place flagging, fencing, or other physical exclusion barriers to minimize disturbances. If the work will directly impact covered plant species, implement AMMs Plant-05, -06, -07, and -08.
AMM Plant-05	**Avoidance and Minimization Measure Plant-05**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to submit restoration plan for unavoidable covered plant species to USFWS
Effectiveness Criteria:	Restoration plan is implemented as approved
Responsible Agency:	CPUC AND USFWS
Timing:	During construction activities
AMM Plant-05	**Avoidance and Minimization Measure Plant-05.** If a covered plant species is present and it cannot be avoided, PG&E will salvage plant material (i.e., seeds, cuttings, whole plants) and prepare a restoration plan that details the handling, storage, propagation, or reintroduction to suitable and appropriate habitat subject to USFWS review and approval.
AMM Plant-06	**Avoidance and Minimization Measure Plant-06**
Location:	Construction areas with covered annual plant species
Monitoring/Reporting Action:	PG&E to conduct activities after covered plant seeds have matures
Effectiveness Criteria:	Construction activities occur after covered plant seeds have matured
Responsible Agency:	CPUC
Timing:	During construction activities
AMM Plant-06	**Avoidance and Minimization Measure Plant-06.** If a covered annual plant species is present and it cannot be avoided, conduct covered activities after seeds have matured to the extent possible.
AMM Plant-07	**Avoidance and Minimization Measure Plant-07**
Location:	Construction areas with covered perennial plant species
Monitoring/Reporting Action:	PG&E to conduct activities after covered plant seeds have matures
Effectiveness Criteria:	Construction activities occur after covered plant seeds have matured and disturbance is minimized to the below ground portions of the plants.
Responsible Agency:	CPUC
Timing:	During construction activities
AMM Plant-07	**Avoidance and Minimization Measure Plant-07.** If a covered perennial plant species is present and it cannot be avoided, conduct covered activities after seeds have matured to the extent possible. Minimize disturbance to the below-ground portions of the plants (e.g., roots, bulbs, tubers).
AMM Plant-08	**Avoidance and Minimization Measure Plant-08**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement BMPs
Effectiveness Criteria:	BMPs are implemented as approved
Responsible Agency:	CPUC
Timing:	During construction activities
AMM Plant-08	**Avoidance and Minimization Measure Plant-08.** PG&E will prune shrubs in a manner that promotes resprouting. If permanent impacts are unavoidable, establish new individuals by planting seedlings or from cuttings in adjacent suitable habitat. PG&E will implement

Biological Resources	
	best management practices [BMPs] including vehicle, equipment, and personnel hygiene protocols; procedures for conducting activities in infected areas; and timing restrictions that avoid working when soils are moist and the likelihood of spreading *Phytophthora cinnamomi* is greatest.
CDFW Measures from the Bay Area O&M ITP	
5.3	**Biological Monitor Authority**
Location:	All construction areas
Monitoring/Reporting Action:	Designated Biologist or General Biological Monitor to ensures compliance with ITP; notify the CDFW Representative of non-compliance with ITP.
Effectiveness Criteria:	Compliance with ITP
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
5.3	**Biological Monitor Authority.** To ensure compliance with the Conditions of Approval of this ITP, all Designated Biologists and General Biological Monitors shall immediately stop any activity, when safe to do so, that does not comply with this ITP and/or order any reasonable measure to avoid the unauthorized take of an individual of the Covered Species. PG&E shall provide unfettered access to each Work Area and otherwise facilitate the Designated Biologists and General Biological Monitors in the performance of his/her duties. If a Designated Biologist or General Biological Monitor are either unable to comply with the ITP or prevented from performing required ITP compliance, then they shall notify the CDFW Representative immediately. PG&E shall not enter into any agreement or contract of any kind, including but not limited to non-disclosure agreements and confidentiality agreements, with its contractors and/or Designated Biologists or Biological Monitors that prohibit or impede open communication with CDFW, including but not limited to providing CDFW staff with the results of any surveys, reports, or studies or notifying CDFW of any non-compliance or take. Failure to notify CDFW of any non-compliance or take or injury of a Covered Species as a result of such agreement or contract may result in CDFW taking actions to prevent or remedy a violation of this ITP.
5.4	**Education Program**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement an education program
Effectiveness Criteria:	Education program is implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	Throughout the duration of construction activities and at least annually for long-term and/or permanent employees or contractors
5.4	**Education Program.** PG&E shall conduct an education program for all persons employed or otherwise working in the Project Area before performing any work. The program shall consist of a presentation from the Designated Biologist or General Biological Monitor that includes a discussion of the biology and general behavior of the Covered Species, information about the distribution and habitat needs of the Covered Species, sensitivity of the Covered Species to human activities, its status pursuant to CESA including legal protection, recovery efforts, penalties for violations and Project specific protective measures described in this ITP. PG&E shall provide interpretation for non-English speaking workers, and the same instruction shall be provided to any new workers before they are authorized to perform work in the Project Area. Upon completion of the education program, employees or contractors shall sign a form or equivalent acknowledging that they attended the program and understand all protection measures. This training shall be repeated at least once annually for long-term and/or permanent employees or contractors that shall be conducting work in the Project Area.

Biological Resources	
5.5	**Covered Activity Monitoring Documentation**
Location:	All construction areas requiring biological monitoring
Monitoring/Reporting Action:	Monitoring documentation and the ITP is available onsite upon request in hard copy or digital format
Effectiveness Criteria:	Monitoring documentation is available onsite
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities requiring biological monitoring
5.5	**Covered Activity Monitoring Documentation**. When biological monitoring is required per Condition of Approval 6.4 (Compliance Monitoring) or when required for conducting Covered Activities E9a (Reconductoring), G9 (Pipeline Lowering), G11 (Pipeline Replacement) and minor new construction in modeled habitat, the Monitoring Biologist(s) shall maintain monitoring documentation onsite in either hard copy or digital format throughout the duration of work, which shall include a copy of this ITP with attachments. PG&E shall ensure a copy of the monitoring documentation is available for review at the Work Area upon request by CDFW.
5.6	**Trash Abatement**
Location:	All project areas
Monitoring/Reporting Action:	PG&E to implement trash abatement program
Effectiveness Criteria:	Trash abatement program is implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
5.6	**Trash Abatement.** PG&E shall initiate a trash abatement program before starting Covered Activities and shall continue the program for the duration of the Project. PG&E shall ensure that trash and food items are contained in animal-proof containers and removed, ideally at daily intervals but at least once a week, to avoid attracting opportunistic predators such as ravens, coyotes, and feral dogs.
5.7	**Dust Control**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement dust control program
Effectiveness Criteria:	Dust control program is implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	Prior to and during construction activities
5.7	**Dust Control.** PG&E shall implement dust control measures during construction activities to facilitate visibility for monitoring of the Covered Species by Biological Monitors and crews. PG&E shall keep the amount of water used to the minimum amount needed and shall not allow water to form puddles.
5.8	**Prohibition of Firearms**
Location:	All project areas
Monitoring/Reporting Action:	PG&E to prohibit firearms and domestic dogs
Effectiveness Criteria:	Firearm prohibition is implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
5.8	**Prohibition of Firearms.** Firearms and domestic dogs shall be prohibited in work areas as well as from site access routes during construction and development of the project, except those firearms and domestic dogs that are in the possession of authorized security personnel or local, state, or federal law enforcement officials.

Biological Resources	
5.9	**Erosion Control**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement erosion control measures
Effectiveness Criteria:	Erosion control measures are implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	Prior to and during construction activities
5.9	**Erosion Control.** PG&E shall implement and install all erosion and sediment control measures and devices prior to conducting Covered Activities that include grading, excavation, or placement of fill. PG&E shall utilize erosion measures where sediment runoff from exposed slopes or surfaces could enter a drainage, stream, wetland, or pond. PG&E shall repair and/or replace ineffective measures or contrivances whose integrity has been compromised immediately
5.10	**Erosion Control Materials**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to prohibit erosion materials potentially harmful to Covered Species
Effectiveness Criteria:	Prohibition of potentially harmful erosion control materials is implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
5.10	**Erosion Control Materials.** PG&E shall prohibit use of erosion control materials potentially harmful to Covered Species and other species, such as monofilament netting (erosion control matting) or similar material, in potential Covered Species' habitat.
5.11	**Clean Vehicles**
Location:	All project areas
Monitoring/Reporting Action:	PG&E to implement clean vehicle measures and maintain equipment log
Effectiveness Criteria:	Clean vehicle measures are implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
5.11	**Clean Vehicles.** PG&E shall implement the following: ■ 5.11.1 Mud and/or accumulated soils shall be removed from equipment and vehicles to the maximum extent practicable. ■ 5.11.2. Vehicles and equipment shall be cleaned or washed before entering a new work site. ■ 5.11.3 A log shall be kept for each work site and shall be completed to document each cleaning or washing of vehicles or equipment before entering each new work site. ■ 5.11.4 Vehicles shall be staged and stored on paved or cleared areas to the extent practicable. ■ 5.11.5 Certified weed-free mulch, straw, hay bales, or equivalent materials shall be used where necessary.
5.12	**Delineation and Avoidance of Sensitive Habitat Features.**
Location:	All construction areas
Monitoring/Reporting Action:	A Designated Biologist to identify avoidances areas and implement avoidance measures for sensitive resources
Effectiveness Criteria:	Avoidance measures are implemented as approved
Responsible Agency:	CPUC and CDFW

Biological Resources	
Timing:	During construction activities
5.12	**Delineation and Avoidance of Sensitive Habitat Features.** A Designated Biologist shall clearly identify sensitive resources that crews must avoid for the duration of the activities with posted signs, posting stakes, flags, and/or rope or cord, and place fencing as necessary to minimize or avoid disturbance.
5.13	**Work Area Access**
Location:	All project areas
Monitoring/Reporting Action:	PG&E to limit work area access and speed limit to protect Covered Species
Effectiveness Criteria:	Work area access -and speed limit is implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
5.13	**Work Area Access.** To the extent practicable, project-related personnel shall access a work area using existing routes, and shall not cross Covered Species' habitat outside of or en route to a work area. PG&E shall restrict project-related vehicle traffic to established roads, staging, and parking areas to the maximum extent practicable. PG&E shall ensure that vehicle speeds do not exceed 15 mph to avoid Covered Species on or traversing the roads.
5.14	**Staging Areas**
Location:	All project areas
Monitoring/Reporting Action:	PG&E to limit locations Project-related parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities
Effectiveness Criteria:	Activity location limitations are implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
5.14	**Staging Areas.** PG&E shall confine all Project-related parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities to a Work Area using, to the extent possible, previously disturbed areas. No staging areas shall be located in chaparral or scrub habitats, over rock outcroppings or within 300 feet of a stock pond or vernal pool.
5.15	**Hazardous Waste**
Location:	All project areas
Monitoring/Reporting Action:	PG&E to implement hazardous waste control measures
Effectiveness Criteria:	Hazardous waste control measures are implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
5.15	**Hazardous Waste.** PG&E shall immediately stop and, pursuant to pertinent state and federal statutes and regulations, arrange for repair and clean up by qualified individuals of any fuel or hazardous waste leaks or spills at the time of occurrence, or as soon as it is safe to do so. PG&E shall properly contain and dispose of any unused or leftover hazardous products offsite.
5.16	**Pesticides**
Location:	All project areas
Monitoring/Reporting Action:	PG&E to prohibit broadcast baiting and follow all applicable pesticide regulations
Effectiveness Criteria:	Broadcast baiting probation is implemented as approved and applicable regulations are followed

Biological Resources	
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
5.16	**Pesticides.** At no time shall PG&E utilize broadcast baiting of rodenticides within the project area. When pesticides are used, PG&E shall follow all applicable state and federal laws, County Agricultural Commissioner regulations, label requirements, and when applicable, according to requirements in habitat management plans associated with ITP 8.5 (Habitat Acquisition and Protection).[54]
5.17	**CDFW Access**
Location:	All project areas and PG&E mitigation lands
Monitoring/Reporting Action:	PG&E to provide CDFW access to work areas and mitigation lands and cooperate with CDFW efforts to verify compliance
Effectiveness Criteria:	CDFW access and cooperation occurs as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
5.17	**CDFW Access.** PG&E shall provide CDFW staff with reasonable access to Work Areas and mitigation lands under PG&E control and shall otherwise fully cooperate with CDFW efforts to verify compliance with or effectiveness of mitigation measures set forth in this ITP.
5.18	Refuse Removal.
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement refuse removal measures
Effectiveness Criteria:	Refuse removal measures are implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	Upon completion of construction activities within a work area
5.18	**Refuse Removal.** Upon completion of construction activities within a work area, PG&E shall remove from, and properly dispose of all temporary fill and construction refuse, including, but not limited to, broken equipment parts, wrapping material, cords, cables, wire, rope, strapping, twine, buckets, metal or plastic containers, and boxes.
6.1	**Notifications Before Commencement of Certain Activities**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to submit notification to CDFW
Effectiveness Criteria:	Notification is submitted to CDFW and approval by CDFW occurs
Responsible Agency:	CPUC and CDFW
Timing:	Notification to be submitted 45 days prior to release to construction
6.1	**Notifications Before Commencement of Certain Activities.** Notifications shall be submitted at least 45 days in advance and prior to "release to construction" by the Designated Representative for review by CDFW. Within 14 days of request by CDFW and if not possible then at least 5 days prior to the beginning of the Covered Activity, PG&E shall provide any requested additional information and provide access for a CDFW field review of the proposed Work Area. The proposed Covered Activity may not commence until PG&E has provided the additional information to the specifications of the request by CDFW, or until field review access has been provided to CDFW. If there continues to be unresolved issues or questions, then PG&E or CDFW may request to meet and confer within 10 business of the request to resolve any outstanding issues. CDFW retains the right to determine whether a proposed Covered Activity shall not be provided coverage under this ITP.

[54] PG&E may elect to provide for the acquisition, permanent protection, and perpetual management of habitat mitigation lands to complete compensatory mitigation obligations (PG&E 2024).

Biological Resources	
6.4	**General Compliance Monitoring**
Location:	All construction areas
Monitoring/Reporting Action:	Designated Representative or Monitoring Biologist to prepare daily written observation and inspection records summarizing oversight activities and compliance inspections, observations of Covered Species and their sign, survey results, and monitoring activities
Effectiveness Criteria:	All monitoring activities are documented and reported daily
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities

6.4 **General Compliance Monitoring.** The Designated Biologist shall be onsite:

- Daily when Covered Species are encountered within a work area;
- At the determination of the Designated Biologist, when Covered Species are relocated outside a work area to monitor and assess relocation success;
- When required by species-specific ITP measures.

A Biological Monitor shall be onsite:

- Daily when construction activities are conducted in [BAHCP] modeled habitat;
- When required by species-specific ITP measures.

For construction activities in Covered Species modeled habitat that required work over a period of two weeks or greater, a General Biological Monitor shall conduct compliance inspections, at a minimum, once very week after clearing, grubbing, and grading are completed and during periods of inactivity. The General Biological Monitor shall conduct compliance inspections to:

(i) Minimize incidental take of the Covered Species;
(ii) Prevent unlawful take of species;
(iii) Check for compliance with all measures of the ITP;
(iv) Check all exclusion zones;
(v) Ensure that signs, stakes, and fencing are intact, and that construction activities are only occurring in the pre-designated project footprint.

The Designated Representative or Monitoring Biologist shall prepare daily written observation and inspection records summarizing oversight activities and compliance inspections, observations of Covered Species and their sign, survey results, and monitoring activities required by this ITP.

6.8	**Observations**
Location:	All project areas
Monitoring/Reporting Action:	Designated Biologist or PG&E to submit all observations of Covered Species within 60 calendar days; include in Annual Summary Report or 5-year compliance report
Effectiveness Criteria:	Observations of Covered Species are reported
Responsible Agency:	CPUC and CDFW
Timing:	Observations of Covered Species to be submitted within 60 calendar of the observation to CDFW throughout construction activities

6.8 **Observations.** The Designated Biologist or PG&E shall submit all observations of Covered Species to CDFW's California Natural Diversity Database within 60 calendar days of the observation and the PG&E shall include copies of the submitted forms with the next Annual Summary Report or 5-year compliance report. If observations occur on lands not owned in fee title by PG&E, then PG&E may elect to inform the landowner of an observation. If the landowner objects to submission of the observation, then PG&E may elect to not submit.

Biological Resources	
6.10	**Notification of Take or Injury**
Location:	All project areas
Monitoring/Reporting Action:	PG&E to notify the Designated Biologist and submit written report
Effectiveness Criteria:	Notification is submitted to Designated Biologist and written report is submitted to CDFW
Responsible Agency:	CPUC and CDFW
Timing:	Immediate notification to Designated Biologist and written report submitted within two days of initial notification
6.10	**Notification of Take or Injury.** PG&E shall immediately notify the Designated Biologist if a Covered Species is taken or injured by a project-related activity, or if a Covered Species is otherwise found dead or injured within the vicinity of the project. The Designated Biologist or Designated Representative shall provide initial notification to CDFW by calling the Regional Office at (707) 428-2002. The initial notification to CDFW shall include information regarding the location, species, and number of animals taken or injured and the ITP Number. Following initial notification, PG&E shall send CDFW a written report within two working days. The report shall include the date and time of the finding or incident, location of the animal or carcass, and if possible, provide a photograph, explanation as to cause of take or injury, and any other pertinent information.
7.1	**Equipment Fueling**
Location:	All project areas
Monitoring/Reporting Action:	PG&E to implement equipment fueling buffers and control measures
Effectiveness Criteria:	Fueling buffers and control measures are implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
7.1	**Equipment Fueling.** No vehicles or heavy equipment shall be refueled within 100 feet of a wetland, stream, or other waterway, or within 250 feet of vernal pools, unless secondary containment is used. The fueling operator must always stay with the fueling operation. Tanks may not be topped off. If refueling must be conducted closer to wetlands, construct a secondary containment area subject to review by an environmental field specialist and/or biologist. PG&E shall maintain spill prevention and cleanup equipment in refueling areas. Sufficient spill containment and cleanup equipment shall be present at all mobile, temporary, and permanent equipment fueling locations.
7.2	**Lighting**
Location:	All project areas
Monitoring/Reporting Action:	PG&E to implement lighting control measures
Effectiveness Criteria:	Lighting control measures are implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
7.2	**Lighting.** PG&E shall ensure that all artificial outdoor lighting be limited to lighting for safety and security, and designed using Illuminating Engineering Society's design guidelines, International Dark-Sky Association-approved fixtures, or other industry standards that address lighting impacts. Lighting above ground level shall be directed downward or inward, where consistent with safety concerns, and shielding shall be utilized, where needed, to minimize light scatter offsite. Light fixtures shall have non-glare finishes that shall not cause reflective daytime glare.
7.3	**Construction Activities Hours**
Location:	All construction areas

Biological Resources	
Monitoring/Reporting Action:	PG&E to implement construction activities hours restrictions
Effectiveness Criteria:	Construction activities hours restrictions are implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
7.3	**Construction Activities Hours.** Construction activities shall cease 30 minutes before sunset and shall not begin prior to 30 minutes after sunrise, to the extent practicable. Emergency night work shall be limited in extent, duration, and brightness, to the extent feasible. For Covered Activities E9a (Reconductoring), G9 (Pipeline Lowering), G11 (Pipeline Replacement), and minor new construction, work may not occur at night during rain events in CTS habitat within 0.5 miles of known or potential breeding habitat between November 1 and April 30 unless otherwise authorized by CDFW. Covered Activities shall not occur at night for non-emergency work in California freshwater shrimp habitat any time of year unless otherwise authorized by CDFW.
7.4	**Stored Materials Inspections**
Location:	All project areas
Monitoring/Reporting Action:	PG&E to implement inspections of stored materials
Effectiveness Criteria:	Inspections of stored materials are implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	Prior to daily construction activities
7.4	**Stored Materials Inspections.** Workers shall thoroughly inspect for AWS and CTS in all construction pipe, culverts, or similar structures with a diameter of 7.6 centimeters (3 inches) or greater that are stored for one or more overnight periods before the structure is subsequently moved, buried, or capped. If during inspection one of these animals is discovered inside the structure, workers shall notify the Biological Monitors) and allow the Covered Species to safely escape that section of the structure before moving and utilizing the structure or moved out of harm's way by a Designated Biologist.
7.5	**Cover or Ramp Open Excavations**
Location:	Covered Species modeled habitats
Monitoring/Reporting Action:	PG&E to cover or equip ramps in open excavations and inspect open excavations daily
Effectiveness Criteria:	Open excavations are covered or equipped with ramps and inspections occur prior to daily construction activities
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
7.5	**Cover or Ramp Open Excavations.** Trenches or pits shall be covered or equipped with an escape ramp if left overnight in Covered Species modeled habitat. Crews shall inspect any trench, pit, or hole every morning prior to conducting construction activities to ensure no individuals are trapped; if any animals are found staff shall contact the Designated Biologist(s) to identify whether it is a Covered Species and if so, it shall be moved out of harm's way by the Designated Biologist(s). If the animal is not a Covered Species, then a General Monitoring Biologist or other individual with wildlife handling experience in possession of any applicable handling permits may move it out of harm's way.
7.6	**Spoils Stockpiles**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement spoils stockpile control measures
Effectiveness Criteria:	Spoil stockpile control measures are implemented as approved
Responsible Agency:	CPUC and CDFW

Biological Resources	
Timing:	During construction activities
7.6	**Spoils Stockpiles.** PG&E shall ensure that soil stockpiles are placed where soil shall not pass into wetlands or any other "waters of the state," in accordance with CFGC section 5650. PG&E shall cover and protect stockpiles to prevent soil erosion, including wind and rain. Spoils shall be placed away from chaparral habitat, rock outcroppings, and concentrated ground squirrel, pocket gopher, or other small mammal burrows or habitat features suitable for use by the Covered Species as refugia habitat.
7.7	**Screen or Cap Hollow Pipes or Posts**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to screen or cap hollow pipes or posts daily
Effectiveness Criteria:	Screens or caps are implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
7.7	**Screen or Cap Hollow Pipes or Posts.** All hollow pipes or posts that are installed as part of construction activities, or encountered in a work area that PG&E owns or is responsible for that are above ground shall be capped, screened, or filled with material by PG&E prior to the end of the day in which installation occurs.
7.8	**Equipment Inspections**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement vehicle inspections prior to movement of vehicles and equipment
Effectiveness Criteria:	Vehicle inspections are implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
7.8	**Equipment Inspections.** Workers shall inspect for Covered Species under vehicles and equipment before the vehicles and equipment are moved. If a Covered Species is present, the worker shall notify the Biological Monitors and wait for the Covered Species to move unimpeded to a safe location. Alternatively, PG&E shall contact a Designated Biologist to determine if they can safely move the Covered Species out of harm's way in compliance with the ITP.
7.9	**No Barriers to Covered Species Movements**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to construct access routes for Covered Species
Effectiveness Criteria:	Access routes for covered species are implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
7.9	**No Barriers to Covered Species Movements.** PG&E shall construct access routes such that there are no steep curbs, v-ditches, berms, straw wattles, or dikes that could prevent Covered Species from traversing through ROWs or from exiting roadways. If curbs/ berms/straw wattles are necessary for safety and/or surface runoff, PG&E shall design and construct them to allow Covered Species to move over them. PG&E shall modify or remove exclusion fencing at the request of Biological Monitors or CDFW staff that may impede Covered Species movements.
7.17	**Alameda Whipsnake Pre-Activity Habitat Features Survey**
Location:	Modeled core and perimeter core habitat for Alameda Whipsnake
Monitoring/Reporting Action:	Preconstruction surveys to be conducted by a Designated Biologist
Effectiveness Criteria:	Preconstruction surveys conducted as approved

Biological Resources	
Responsible Agency:	CPUC and CDFW
Timing:	30 calendar days prior to any initial ground disturbance
7.17	**Alameda Whipsnake Pre-Activity Habitat Features Survey.** Preconstruction surveys for Alameda whipsnake and sheltering and sunning habitat features (e.g., burrows, rocky outcrops, fallen trees, etc.) shall be conducted in modeled core and perimeter core habitat for construction activities (also refer to ITP 7.19 for survey requirements in core habitat). These surveys shall be conducted by a Designated Biologist no more than 30 calendar days prior to any initial ground disturbance. These surveys shall consist of walking the work area and, if possible, any accessible adjacent areas within at least 50 feet of the work area. The Designated Biologist shall investigate potential cover sites when it is feasible and safe to do so. This includes thorough investigation of mammal burrows, rocky outcrops, appropriately sized soil cracks, tree cavities, and debris. Sheltering, sunning, or other sensitive species features identified by the Designated Biologist shall be identified with flagging. PG&E shall avoid habitat features flagged by the Designated Biologist to the extent practicable. At the recommendation of the Designated Biologist, PG&E shall install an exclusionary barrier (ITP 7.18).
7.18	**Exclusionary Barrier**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to install temporary barriers prior to commencing construction activities
Effectiveness Criteria:	Temporary barriers are installed as approved
Responsible Agency:	CPUC and CDFW
Timing:	Immediately following preconstruction surveys and inspections and repairs during construction activities
7.18	**Exclusionary Barrier**. PG&E shall install a temporary barrier, where feasible, to prevent the Covered Species from dispersing into the work area, including along construction access routes, prior to commencing any other construction activities. The barrier shall be installed immediately after the preconstruction surveys have been completed in accordance with ITP 7.17 and shall consist of fencing at least 42 inches tall with 36 inches above the soil surface, designed with a lip to prevent the Covered Species from climbing over the barrier, and buried to a depth of six inches below the soil surface. The soil shall be compacted against both sides of the fence to prevent the Covered Species from gaining access. The stakes shall be placed on the inside of the fence. No gaps or holes are permitted in the fencing system except for access areas as required for vehicular and pedestrian traffic. The exit/entry points shall be constructed so that it is flush to the ground and so that the Covered Species cannot access the work area. The barrier shall be designed to allow trapped individuals to leave the work area by installing one-way funnels, ramps, or other methods approved by CDFW. An alternative barrier design or directional treatment techniques in lieu of fencing may be used after receiving written authorization from CDFW. The Designated Biologist or General Monitoring Biologist shall inspect the barrier daily and the barrier shall remain in place until all construction activities have been completed or where recommended by a Designated Biologist. PG&E shall maintain and repair barrier immediately, if damaged, to ensure that it is functional and without defects. PG&E shall provide refuge opportunities along or near the outer side of the silt fence for the Covered Species (also refer to ITP 7.19).
7.19	**Refugia Coverboards**
Location:	Modeled core and perimeter core habitat for Covered Species
Monitoring/Reporting Action:	PG&E to install coverboards and inspected daily
Effectiveness Criteria:	Coverboards are installed as approved
Responsible Agency:	CPUC and CDFW

Biological Resources	
Timing:	During construction activities
7.19	**Refugia Coverboards.** Coverboards shall be installed in work areas as determined by the Designated Biologist in modeled core and perimeter core habitat prior to construction activities. When coverboards are recommended, they shall be placed to provide refuge for the Covered Species [AWS] fleeing the area, including areas where a directional treatment methodology is used (e.g., phasing a project to encourage Covered Species [AWS] to move towards core habitats and away from potentially harmful environs). When coverboards are recommended, they shall be inspected at the end of each workday by a General Monitoring Biologist and use by wildlife shall be recorded.
7.20	**Alameda Whipsnake (AWS) Clearance Surveys**
Location:	Construction areas impacting greater than 0.1 acre that affects core AWS habitat, including scrub or chaparral plant communities in modeled habitat
Monitoring/Reporting Action:	Designated Biologist(s) to conduct clearance surveys
Effectiveness Criteria:	Clearence surveys are conducted as approved
Responsible Agency:	CPUC and CDFW
Timing:	Immediately prior to the start of construction activities; daily surveys during construction activities
7.20	**Alameda Whipsnake (AWS) Clearance Surveys.** Immediately prior to the start of construction activities impacting greater than 0.1 acre that affects core AWS habitat, including scrub or chaparral plant communities in modeled habitat, the Designated Biologist(s) shall visually survey the work area and adjacent areas, as determined by the Designated Biologist, to clear the area of AWS. If construction activities may affect habitat features flagged per ITP 7.17 then a General Biological Monitor shall conduct daily clearance surveys in the active work area(s).
7.21	**Alameda Whipsnake Pre-Activity Tailboards**
Location:	Construction areas that impact greater than 0.1 acre in AWS core habitat or perimeter core habitat
Monitoring/Reporting Action:	Designated Biologist or General Biological Monitor to conduct activity or site-specific tailboards
Effectiveness Criteria:	Tailboards are conducted as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
7.21	**Alameda Whipsnake Pre-Activity Tailboards.** The Designated Biologist or General Biological Monitor may prescribe activity-specific tailboards trainings reminding staff of the importance of following measures to minimize impacts on AWS as they relate to the work site. Site-specific tailboards are to be conducted for staff working on construction activities that impact greater than 0.1 acre in core habitat or perimeter core habitat.
7.22	**Suspected Alameda Whipsnake in Work Area**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to stop construction activity in work area upon discovery of AWS until relocation from work area
Effectiveness Criteria:	Construction activity is stopped until relocation of AWS
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
7.22	**Suspected Alameda Whipsnake in Work Area.** If AWS is found by any person in the work area before or during construction activities, all work that could potentially injure the snake shall stop immediately and the snake shall be allowed to leave the work area on its

Biological Resources	
	own. If the snake does not leave the work area or cannot move to an area with sufficient habitat outside of the work area, the Designated Biologist shall move the snake to suitable habitat outside the work area. Construction activities shall resume only after the snake has been confirmed to be out of the work area.
7.23	**Alameda Whipsnake Seasonal Restrictions**
Location:	AWS modeled core and perimeter core habitat
Monitoring/Reporting Action:	PG&E to restrict timing of disturbance activities to only take place between April 15 and October 31
Effectiveness Criteria:	Restriction on disturbance activities is implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
7.23	**Alameda Whipsnake Seasonal Restrictions.** Disturbance in AWS modeled core and perimeter core habitat shall only take place between April 15 and October 31 to the extent feasible when AWS is more active and less likely to be affected by construction activities. For activities occurring in AWS core or perimeter core habitat between November 1 and April 14, a Designated Biologist(s) shall be present during operations.
7.24	**Alameda Whipsnake Injury**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to notify and submit written report incident to CDFW within 2 working days by telephone and e-mail followed by a written incident report to CDFW
Effectiveness Criteria:	Notification and written incident reports are submitted to CDFW
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
7.24	**Alameda Whipsnake Injury.** If an AWS has major or serious injuries as a result of construction activities, the Designated Biologist shall immediately take it to a qualified wildlife rehabilitation or veterinary facility. PG&E shall bear any costs associated with the care or treatment of such injured AWS. If the injury is minor or healing and the AWS is likely to survive as determined by the Designated Biologist, it shall be released immediately to an area out of harm's way. PG&E shall notify CDFW of the injury to the AWS within 2 working days by telephone and e-mail followed by a written incident report to CDFW. Notification shall include the name of the facility where the animal was taken.
Applicant-Proposed Measures from the Incidental Take Permit (ITP) Final EIR (FEIR)	
ITP FEIR APM BIO-1	**Prevent or minimize the spread of invasive weeds**
Location:	Construction areas requiring reconductoring, pipeline lowering and replacement, and minor new construction
Monitoring/Reporting Action:	PG&E to implement invasive weed spread prevention and minimization measures
Effectiveness Criteria:	Invasive weed spread prevention and minimization measures are implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
ITP FEIR APM BIO-1	**Prevent or minimize the spread of invasive weeds**. The following will be implemented on E9a (Reconductoring), G9 (Pipeline Lowering), G11 (Pipeline Replacement), and minor new construction to prevent the spread of invasive weeds during all phases of covered activities, as appropriate: ■ During covered activities involving ground disturbance, mud and/or accumulated soils will be removed from equipment and vehicles to the extent feasible. Vehicles

Biological Resources	
	and equipment will be cleaned or washed before entering a new work site. A log will be kept for each job site and will be completed to document each cleaning or washing of vehicles or equipment before entering each new work site. ■ Vehicles will be staged and stored on paved or cleared areas whenever feasible. Certified weed-free mulch, straw, hay bales, or equivalent materials will be used where necessary for covered activities.
ITP FEIR APM BIO-2	**Protect special-status wildlife encountered while performing covered activities and report covered wildlife observations**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to submit documentation to CDFW in annual report
Effectiveness Criteria:	Documentation submitted to CDFW
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
ITP FEIR APM BIO-2	**Protect special-status wildlife encountered while performing covered activities and report covered wildlife observations.** Any special-status wildlife species encountered during the course of a covered activity will be allowed to leave the area unharmed, and work activities that could disturb or harm the individual will halt until the wildlife has left the area. Encounters with a special-status species will be reported to a qualified biologist and PG&E Environmental staff. PG&E will maintain records of all covered wildlife species encountered during permitted activities. Encounters with covered wildlife species will be documented and provided to CDFW in an annual report as required by the ITP. If a covered wildlife species is encountered during the course of operations, the following information will be reported for each species: ■ The locations (i.e., narrative, vegetation type, and maps) and dates of observations, including occurrences observed during any required surveys. ■ The general condition of individual health (e.g., apparent injuries). ■ If the species is moved, the location where the species was captured and the location where it was released. ■ The locations, dates, and species and behaviors observed during covered wildlife monitoring. When conducting covered activities E9a (Reconductoring), G9 (Pipeline Lowering), G11 (Pipeline Replacement), and minor new construction PG&E will document encounters with special-status species to the same level of detail as required for covered species. During PG&E's environmental screening process, PG&E will also apply this measure to other covered activities to protect special-status species and habitats based on recommendations from qualified biologists. This data will be provided in ITP annual reports.
ITP FEIR APM BIO-3	**Design and site minor new construction projects activities to avoid sensitive areas**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement design features and site to avoid sensitive areas
Effectiveness Criteria:	Design features and siting are implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	Prior to start of project construction
ITP FEIR APM BIO-3	**Design and site minor new construction projects activities to avoid sensitive areas.** New, permanent facilities as part of minor new construction activities will be sited and designed to avoid impacts on sensitive vegetation types, sensitive natural com-

Biological Resources

munities, and unique plant assemblages, as well as occupied habitat and suitable habitat for special-status species, to the extent feasible. If impacts on these areas cannot be avoided, PG&E will determine if additional permitting is required to conduct the work and obtain the required permits (e.g., LSAA). If impacts are expected on covered species' habitat, Mitigation Measure BIO-1[55] (MM BIO-1) [replaced with ITP Habitat Management land Acquisition and Restoration measures] will be implemented to mitigate for habitat impacts.

Where minor new construction will result in impacts on sensitive vegetation types, sensitive natural communities, or unique plant assemblages, PG&E will minimize the construction footprint and implement appropriate protective measures as recommended by the qualified biologist to protect the natural community. Examples of such measures include: reseeding with a California annual seed mix, installing protective fencing around sensitive natural communities or resources, and installing wattles, erosion blankets and other drainage controls to protect new or adjacent plantings.

ITP FEIR APM BIO-3a	**Minimize spread of invasive plant and plant pathogens in minor new construction**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement invasive plant and plant pathogen spread minimization measures
Effectiveness Criteria:	Minimization measures are implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	Prior to the start of project construction and during construction activities

ITP FEIR APM BIO-3a Minimize spread of invasive plant and plant pathogens in minor new construction. When conducting minor new construction activities, PG&E will avoid or minimize the spread of invasive species by taking the following actions:

1. Prior to commencement of activities located on or adjacent to non-paved surfaces, a qualified biologist will flag known populations of noxious weeds and invasive plants in the work areas. Invasive plant species include those listed as invasive by the California Invasive Plant Council (Cal IPC).
2. PG&E will stage work in areas not infested with weeds or treat for weed removal prior to using an infested area.
3. Prior to ground disturbance in areas containing species susceptible to Sudden Oak Death, a qualified professional (e.g., biologist, arborist, botanist familiar with Sudden Oak Death and the vegetation communities in the area) will assess the risk of activities and will identify and implement measures to reduce or avoid the risk of Sudden Oak Death spread. These measures will include but will not be limited to the following, and will be further developed and updated based on the best available science and site-specific conditions:
    a. Designate quarantine areas and implement proper measures for disposal of infested materials (e.g., branches, split wood, wood chips).
    b. Sanitize shoes, pruning gear, and other equipment with sanitizing materials (e.g., chlorine bleach, Clorox Clean-up, Lysol, scrub brush, boot brush) before and after ground-disturbing and vegetation removal activities are implemented.
4. Clothing, footwear, and equipment used during minor new construction will be cleaned of soil, seeds, vegetation, or other debris or seed-bearing material before entering a work site or when leaving an area with infestations of invasive plants and noxious weeds.
5. Heavy equipment and other machinery used in areas with infestations of invasive plant species or Sudden Oak Death will be inspected for the presence of invasive species before use on the project site and will be cleaned before entering the site, to reduce the risk of introducing invasive plant species or plant pathogens.

[55] The ITP FEIR presented mitigation measures that were superseded by the measures included in the ITP as a condition of approval.

Biological Resources

6. To minimize the introduction and spread of noxious weeds and invasive plants, PG&E will avoid moving weed-infested gravel, rock, and other fill materials to relatively weed-free locations. In areas where invasive plants are removed during minor new construction or vegetation removal activities, PG&E will dispose of invasive plant biomass offsite at an appropriate waste collection facility or treat biomass onsite to eliminate seeds and propagules and prevent reestablishment; if moved offsite, PG&E will transport invasive plant material in a closed container or bag to prevent the spread of propagules during transport. PG&E will use certified weed-free straw and mulch for erosion-control projects. PG&E will maintain stockpiled, uninfested material in a weed-free condition.
7. Areas where ground disturbance has resulted in exposed soil as a result of minor new construction shall be seeded with compatible California annual species, as determined by a qualified biologist or botanist familiar with the native vegetation in the area and experienced in revegetation techniques. Revegetation will occur prior to the onset of winter rains within the year initial impacts take place. If work cannot feasibly be scheduled he rainy season, revegetation may occur as directed by the qualified biologist and no later than the onset of the next winter rains.
8. To ensure a successful revegetation effort, onsite vegetation shall meet the following success criteria:
    a. PG&E shall perform pre-activity surveys to record baseline vegetative ground cover conditions and composition by a qualified biologist prior to covered activities as follows. The biologist will record the following:
        i. Absolute percent ground cover for the entire work area.
        ii. Relative percentages of ground cover within the work area by herbaceous plants, shrubs, trees, and noxious/invasive plants.
        iii. Develop a catalog of all invasive species present within the work area, including an estimate of percent composition by species.
    b. PG&E will conduct post-activity monitoring of work areas in the spring following completion of minor new construction.
        i. A qualified biologist will record any new invasive species that may have inadvertently been introduced to the work area. The biologist shall make special note of any new invasive plant species rated as “high” by the Cal IPC.
        ii. A qualified biologist will record whether there was an increase in relative cover of invasive species from baseline that may have resulted from the covered activity.
        iii. If relative cover of invasive plant species has increased within the work area, PG&E shall remove and/or dispose of invasive plants in an appropriate manner, as recommended by a qualified biologist and/or a Pest Control Advisor. If any new invasive plants rated by Cal IPC as “high” are found within the work area, they will be removed in an appropriate manner, as recommended by a qualified biologist and/or a Pest Control Advisor.

If the relative ground cover of invasive plants exceeds baseline by 100 percent or more, PG&E will reseed the areas where invasive plants are removed and monitor for one additional year.

ITP FEIR APM BIO-4	**Avoid special-status plants**
Location:	Special-status plant habitat
Monitoring/Reporting Action:	PG&E to implement avoidance measures and notify CDFW at least 10 days in advance when avoidance is not feasible
Effectiveness Criteria:	Avoidance measures are implemented as approved. Notification to CDFW occurs
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
ITP FEIR APM BIO-4	**Avoid special-status plants.** Occurrences of special-status plant species will be avoided to the extent practicable and will include performance of project activities in special-status plant habitat after senescence. PG&E has created “Map Book zones” for the 13 state or federally listed plants that are covered in the O&M HCP. A Map Book zone is defined as an area of occupied or potentially occupied the HCP-covered plant species habitat as determined by PG&E botanical surveys. When rare and endangered plant species subject to the Native Plant Protection Act cannot be

Biological Resources	
	avoided, PG&E will follow the requirements of California Fish and Game Code Sections 1913(b) and 1913(c) concerning notification to CDFW at least 10 days in advance and provide an opportunity to salvage such species. If a special-status plant is found or known to occur, the plant will be avoided if feasible (i.e., O&M objectives could still be met). If feasible to avoid, avoidance will include establishing a buffer around the plants and demarcation of the buffer by a qualified biologist or botanist using flagging. Consideration of site-specific environmental factors such as terrain, site hydrology, light, and potential introduction of invasive plants may inform the avoidance approach.
ITP FEIR APM BIO-5	**Erect wildlife flagging or exclusion fencing**
Location:	All project areas
Monitoring/Reporting Action:	PG&E to implement flagging or exclusion fencing
Effectiveness Criteria:	Flagging or exclusion fencing is implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
ITP FEIR APM BIO-5	**Erect wildlife flagging or exclusion fencing.** Prior to construction or commencement of any activity that, in the absence of fencing, is likely to directly or indirectly adversely affect covered species, flagging or exclusion fencing for the species will be installed around the perimeter of the activity footprint,[56] or otherwise to ensure species protection. Any exemption or modification of flagging or exclusion fencing requirements will be based on the specifics of the activity, site-specific population, or habitat parameters. Sites with low population density and disturbed, fragmented, or poor habitat will likely be candidates for flagging or fencing requirement exemptions or modifications. Substitute measures, such as onsite Biological Monitors in the place of the flagging or fencing requirement, will be performed as appropriate. Prior to flagging or fencing, the qualified individual will ensure (to the extent feasible) that covered special-status species are absent from the activity footprint. After an area is flagged or fenced, PG&E is responsible for ensuring that covered special-status species flagging or fencing is maintained and opened/closed appropriately during project activities and regularly inspected for damage, which will be repaired as soon as possible. This measure will also be applied when conducting covered activities E9a (Reconductoring), G9 (Pipeline Lowering), G11 (Pipeline Replacement), and minor new construction when these activities are likely to adversely affect special-status species. PG&E may also apply this measure to other covered activities to protect special-status species and habitats based on recommendations from qualified biologists.
ITP FEIR APM BIO-6	**Protect nesting birds**
Location:	All project areas requiring vegetation clearing and ground disturbing activities
Monitoring/Reporting Action:	PG&E to implement avoidance and protection measures
Effectiveness Criteria:	Avoidance and protection measures are implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities

[56] An activity footprint is the area of ground disturbance associated with the preconstruction, construction, operation, implementation, maintenance, and decommissioning of an activity, including associated linear and non-linear components (e.g., staging areas, access routes and roads, gen-ties, pipelines, other utility lines, borrow pits, disposal areas). The footprint may also be considered synonymous with the covered activity site.

Biological Resources	
ITP FEIR APM BIO-6	**Protect nesting birds.** All vegetation clearing and ground-disturbing activities will be conducted outside of the nesting season (generally March 1–August 31) to the extent feasible. If this is not feasible, a biologist or qualified individual will determine if preconstruction activity surveys, nest buffers, and/or monitoring are needed in accordance with PG&E's Nesting Bird Management Plan. Nesting bird surveys will be scheduled to occur within a timeframe prior to construction the activity that is suitable for the detection of recently established nests. If active nests containing eggs or young are found, the qualified biologist or individual will establish an appropriate nest buffer in accordance with the species-specific buffers in PG&E's Nesting Bird Management Plan. Nest buffers under the Plan will be species-specific and can range from 15 to 100 feet for passerines, 50 to 300 feet for raptors, or larger if necessary, depending on the planned activity's level of disturbance, site conditions, and the observed bird behavior. Covered activities will not commence within the established buffer areas until the qualified biologist or individual determines that the young have fledged or the nest is no longer active. Active nests will be periodically monitored until the young have fledged or the activity all construction is finished. If birds with active nests are observed showing behavioral signs of agitation (e.g., standing up from a brooding position, flying off the nest) during covered activities, the buffer will be increased to a distance in which the behavioral signs of agitation cease, in accordance with PG&E's Nesting Bird Management Plan.
ITP FEIR APM BIO-7	**Avoid and protect special-status bats**
Location:	All project areas within bat roosting habitat
Monitoring/Reporting Action:	PG&E to implement avoidance and protection measures
Effectiveness Criteria:	Avoidance and protection measures are implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
ITP FEIR APM BIO-7	**Avoid and protect special-status bats.** When feasible, activities directly affecting bat roosting habitat will be conducted outside of the bat breeding/pupping season (generally, April through mid-September). If work that will affect known bat breeding sites must be done in the bat breeding/pupping season, a qualified biologist will evaluate known breading/roosting sites or conduct surveys for bat roosts in suitable breeding/roosting sites (e.g., bridges, mines, caves, trees with hollows, palm trees, snags, buildings, long and dark culverts, rock outcrops, dense tree canopies, and flaking tree bark). If evidence of a bat maternity roost is found or maternity roosts are detected, PG&E will avoid conducting covered activities that may directly affect the active roost site, including the following: ■ If a maternity roost is identified then the qualified bat biologist will develop a Bat Avoidance and Monitoring Plan prior to the start of project activities that shall include: (1) an assessment of all impacts to bats from the activity, including noise disturbance during covered activities and (2) effective AMMs to protect bats in order to ensure that direct impact to active bat maternity roost site do not occur. Notification will be provided to CDFW prior to the start of covered activities. The notification will include a copy of the Bat Avoidance and Monitoring Plan. If direct impacts to identified maternity roost sites cannot be avoided, PG&E will provide a compensatory mitigation plan to CDFW for review and approval. ■ As necessary, an exclusionary buffer will be maintained around active roosts. The size of the buffer will be determined by the qualified biologist based on factors such as the planned activity's level of disturbance and site conditions and will typically be 250 feet. ■ As necessary, a qualified biologist will monitor active bat roost site buffers during O&M activities to determine if roosting activity is influenced by noise or

Biological Resources	
	vibrations until a qualified biologist has determined if the young bats are volant (about to fly) or the roost is unoccupied. ■ When feasible, to protect bats and in accordance with BAHCP BMP-3057 tree work near riparian zones will be conducted during the dry season. If it is not feasible to conduct tree work during the dry season, operations will occur between rain events or during dry spells unless there is an emergency or imminent threat to life or property.
Project-specific Applicant-Proposed Measures for Species Not Covered for Take In the BAHCP/ITP	
APM BIO-1	**Preconstruction Surveys and Biological Monitoring**
Location:	All project areas
Monitoring/Reporting Action:	PG&E to conduct clearance and preconstruction surveys
Effectiveness Criteria:	Clearance and preconstruction are conducted as approved
Responsible Agency:	CPUC
Timing:	Prior to daily construction activities
APM BIO-1	**Preconstruction Surveys and Biological Monitoring.** To reduce impacts to sensitive biological resources that may be present within and adjacent to work areas, clearance surveys and preconstruction surveys will be implemented at the discretion of the PG&E biologist.
APM BIO-2	**Crotch's Bumble Bee and Monarch Butterfly**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement BAHCP and ITP measures
Effectiveness Criteria:	HCP and ITP measures are implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
APM BIO-2	**Crotch's Bumble Bee and Monarch Butterfly.** The CDFW ITP FEIR concluded that implementation of the HCP and ITP measures (such as FP-01 through FP-04, FP-07, FP-10, FP-11, FP-12, and FP-14) will reduce the level of impact to less than significant for the Crotch's bumble bee; in this APM, these same measures are being extended to include the Monarch butterfly, which was not addressed in the HCP or ITP.
APM BIO-3	**Foothill Yellow-legged Frog**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement applicable measures from the BAHCP
Effectiveness Criteria:	BAHCP measures are implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
APM BIO-3	**Foothill Yellow-legged Frog.** Applicable measures from PG&E's BAHCP, including FP-01 through FP-08, FP-10 through FP-17, and AMM Wetland-2 (Tables 5.4-9 and 5.4-10) also will minimize impacts to FYLF. All special-status amphibians encountered in the work areas will be reported to the project biologist or PG&E Environmental staff and allowed to leave the work area in accordance with ITP FEIR APM BIO-2 (Table 5.4-12).
APM BIO-4	**Northwestern Pond Turtle**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement measures from the BAHCP

[57] BMP-30 from the BA HCP: When possible, activities near streams, wetlands, or on saturated soils shall be conducted during the dry season (generally May 15–October 15) or during periods of minimum flow. If it is not possible to perform the work in the dry season, perform rainy season work during dry spells between rain events. For the purposes of this project, a riparian zone will have a buffer distance of 250 feet.

Biological Resources	
Effectiveness Criteria:	BAHCP measures are implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
APM BIO-4	**Northwestern Pond Turtle.** The measures FP-01 through FP-17 from PG&E's BAHCP and AMM Wetland-2 to minimize potential impacts to CRLF and wetlands also will minimize impacts to Northwestern pond turtle (Tables 5.4-9 and 5.4-10).
APM BIO-5	**Nesting Birds**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement measures from the Bay Area O&M HCP and ITP FEIR
Effectiveness Criteria:	Measures from the Bay Area O&M HCP and ITP FEIR are implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
APM BIO-5	**Nesting Birds.** PG&E will implement FP-01 through FP-18 from PG&E's Bay Area O&M HCP as well as ITP FEIR APM BIO-6 to avoid and minimize impacts to nesting birds (Tables 5.4-9 and 5.4-12). As both helicopter and drone use are proposed for this project, the established nest buffers will include vertical buffers based on the horizontal ground buffers presented in Nesting Birds: Species-Specific Buffers for PG&E Activities (Appendix B6).
APM BIO-6	**San Francico Dusky-footed Woodrat**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement measures from the BAHCP
Effectiveness Criteria:	BAHCP measures are implemented as approved
Responsible Agency:	CPUC and CDFW
Timing:	During construction activities
APM BIO-6	**San Francico Dusky-footed Woodrat.** Measures FP-01 through FP-17 from the BAHCP (Table 5.4-9) also will reduce impacts to dusky-footed woodrat. Any woodrat nests encountered in the work areas during covered activities will be reported to the project biologist or PG&E Environmental staff and individuals, if found, will be allowed to leave the work area (ITP FEIR APM BIO 2) (Table 5.4-12). If active nests are identified and cannot be avoided, PG&E will implement the dismantling and relocation measures described in Attachment D of Appendix B3.
Mitigation Measure BIO-1a	**Special Status Plants Avoidance Measures and Impact Minimization**
Location:	Construction areas requiring vegetation removal or ground disturbing activities
Monitoring/Reporting Action:	Surveys and survey reports to be submitted to the CPUC
Effectiveness Criteria:	Surveys are implemented as approved
Responsible Agency:	CPUC
Timing:	Prior to any vegetation removal or ground disturbing activities. Survey reports to be submitted to the CPUC within 14 days of completion
MM BIO-1a	**Special-Status Plants Avoidance and Impact Minimization.** ~~Within two weeks~~ Pprior to ~~any~~ vegetation removal or ground-disturbing activities ~~that will occur within the blooming period of special-status plant species with a moderate or higher potential to occur in the region~~, a qualified botanist(s) approved by CPUC that is knowledgeable of the plant species in the region shall conduct surveys for special-status plants within the limits of the disturbance area. The survey shall include a 250-foot-wide buffer unless otherwise prohibited due to legal access or safety concerns. Surveys may be adjusted to reflect proposed work schedules and locations and need not be performed all at one time. The surveys

Biological Resources

shall be conducted during the appropriate blooming period(s) according to protocols established by CDFW and CNPS (CDFW, 2018) and CNPS (CNPS, 2001) or more recent protocols, if available. All special-status plant species, including listed threatened or endangered, and those ranked CRPR 1A, 1B, 2, 3, and 4, that are located shall be documented during surveys using a precision GPS unit. Results of surveys shall be valid for a period of three years if conducted during a period of average rainfall; however, the Project shall not be delayed during a drought year and would rely on baseline or previously collected data. If vegetation removal does not occur in a previously surveyed area within three years, the surveys shall be repeated provided there is adequate rainfall to support germination.

If special-status plant species are found, special-status plants shall be avoided where feasible in accordance with **ITP FEIR APM BIO-3, BIO-4**, and **BIO-5**. If vegetation removal or ground disturbing activities would have a direct impact on special-status plant species, PG&E shall implement **AMM Plant-04, -05, -06, -07, and -08,** as applicable. Observations will be submitted to CNDDB in accordance with **O&M ITP-6.8**.

Mitigation Measure BIO-1b	**Crotch's Bumble Bee Avoidance Measures and Minimization**
Location:	Construction areas requiring vegetation removal or ground disturbing activities
Monitoring/Reporting Action:	Clearance surveys to be conducted
Effectiveness Criteria:	Clearance surveys are implemented as approved
Responsible Agency:	CPUC
Timing:	Prior to any vegetation removal or ground-disturbing activities and during construction activities

MM BIO-1b **Crotch's Bumble Bee Avoidance and Minimization.** Within one year prior to any vegetation removal or ground-disturbing activities a qualified biologist(s) approved by CPUC that is knowledgeable of Crotch's bumble bee species identification and habitat shall conduct a habitat assessment evaluating the likelihood of bumble bees occurring within and adjacent to the clearance survey of area identified as potential foraging, nesting, and/or overwintering habitat within the limits of disturbance. The survey will also include a 100-foot-wide buffer unless otherwise prohibited due to legal access or safety concerns. Surveys may be adjusted to reflect proposed work schedules, activities, and locations and need not be performed all at one time. Bumble bee identification shall include visual identification and non-lethal photo vouchers, or other methods as outlines in. ~~Handling of bumble bees would require~~ a 2081(a) Memorandum of Understanding with CDFW for bumble bee survey and handling. Nest sites can be determined through following bees from blooms to their nests and looking for concentrated bee activity in suitable nest habitat.

For areas where suitable Crotch's bumble bee habitat is identified, Crotch's bumble bee individuals are identified, or potential habitat exists as determined by CDFW, PG&E will develop a Crotch's Bumble Bee Survey, Impact Avoidance, and Mitigation Plan and submit the plan to CPUC and CDFW. Methodologies and results of the habitat assessment will be included in the plan. The plan will outline additional survey needs, such as overwintering or colony active period surveys, and any additional appropriate avoidance and minimization measures beyond those already accepted. If take is unavoidable, a 2081(a) MOU/ITP will be developed and appropriate mitigation, as approved by CDFW, will be implemented.

Ground disturbing activities that occur in suitable habitat during the colony active period of Crotch's bumble bee will include CDFW-approved methodology and avoidance measures, including but not limited to the following:

~~*Overwintering Season Surveys*: If ground disturbing or vegetation management activities in any given work area occurs during the overwintering season (November 1 through January 31), and the work area has been identified as potential foraging or overwintering~~

Biological Resources

~~habitat, the qualified biologist shall conduct overwintering season surveys within areas of suitable habitat (i.e., where vegetation and floral resources occur) in each area planned for Project activities within two weeks in advance of vegetation removal or ground disturbance in that area.~~

~~Overwintering season surveys shall look for potential Crotch's bumble bee overwintering queens and hibernacula such as leaf litter, logs, and rodent burrows. If overwintering queens or other Crotch's bumble bee are found utilizing hibernacula during surveys, all ground disturbing activities and vegetation removal shall stop within 50 feet of the queen and/or hibernaculum and all workers will be notified not to enter the environmentally sensitive area. The qualified biologist shall record the queen's location with a GPS (including datum and horizontal accuracy in feet) and include photographs and a map of the queen's location.~~

Colony Active Period Season Surveys: If ground disturbing or vegetation management activities in any given work area occurs during the Colony Active Period (February 1 – September 30), and the work area has been identified as potential foraging or nesting habitat, the qualified biologist shall search for Crotch's bumble bee throughout the area planned for Project activities in advance of vegetation removal or ground disturbance in that area. Survey efforts for each area shall include visual surveys consisting of meandering transects occurring no more than 10 days prior to the start of ground and vegetation disturbing activities in that area or as otherwise determined by CDFW in the 2081(a) ITP/MOU. The survey duration shall be appropriate to the size of the area covered in the ITP/MOU and would include on person-hours per 3 acres of suitable habitat for areas planned for Project activities plus a 100-foot-wide buffer (unless otherwise prohibited due to legal access or safety concerns) or as otherwise determined in the MOU. The qualified biologist shall conduct surveys between 7:00 AM and 6:00 PM (Pacific Time) on sunny days between 55-and 95-degrees Fahrenheit with sustained wind speeds measuring less than 10 miles per hour or as otherwise required in the ITP/MOU.

Colony Active Period Season Surveys: If ground disturbing or vegetation management activities in any given work area occurs during the Colony Active Period (February 1 – September 30), and the work area has been identified as potential foraging or nesting habitat, the qualified biologist shall search for Crotch's bumble bee throughout the area planned for Project activities in advance of vegetation removal or ground disturbance in that area. Survey efforts for each area shall include ~~at least two~~ visual surveys consisting of meandering transects occurring no more than 10 days prior to the start of ground and vegetation disturbing activities in that area or as otherwise determined by CDFW in the 2081(a) ITP/MOU. ~~The qualified biologist shall conduct the surveys at least four days apart, with the second survey occurring within two days prior to starting ground and/or vegetation removal activities in that area.~~ The survey duration shall be appropriate to the size of the area covered in the ITP/MOU and would include on person-hours per 3 acres of suitable habitat for areas planned for Project activities plus a 100-foot-wide buffer (unless otherwise prohibited due to legal access or safety concerns) or as otherwise determined in the MOU~~based on the metric of a minimum of one person-hour of searching per three acres of suitable habitat~~. The qualified biologist shall conduct surveys between 7:00 AM and 6:00 PM (Pacific Time) on sunny days between 55-and 95-degrees Fahrenheit with sustained wind speeds measuring less than 10 miles per hour or as otherwise required in the ITP/MOU.

~~If ground disturbing activities are halted for longer than three days within a work area supporting suitable habitat during the Colony Active Period defined as the Queen Flight Season (February 1 through March 31), the qualified biologist shall perform a minimum of one additional survey in the work area in accordance with the prior to reinitiating Project activities in the work area.~~

Biological Resources

If a Crotch's bumble bee nest is identified during ~~Colony Active Period Season focused~~ surveys or during ground disturbance of vegetation removal activities, PG&E shall establish a 50-foot no disturbance buffer around each nest or as otherwise determined based on the~~.~~ ITP/MOU. Buffers shall remain in place until the nest has senesced or project activities are complete. To determine if a nest has senesced, the qualified biologist shall monitor the nest for senescence in late summer and fall in accordance with methodology provided in the ITP/MOU. Nest senescence can typically be denoted after the presence of reproductives (gynes and males) are observed. ~~Nests shall be monitored for a minimum of one hour per day for three consecutive days during optimal weather conditions (i.e., from 7:00 AM -6:00 PM, low wind, and low cloud cover conditions, etc.).~~ If there has been no nest activity after the above conditions are met, the no disturbance buffer may be removed.

If Crotch's bumble bees, overwintering site, or nest sites are detected, **ITP FEIR APM BIO-2** shall be implemented, which requires protection of special status wildlife species encountered. Should an active nest or overwintering site be discovered, PG&E shall implement **ITP FEIR APM BIO-3** to avoid sensitive areas and **ITP FEIR APM BIO-5** to exclude construction activities to ensure species protection. The qualified biologist(s) will remain onsite throughout the duration of activities to ensure that impacts are avoided in accordance with **O&M ITP-6.4**. Documentation and reporting of Crotch's bumble bee habitat assessments, bee observations, overwintering sites, and/or nesting sites shall be conducted in accordance with **O&M ITP-6.8, -6.10,** and **ITP FEIR APM BIO-2**. Observations will be submitted to CNDDB in accordance with **O&M ITP-6.8**. Other avoidance or mitigation measures as outlined in the MOU/ITP will be implemented as determined by CDFW in the MOU/ITP.~~Destruction of a Crotch's bumble bee nest site is defined as "take" under CESA and is not authorized under this measure.~~

Mitigation Measure BIO-1c	**Monarch Avoidance**
Location:	All areas of vegetation removal and ground disturbance
Monitoring/Reporting Action:	Surveys to be conducted with survey reports to be submitted to the CPUC and avoidance measures implemented
Effectiveness Criteria:	Surveys and avoidance buffer are implemented as approved
Responsible Agency:	CPUC
Timing:	Prior to any vegetation removal or ground disturbing activities and during construction

MM BIO-1c **Monarch Avoidance.** ~~Within two weeks prior to any vegetation removal or ground-disturbing activities, a~~A qualified biologist approved by CPUC that is knowledgeable of milkweed species in the region and monarch overwintering sites shall conduct surveys for within the limits of the disturbance area. The survey shall include a 250-foot-wide buffer unless otherwise prohibited due to legal access or safety concerns. ~~Injury or mortality of monarch butterfly is not authorized under this measure.~~ Documentation and reporting of monarch overwintering sites and milkweed species shall be conducted in accordance with **O&M ITP-6.8, -6.10,** and **ITP FEIR APM BIO-2.** Monarch observations will be submitted to CNDDB in accordance with **O&M ITP-6.8**.

Overwintering sites: Surveys for overwintering sites will be conducted from October 1 through March 31 and will include wind-protected blue gum eucalyptus, pine, fir, cypress, and oak trees, particularly in canyons or drainages near water sources and southwest facing slopes. Overwintering sites will be determined by the presence of monarchs clustered together in large numbers. If monarch overwintering sites are observed or suspected, PG&E shall implement **ITP FEIR APM BIO-3** to avoid sensitive areas, and **ITP FEIR APM BIO-5** to exclude construction activities to ensure species protection.

Milkweed Plants: Surveys for milkweed plants will be conducted from March 31 through October 1 and will include any native milkweed species known from the region. Transects

Biological Resources	

for milkweed species will be spaced 20 meters apart or less given the terrain and visual barriers. If milkweed species are observed, **AMM Plant-01**, which prohibits herbicide use, **AMM Plant-04**, which requires barriers to minimize disturbance, and **O&M ITP-5.12**, which requires delineation and avoidance of sensitive habitat features, will be implemented. If milkweed species cannot be avoided, the plants will be inspected for signs of eggs (undersides of leaves), larva, signs of herbivory, and presence of frass. If evidence of eggs, larva, or larval use is found, **ITP FEIR APM BIO-2** shall be implemented, which requires protection of special status wildlife species encountered, and the plant will be avoided until October 1. If no evidence of eggs, larva, or larval use is found, **AMM Plant-05, -06, and -07** will be implemented.

MM BIO-1d	**Northwestern Pond Turtle Avoidance**
Location:	All areas of mechanical vegetation removal and ground disturbance within 400 feet of any perennial waterbody
Monitoring/Reporting Action:	Surveys to be conducted with survey reports to be submitted to the CPUC and avoidance measures implemented
Effectiveness Criteria:	Surveys and avoidance buffer are implemented as approved
Responsible Agency:	CPUC
Timing:	Prior to any vegetation removal or ground disturbing activities and during construction

MM BIO-1d **Northwestern Pond Turtle Avoidance.** Prior to any ground-disturbing or mechanical vegetation removal activities within 400 feet of any perennial waterbody (e.g., lake, pond, river, stream, wet meadow, seep, spring) that has the potential to support northwestern pond turtle as determined by the qualified biologist, a qualified biologist(s) approved by CPUC will conduct a survey within the limits of disturbance no more than 24 hours prior to commencing activities to search for the presence of northwestern pond turtle individuals.

If adult or juvenile northwestern pond turtles are present, the qualified biologist(s) will remain onsite throughout the duration of activities to ensure that impacts are avoided in accordance with **O&M ITP-6.4**. Any northwestern pond turtle adults or juveniles that are present will be allowed to leave the area on their own volition. If it is not possible to allow the animal to leave the work area on its own, the qualified biologist(s) will relocate it to the nearest suitable habitat out of harm's way. If northwestern pond turtle is formally listed as federally threatened or endangered, any take or handling would only be authorized under the context of the appropriate permits from USFWS.

If northwestern pond turtle is present, and project activities are scheduled to occur April 1 through August 31 (when females are searching for suitable nest sites), the qualified biologist will monitor turtle overland activities for nesting behavior and the presence of nesting sites. If nesting behavior is suspected, a buffer of 300 feet will be implemented around any overland activities conducted by the turtle(s). The buffer may be modified by the qualified biologist, if appropriate, due to factors such as fencing and intervening barriers. The biological monitor will have authority to stop work and implement appropriate buffers in accordance with **O&M ITP-5.3 and -5.12**. The qualified biologist will implement the buffer based on their observations, habitat presence, and known life history of the species, to protect nesting behavior and potential nesting sites. This buffer shall be maintained, and no work shall be allowed, from the onset of observed nesting behavior to spring of the following year, to allow eggs to develop and young to hatch. If some work is necessary within that appropriate buffer, the qualified biologist will determine whether the specific work activities can safely be conducted, and if so, will monitor the work. If the biologist determines, through surveys and monitoring, that the nest has hatched or has been predated, work may proceed in the area. If mechanized vegetation removal must be conducted in potential nesting site habitat during the nesting season, CDFW will be

Biological Resources

contacted for further guidance if the species has not been federally listed; and USFWS will be contacted for further guidance if the species has been federally listed.

Documentation, reporting, and submittal to CNDDB of northwestern pond turtle observations and potential nesting sites shall be conducted in accordance with **O&M ITP-6.8, -6.10,** and **ITP FEIR APM BIO-2**. Potential nesting habitat will be avoided during future activities in accordance with **ITP FEIR APM BIO-3**.

~~**Mitigation Measure BIO-1e**~~	~~**Eagle Avoidance Measure**~~
~~Location:~~	~~All areas of ground disturbance and vegetation removal~~
~~Monitoring/Reporting Action:~~	~~CDFW protocol-level surveys between January 15 and August 31 and documentation of survey results~~
~~Effectiveness Criteria:~~	~~Surveys and avoidance buffer are implemented as approved~~
~~Responsible Agency:~~	~~CPUC~~
~~Timing:~~	~~Prior to any ground disturbing or vegetation removal activities and during construction~~

~~**MM BIO-1e Eagle Avoidance.** Within 30 days prior to any ground-disturbing or vegetation removal activities that would occur during the breeding season for eagles (January 15 through August 31), a qualified biologist(s) approved by CPUC shall conduct USFWS and/or CDFW protocol-level surveys for bald and golden eagles in suitable breeding habitat within the area of disturbance. The survey area will include a half-mile buffer, unless otherwise prohibited due to legal access or safety issues. Surveys shall follow the most recent USFWS and/or CDFW guidelines unless alternative methods are otherwise approved by the resource agencies. All eagle observations, including individual eagles, active nests or territories, and roosting sites shall be recorded using a precision GPS unit and included on Project maps.~~

~~If an active eagle nest is identified or is known to be active through coordination with USFWS, CDFW, or other conservation land managers, a one-half mile (2640-foot) avoidance buffer shall be established in accordance with the Species Specific Buffers for PG&E Activities (PEA Appendix B6). Helicopter and drone use shall be prohibited within the one-half mile avoidance buffer unless topographical conditions provide adequate visual and audible screening and the flight path within the avoidance buffer would not come in direct line-of-sight of the nest. The avoidance buffer may be adjusted based on topography, local site conditions, line-of-sight between the nest and work areas, status of the nest, tolerance of the birds to human disturbance, and proposed work activities. The buffer shall only be reduced through coordination with the USFWS, CDFW, and the applicable conservation land managers.~~

~~The qualified avian biologist(s) shall perform routine inspections of the nest to determine that status and ensure that the avoidance buffer is being properly implemented. The biologist shall have the authority to halt work if the birds are exhibiting increased levels of distress.~~

~~Any take of bald or golden eagle would be prohibited.~~

~~Documentation, reporting, and submittal to CNDDB eagle observations and survey results shall be conducted in accordance with **O&M ITP-6.8, -6.10,** and **ITP FEIR APM BIO-2**.~~

Mitigation Measure BIO-3a	**Ephemeral Channel Protection and Restoration**
Location:	Impacted ephemeral channels
Monitoring/Reporting Action:	Restoration of ephemeral channels temporarily impacted by construction
Effectiveness Criteria:	Restoration of ephemeral channels to pre-project conditions
Responsible Agency:	CPUC

Biological Resources	
Timing:	After completion of ground disturbing activities at the location of ephemeral channels. Restoration compliance reports to be submitted to CPUC within 14 days of completion of restoration activities.
MM BIO-3a	**Ephemeral Channel Protection and Restoration.** Construction activities that require temporary disturbances to ephemeral channels shall be conducted during the dry season when the bed and bank are dry, and no rain is anticipated until the channel has been fully restored. Restoration of ephemeral channels include restoration of bed and bank as close to pre-Project conditions as feasible. Vegetation removed shall be restored in compliance with **BAHCP FP-14**, **AMM Plant-04**, and **ITP FEIR APM BIO-2**. Erosion control APMs **BAHCP FP-11, FP-12, O&M ITP-5.9, and -5.10** shall be implemented to stabilize the area until vegetation has been restored. Permanent impacts to aquatic resources are prohibited. PG&E shall obtain all required aquatic resource permits for ~~temporary~~ impacts, as applicable, prior to disturbance to ephemeral channels. All permit conditions shall be implemented.
Mitigation Measure BIO-5a	**Tree Trimming and Removal**
Location:	All areas of the proposed Project where trees are planned for trimming or removal
Monitoring/Reporting Action:	ISA Certified Arborist oversight and documentation of recommendations
Effectiveness Criteria:	ISA Standards and BMPs implemented as approved
Responsible Agency:	CPUC
Timing:	Prior to and during construction and restoration
MM BIO-5a	**Tree Trimming and Removal Requirements.** Trimming and removal of trees shall be conducted in accordance with the International Society of Arboriculture (ISA) American National Standards Institute (ANSI) A300 Tree Care Standards and ISA's Pruning Best Management Practices and overseen by an ISA Certified Arborist. The ISA Certified Arborist will evaluate trees that may be impacted by the Project and determine which trees can be retained and which trees shall be removed. Trees would only be proposed for removal if they would interfere with construction work areas or access safety, utility structures, trimming of the tree branches or roots would be severe enough to impact tree health and result in tree decline, trees are considered a safety hazard to structures or personnel, or retention of the tree would not be in compliance with CPUC General Order 95 for vegetation clearance around powerlines.
~~**Mitigation Measure BIO-7a**~~	~~**Bird and Bat Collision**~~
~~Location:~~	~~All areas of the proposed Project~~
~~Monitoring/Reporting Action:~~	~~PG&E to implement measures to prevent bird and bat collision~~
~~Effectiveness Criteria:~~	~~Implementation of bird and bat collision measures as approved~~
~~Responsible Agency:~~	~~CPUC~~
~~Timing:~~	~~Prior to and during construction~~
~~**MM BIO-7a**~~	~~**Bird and Bat Collision Reduction.** Power line support structures and other facility structures shall be designed in compliance with current standards and practices to discourage their use by raptors for perching or nesting (e.g., by use of anti-perching devices) (APLIC, 2006, 2012). This design also reduces the potential for increased predation of special-status species, such as the Alameda whipsnake. To the extent practicable, the use of guy wires shall be avoided because they pose a collision hazard for birds and bats. Necessary guy wires shall be clearly marked with bird flight diverters to reduce the probability of collision. Shield wires shall be marked with devices that have been scientifically tested and found to significantly reduce the potential for bird collisions. Power lines shall maintain sufficient distance between all conductors and grounded components to prevent potential for electrocution of the largest birds that may occur in the area (e.g., golden~~

Biological Resources	
	~~eagle and turkey vulture). The Project shall utilize non-specular conductors and non-reflective coatings on insulators.~~

Cultural Resources	
APM CUL-1	**Workers Environmental Awareness Program**
Location:	All areas of earth-moving activities
Monitoring/Reporting Action:	PG&E to implement training program
Effectiveness Criteria:	Training program is implemented as approved
Responsible Agency:	CPUC
Timing:	Prior to and during construction activities

APM CUL-1 **Workers Environmental Awareness Program.** PG&E will design and implement a worker environmental awareness program that will be provided to all project personnel involved in earth-moving activities. This training will be administered by a qualified cultural resource professional either as a standalone training or as part of the overall environmental awareness training required by the project and may be recorded for use in subsequent training sessions. No construction worker will be involved in field operations without having participated in the worker environmental awareness program, which will include, at a minimum:

- A review of archaeology, history, precontact, and Native American cultures associated with historical resources near the project
- A review of applicable local, state, and federal ordinances, laws, and regulations pertaining to historic preservation
- A discussion of procedures to be followed in the event that unanticipated cultural resources are discovered during implementation of the project
- A discussion of disciplinary and other actions that could be taken against persons violating historic preservation laws and PG&E policies
- A statement by the construction company or applicable employer agreeing to abide by the Worker Education Program, PG&E policies, and other applicable laws and regulations

APM CUL-2	**Discovery of Unanticipated Cultural Resources**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to report discoveries to project environmental inspector and PG&E cultural resource specialist
Effectiveness Criteria:	Procedures are implemented as approved
Responsible Agency:	CPUC
Timing:	During construction activities

APM CUL-2 **Discovery of Unanticipated Cultural Resources.** If unanticipated cultural resources are identified during construction, the following procedures will be initiated:

- All ground-disturbing construction activities within 100 feet of the discovery will halt immediately.
- The construction crew will protect the discovery from further disturbance until a qualified archaeologist has assessed it.
- The construction supervisor will immediately contact the project environmental inspector and the PG&E cultural resource specialist.
- The PG&E cultural resources specialist will coordinate with the state lead officials, as appropriate. If the discovery can be avoided or protected and no further impacts will occur, then the resource will be documented on DPR 523 forms, and no further effort will be required. If the resource cannot be avoided and may be subjected to further impacts, qualified personnel will evaluate the significance of the discovery in accordance with the state laws outlined previously; personnel will implement data recovery

Cultural Resources	
	or other appropriate treatment measures, if warranted. A qualified historical archaeologist will complete an evaluation of historic period resources, while evaluation of precontact resources will be completed by a qualified archaeologist specializing in California prehistoric archaeology. Evaluations may include archival research, oral interviews, and/or field excavations to determine the full depth, extent, nature, and integrity of the deposit.
APM CUL-3	**Unanticipated Discovery of Human Remains**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to report discovery to PG&E cultural resources specialist
Effectiveness Criteria:	Procedures are implemented as approved
Responsible Agency:	CPUC, Alameda County Sheriff, and NAHC
Timing:	During construction activities
APM CUL-3	**Unanticipated Discovery of Human Remains.** If human remains or suspected human remains are discovered during PG&E construction, work within 100 feet of the find will stop immediately and the construction supervisor will contact the PG&E cultural resources specialist, who meets the Secretary of Interior's Standards for archaeology. Upon discovery, the Coroner Division of the Alameda County Sheriff's Office will be contacted for identification of human remains. The Coroner has 2 working days to examine the remains after being notified. If the remains are Native American, the Coroner must notify the NAHC of the discovery within 24 hours. The NAHC then will identify and contact a Most Likely Descendant (MLD). The MLD may make recommendations to the landowner or representative for the treatment or disposition, with proper dignity, of the remains and grave goods. When proper consultation has occurred, a procedure that may include the preservation, excavation, analysis, and curation of artifacts and/or reburial of those remains and associated artifacts will be formulated and implemented. If the remains are not Native American, the Coroner will consult with the archaeological research team and the lead agency to develop a procedure for the proper study, documentation, and ultimate disposition of the remains. If a determination can be made as to the likely identity – either as an individual or as a member of a group – of the remains, an attempt should be made to identify and contact any living descendants or representatives of the descendant community. As interested parties, these descendants may make recommendations to the owner or representative for the treatment or disposition, with proper dignity, of the remains and grave goods. Final disposition of any human remains or associated funerary objects will be determined in consultation between the landowner and the MLD.

Geology and Soils	
APM GEO-1	**Development of Seismic Design Criteria and Appropriate Seismic Safety Design Measures Implementation**
Location:	All project areas
Monitoring/Reporting Action:	PG&E to design project based on current seismic design practices and guidelines
Effectiveness Criteria:	Project design is implemented as approved
Responsible Agency:	CPUC
Timing:	During project design
APM GEO-1	**Development of Seismic Design Criteria and Appropriate Seismic Safety Design Measures Implementation.** The project will be designed based on current seismic design practices and guidelines. As part of design, site-specific seismic analyses will be performed

Geology and Soils	
	to evaluate peak ground accelerations for design of project components. Because the proposed power cables will be lifeline utilities, the 84th percentile motions (one standard deviation above the median) will be used. Additionally, the Institute of Electrical and Electronics Engineers (IEEE) Standard 693, Recommended Practices for Seismic Design of Substations, has specific requirements to mitigate past substation equipment damage. These design guidelines will be implemented during equipment replacement at substations. Substation equipment will be purchased using the seismic qualification requirements in IEEE 693.
APM GEO-2	**Site-Specific Landslide Assessment**
Location:	Locations near active or older landslides
Monitoring/Reporting Action:	PG&E to conduct site-specific design-level evaluation
Effectiveness Criteria:	Design measures are implemented as approved
Responsible Agency:	CPUC
Timing:	During project design
APM GEO-2	**Site-Specific Landslide Assessment.** As described in Section 3.7.1.3, two proposed structure locations are near active or prehistoric/older slides, with the structures typically located uphill from mapped landslides. A site-specific design-level evaluation of these locations will be performed to evaluate the potential for these landslides to impact project facilities. Appropriate design measures for the protection of the power line structure stability, which may include foundation design enhancements or adjustments to structure locations, will be incorporated into the design.
APM GEO-3	**Appropriate Design Measures Implementation**
Location:	All project areas
Monitoring/Reporting Action:	PG&E to implement design measures
Effectiveness Criteria:	Design measures are implemented as approved
Responsible Agency:	CPUC
Timing:	Prior to and during construction activities
APM GEO-3	**Appropriate Design Measures Implementation.** Potentially problematic subsurface conditions during project construction include soft or loose soils that could be susceptible to liquefaction, especially at and in the vicinity of stream or river crossings. Where soft or loose soils are encountered during design studies or construction, appropriate measures will be implemented to avoid, accommodate, replace, or improve soft or loose soils. Such measures may include the following: ■ Over excavating soft or loose soils and replacing them with non-expansive engineered fill. ■ Increasing the density and strength of soft or loose soils through mechanical vibration and compaction. ■ Treating soft or loose soils in place with binding or cementing agents.

Greenhouse Gas Emissions	
APM GHG-1	**PG&E Minimize Gas Emissions**
Location:	All project areas
Monitoring/Reporting Action:	PG&E to implement greenhouse gas minimization measures
Effectiveness Criteria:	Greenhouse gas minimization measures are implemented as approved
Responsible Agency:	CPUC
Timing:	During construction activities

Greenhouse Gas Emissions

APM GHG-1 **PG&E Minimize Gas Emissions.** PG&E will implement the following to minimize GHG emissions:

- If suitable park-and-ride facilities are available in the project vicinity, construction workers shall be encouraged to carpool to the job site.
- The Applicant shall develop a carpool program to the job site.
- On-road and off-road vehicle tire pressures shall be maintained to manufacturer specifications. Tires shall be checked and re-inflated at regular intervals.
- Demolition debris shall be recycled for reuse to the extent feasible.
- The contractor shall use line power instead of diesel generators at all construction sites where line power is available.
- The contractor shall maintain construction equipment per manufacturing specifications.
- Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction supervisors will include briefings to crews on vehicle use as part of preconstruction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.

APM GHG-2	**PG&E Minimize SF6 Emissions**
Location:	Moraga Substation
Monitoring/Reporting Action:	PG&E to implement SF6 minimization measures
Effectiveness Criteria:	SF6 minimization measures are implemented as approved
Responsible Agency:	CPUC
Timing:	During construction activities

APM GHG-2 **PG&E Minimize SF6 Emissions.** PG&E will implement the following to minimize SF6 emissions:

- Incorporate Moraga Substation modifications into PG&E's systemwide SF6 emission reduction program.
- Require that new breakers at Moraga Substation, as applicable, have a manufacturer's guaranteed maximum leakage rate of 0.5 percent per year or less for SF6.
- Maintain substation breakers in accordance with PG&E's maintenance standards.
- Comply with CARB Early Action Measures as the policies become effective.

Hazards, Hazardous Materials, and Public Safety

APM HAZ-1	**Development and Implementation of Hazardous Material and Emergency Response Procedures**
Location:	All project areas
Monitoring/Reporting Action:	PG&E to implement response procedures
Effectiveness Criteria:	Response procedures are implemented as approved
Responsible Agency:	CPUC
Timing:	All phases of project construction

Hazards, Hazardous Materials, and Public Safety

APM HAZ-1 **Development and Implementation of Hazardous Material and Emergency Response Procedures.** PG&E will implement construction controls, training, and communication to minimize the potential exposure of the public and site workers to potential hazardous materials during all phases of project construction. Construction procedures that will be implemented include worker training appropriate to the worker's role, and containment and spill control practices in accordance with the Stormwater Pollution Prevention Plan (SWPPP) (APM HYD-1).

APM HAZ-2	**Emergency Spill Supplies and Equipment**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement emergency spill supplies and equipment
Effectiveness Criteria:	Supplies and equipment are present during construction as approved
Responsible Agency:	CPUC
Timing:	During construction activities

APM HAZ-2 **Emergency Spill Supplies and Equipment.** Materials will be available on the project site during construction to contain, collect, and dispose of any minor spill. Oil-absorbent material, tarps, and storage drums will be available on the project site during construction and will be used to contain and control any minor releases of oil. If excess water and liquid concrete escape during pouring, they will be directed to adjacent lined and bermed areas, where the concrete will dry and then be transported for disposal per applicable regulations.

APM HAZ-3	**Shock Hazard Safety Measures**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement training program and safety measures
Effectiveness Criteria:	Training Program and safety measures are implemented as approved
Responsible Agency:	CPUC
Timing:	Prior to and during construction activities

APM HAZ-3 **Shock Hazard Safety Measures.** All authorized personnel working on site, during either construction or operations and maintenance, will be trained according to PG&E standards. Training will be implemented prior to construction by PG&E or construction contractor safety managers. A record of when the safety training occurred, the safety manager delivering the training and who attended will be stored by the contractor and available for review by PG&E and the CPUC as requested. Training will include identifying electrical hazards, establishing safe distances from the lines, deenergizing lines where appropriate, and use of personal protective equipment such as arc flash-resistant apparel. The public will be excluded from work areas. When power lines are energized during construction and operation, they are suspended in the air at the requisite ground clearance distance that avoids shock or arc flash hazard to the public.

APM HAZ-4	**Worker Environmental Awareness Training Program**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement training program
Effectiveness Criteria:	Training program is implemented as approved
Responsible Agency:	CPUC
Timing:	Prior to and during construction activities

APM HAZ-4 **Worker Environmental Awareness Training Program.** A worker environmental awareness training program (WEAP) will be developed and implemented prior to construction. The WEAP program will be established to communicate environmental concerns and appropriate work practices to all construction field personnel. The training program will emphasize site specific physical conditions to improve hazard prevention and will include a review of the SWPPP, which also will address spill response and proper best manage-

Hazards, Hazardous Materials, and Public Safety	
	ment practice (BMP) implementation. The WEAP program will be provided separately to CPUC staff prior to construction. If it is necessary to store chemicals, they will be managed in accordance with all applicable regulations. Safety data sheets will be maintained and kept available onsite, as applicable.

APM HAZ-5	**Potentially Contaminated Soil or Groundwater**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement soil and groundwater testing
Effectiveness Criteria:	Soil and groundwater testing is implemented as approved
Responsible Agency:	CPUC
Timing:	During construction activities

APM HAZ-5 **Potentially Contaminated Soil or Groundwater.** Where there is known potential of contaminated soil in the area based on review of databases of hazardous materials and sites, soil sampling will be conducted in project areas prior to or upon commencement of construction. Soil that is known (based on testing prior to or upon commencement of construction) or suspected of being contaminated (based on visual, olfactory, or other evidence identified during construction) and is removed during trenching or excavation activities will be segregated. These segregated soils will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations before disposal at a non-PG&E facility that is licensed to handle the soil based on contaminants identified from test results. If the soil is taken to a PG&E spoils facilities, the soil will be tested, handled, and disposed of in accordance with applicable state and federal regulations. Appropriate handling, transportation, and disposal locations will be determined based on results of the analyses. If the soil is contaminated above hazardous levels, it will be contained and disposed of offsite at a licensed waste facility. In addition, results will be provided to contractor and construction crews to inform them about soil conditions and potential hazards. The location, distribution, and frequency of the sampling locations where there is a known potential of contaminated soil in the area will be determined during final design with the intent to provide adequate representation of the conditions in the construction area. Groundwater is not expected to be encountered during construction. However, if it is encountered, groundwater will be collected during construction, contained, tested, and disposed of in accordance with all applicable regulations. Containment will be done by pumping the groundwater into holding tanks. Noncontaminated groundwater will be released to the stormwater drainage system in the area (with prior approval). If the groundwater is contaminated, it will be disposed of at a facility that accepts liquid hazardous waste, in accordance with applicable regulations.

Mitigation Measure HH-1a	**Prepare and Implement a Soil Management Plan**
Location:	All segments of the proposed Project
Monitoring/Reporting Action:	Soil Management Plan to be submitted to the CPUC at least 30 days prior to the start of construction
Effectiveness Criteria:	Soil Management Plan is implemented as approved
Responsible Agency:	CPUC
Timing:	30 days prior to the start of construction and during construction activities

MM HH-1a **Prepare and Implement a Soil Management Plan. Prepare and Implement a Soil Management Plan.** A Soil Management Plan shall be developed and implemented for construction of the proposed Project. The objective of the Soil Management Plan is to provide procedures PG&E shall undertake in the event unanticipated contaminated soil is encountered.

The Soil Management Plan shall also include requirements for documenting and reporting incidents of encountered contaminants, such as documenting locations of occurrence, sampling results, and reporting actions taken to dispose of contaminated materials.

Hazards, Hazardous Materials, and Public Safety

The Soil Management Plan shall be submitted to the CPUC 30 days prior to the start of construction for review and approval.

The Soil Management Plan shall provide detailed processes for the following:

- Procedures for when unanticipated contaminated soil is encountered.
- Reporting and notification for contaminated soil.
- Description of soil testing, which shall include the collection of shallow soil samples and analyses for contamination to verify presence or absence of unknown soil contamination and the collection of soil samples at locations at and near areas of known contamination.
- Procedures and protocols for safe storage, stockpiling, and disposal of any contaminated soils.
- If contaminants are encountered, PG&E shall notify all schools, daycare facilities, elderly housing, and residences within 250 feet of the contaminated soil within 24 hours of discovery and immediately remove the contaminated soil.

Mitigation Measure HH-6a	**Prepare and Implement a Helicopter Safety Plan**
Location:	Locations where PG&E anticipates flying suspended loads into airspace over residential or occupied areas
Monitoring/Reporting Action:	Helicopter Safety Plan to be submitted to the CPUC at least 90 days prior to the start of construction
Effectiveness Criteria:	Helicopter Safety Plan is implemented as approved
Responsible Agency:	CPUC
Timing:	90 days prior to flying suspended loads into airspace over residential and occupied areas

MM HH-6a **Prepare and Implement a Helicopter Safety Plan.** A Helicopter Safety Plan shall be developed and implemented during construction of the Project should PG&E anticipate flying suspended loads into airspace over residential or occupied areas. The Plan shall document PG&E's compliance with FAA regulation 14 CFR § 133.33. The objective of the Helicopter Safety Plan is to define procedures PG&E shall undertake in the event that helicopters carrying suspended loads fly within the airspace over any residential or occupied areas.

The Helicopter Safety Plan shall be submitted to the CPUC for review and approval 90 days prior to helicopters flying suspended loads within airspace over any residential or occupied areas. The Helicopter Safety Plan shall include the following:

- A flight plan for each proposed operation with suspended loads that would occur in airspace over residential or occupied areas and a detailed chart depicting the flight routes and altitudes.
- Evidence that PG&E has coordinated these flight plans with the responsible FAA Flight Standards office and obtained approval for the operation from that office.
- Each flight must be conducted at an altitude, and on a route, that will allow external loads to be released, and the rotorcraft landed, in an emergency without hazard to persons or property on the surface.
- A defined process for PG&E to pay for temporary housing for all residents required to be temporarily relocated due to helicopter operations that require carrying of suspended loads over residences. PG&E must document its coordination with residents, including providing at least 60 days' notice of the need to relocate, the time period for relocation, and PG&E's commitment to pay for all relocation costs.

Hydrology and Water Quality	
APM HYD-1	**Prepare and Implement a SWPPP**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to submit and implement a SWPPP
Effectiveness Criteria:	SWPPP is implemented as approved
Responsible Agency:	CPUC
Timing:	Prior to and during construction activities

APM HYD-1 **Prepare and Implement a SWPPP.** Stormwater discharges associated with project construction activities are regulated under the CGP. Cases in which construction will disturb more than 1 acre of soil require submittal of a Notice of Intent, development of an SWPPP (both certified by the Legally Responsible Person), periodic monitoring and inspections, retention of monitoring records, reporting of incidences of noncompliance, and submittal of annual compliance reports. PG&E will comply with all CGP requirements for construction of project components.

Following project approval, PG&E will prepare and implement an SWPPP, which will address erosion and sediment control concerns to minimize construction impacts on surface water quality, as well as reduce the potential for stormwater runoff to impact adjacent properties. The SWPPP will be designed specifically for the hydrologic setting of the proposed project (surface topography, storm drain configuration, and other factors). Implementation of the SWPPP will help stabilize graded areas and reduce erosion and sedimentation. The SWPPP will propose BMPs that will be implemented during construction activities. Erosion and sediment control BMPs – such as straw wattles, erosion control blankets, and silt fences – will be installed in compliance with the SWPPP. Suitable soil stabilization BMPs will be used to protect exposed areas during construction activities, as specified in the SWPPP. During construction activities, BMPs will be implemented to reduce exposure of construction materials and wastes to stormwater. BMPs will be installed following manufacturer's specifications and according to standard industry practice.

Erosion and sediment control measures may include the following:

- Straw wattle, silt fence, or gravel bag berms
- Trackout control at all entrances and exits
- Stockpile management
- Effective dust control measures
- Good housekeeping measures
- Stabilization measures, which may include wood mulch, gravel, and seeding

Identified erosion and sediment control measures will be installed prior to the start of construction activities and will be inspected and improved as required by the CGP. Temporary sediment control measures intended to minimize sediment transport from temporarily disturbed areas such as silt fences or wattles will remain in place until disturbed areas are stabilized. In areas where soil is to be temporarily stockpiled, soil will be placed in a controlled area and will be managed using industry-standard stockpile management techniques. Where construction activities occur near a surface waterbody or drainage channel, the staging of construction materials and equipment and excavation spoil stockpiles will be placed and managed in a manner to minimize the risk of sediment transport to the drainage. Any surplus soil will be transported from the site and disposed of in accordance with federal, state, and local regulations.

The SWPPP will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials will be permitted, if necessary. A copy of the SWPPP will be provided to CPUC for recordkeeping. The plan will be maintained and updated during construction as required by the CGP.

APM HYD-2	**Worker Environmental Awareness Program**
Location:	All project areas

Hydrology and Water Quality	
Monitoring/Reporting Action:	PG&E to develop training program
Effectiveness Criteria:	Training Program is implemented as approved
Responsible Agency:	CPUC
Timing:	Prior to and during construction activities

APM HYD-2 **Worker Environmental Awareness Program**. The worker environmental awareness program will be developed and provided separately to CPUC staff prior to construction. The worker environmental awareness program will communicate environmental issues and appropriate work practices specific to project components to all field personnel. These will include spill prevention and response measures and proper BMP implementation. A copy of the worker environmental awareness program record will be provided to CPUC for recordkeeping at the completion of the project. An environmental monitoring program also will be implemented to ensure that the plans are followed throughout the construction period for project components.

APM HYD-3	**Project Site Restoration**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement restoration measures
Effectiveness Criteria:	Restoration measures are implemented as approved
Responsible Agency:	CPUC
Timing:	During construction activities

APM HYD-3 **Project Site Restoration.** As part of the final construction activities, PG&E will restore all removed curbs and gutters, repave, and restore landscaping or vegetation, as necessary.

Noise	
APM NOI-1	**General Construction Noise Management [*Superseded by MM N-1a and MM N-1b*]**

APM NOI-1 **General Construction Noise Management**. ***(Superseded by MM N-1a and MM N-1b).*** PG&E will employ standard noise-reducing construction practices such as the following:

- Comply with manufacturer's muffler requirements on all construction equipment engines and ensure exhaust mufflers are in good condition.
- Turn off construction equipment when not in use, where applicable.
- Locate stationary equipment, construction staging areas, helicopter landing zones, and construction material areas as far as practical from sensitive receptors.
- Include noise control requirements for construction equipment and tools in specifications provided to construction contractors to the maximum extent practicable, including performing all work in a manner that minimizes noise.
- PG&E will provide written notice at least 1 week prior to planned construction activities to all sensitive receptors and residences within approximately 500 feet of construction sites, staging yards, access roads, and areas of drone use, and within approximately 1,000 feet of helicopter landing zones. PG&E also will post notices in public areas, including recreational use areas, within approximately 500 feet of the project alignment and construction work areas. The announcement will state approximately where and when construction will occur in the area, including areas of helicopter construction. Notices will provide tips on reducing noise intrusion – for example, by closing windows facing the planned construction. PG&E will identify a public liaison to respond to concerns of neighboring receptors during construction, including residents, about construction noise disturbance. PG&E also will establish a toll-free telephone number for receiving questions or concerns during construction and develop procedures for responding to callers. Contact information for reaching the PG&E public liaison officer by telephone

Noise	
	or in person will be included in the notices and also posted conspicuously at the construction sites. PG&E will respond to questions or concerns received.
APM NOI-2	**Noise Minimization with Portable Barriers.**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement portable barriers if located within 200 feet of a residence
Effectiveness Criteria:	Portable barriers are implemented as approved
Responsible Agency:	CPUC
Timing:	During construction activities
APM NOI-2	**Noise Minimization with Portable Barriers**. Compressors and other small stationary equipment used during construction of PG&E project components will be shielded with portable barriers if appropriate and if located within approximately 200 feet of a residence.
APM NOI-3	**Noise Minimization with Quiet Equipment**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to utilize quiet equipment when possible
Effectiveness Criteria:	Quiet equipment is implemented whenever possible
Responsible Agency:	CPUC
Timing:	During construction activities
APM NOI-3	**Noise Minimization with Quiet Equipment.** Quiet equipment will be used during construction of PG&E project components whenever possible (for example, equipment that incorporates noise control elements into the design, such as quiet model compressors or generators, can be specified).
APM NOI-4	**Noise Minimization through Direction of Exhaust.**
Location:	Construction areas in proximity to noise-sensitive uses
Monitoring/Reporting Action:	PG&E to direct equipment exhaust stacks and vents away from noise-sensitive uses
Effectiveness Criteria:	Equipment exhaust stacks and vents directed away from noise sensitive uses where feasible
Responsible Agency:	CPUC
Timing:	During construction activities
APM NOI-4	**Noise Minimization through Direction of Exhaust**. When in proximity to noise-sensitive uses, equipment exhaust stacks and vents will be directed away from those noise-sensitive uses where feasible.
APM NOI-5	**Nighttime Noise Disruption Minimization through Residential Notification**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to provide advanced notification of nighttime construction to affected residences
Effectiveness Criteria:	Advanced notification is provided as approved
Responsible Agency:	CPUC
Timing:	In advance of construction activities
APM NOI-5	**Nighttime Noise Disruption Minimization through Residential Notification.** In the event that nighttime construction is necessary for PG&E project components– for instance, if certain activities such as underground line splicing need to continue to completion – affected residents will be notified in advance by mail, personal visit, or door-hanger, and will be informed of the expected work schedule.

Noise	
APM NOI-6	**Helicopter Noise Minimization Measures**
Location:	Construction areas requiring helicopter use
Monitoring/Reporting Action:	PG&E to select helicopter landing zones at least 500 feet from occupied residences, where feasible, and provide advanced notification
Effectiveness Criteria:	Advanced notification is provided as approved
Responsible Agency:	CPUC
Timing:	At least 1 week prior to helicopter operations
APM NOI-6	**Helicopter Noise Minimization Measures.** PG&E will select helicopter landing zones that are located at least 500 feet from occupied residences where feasible. Nearby residences will be notified at least 1 week ahead of helicopter operations to minimize concerns regarding helicopter noise.
APM NOI-7	**Noise Minimization Equipment Specification.**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement general construction noise reduction measures
Effectiveness Criteria:	Noise reduction measures for equipment are implemented as approved
Responsible Agency:	CPUC
Timing:	During construction activities
APM NOI-7	**Noise Minimization Equipment Specification.** PG&E will specify general construction noise reduction measures that require the contractor to ensure that all equipment is in good working order, adequately muffled, and maintained in accordance with the manufacturers' recommendations.
APM NOI-8	**Incorporate Vibration Assessment into Project Construction** ***[Superseded by Mitigation Measure MM N-2a]***
APM NOI-8	**Incorporate Vibration Assessment into Project Construction. (*Superseded by Mitigation Measure MM N-2a*)** Where pile driving may be required adjacent residential or commercial uses, final design efforts and construction methods will consider soils and hammer type and use when assessing potential for vibration. Vibration monitoring will be conducted during pile driving activities, or in response to a complaint, to confirm that vibration levels are within acceptable guidelines. Site-specific minimization measures such as modifying the type of hammer, reducing hammer energy, modifying hammer frequency, or using vibratory pile driving will be implemented as necessary to reduce the potential effects of off-site vibration. Monitoring may be reduced or eliminated when it has been established that these measures, if required, are effective for the site conditions.
Mitigation Measure N-1a	**General Construction Noise Management**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement standard noise-reducing construction practices
Effectiveness Criteria:	Noise control practices are implemented as approved
Responsible Agency:	CPUC
Timing:	During construction activity
MM N-1a	**General Construction Noise Management.** (*Supersedes APM NOI-1*). PG&E will employ standard noise-reducing construction practices including the following: ■ Comply with manufacturer's muffler requirements on all construction equipment engines and ensure exhaust mufflers are in good condition. ■ Turn off construction equipment when not in use. ■ Locate stationary equipment, construction staging areas, helicopter landing zones, and construction material areas as far as practical from sensitive receptors.

Noise

- Include noise control requirements for construction equipment and tools in specifications provided to construction contractors to the maximum extent practicable, including performing all work in a manner that minimizes noise.
- Shield portable and stationary noise sources (e.g., generators, pumps) and staging areas from adjacent noise-sensitive receptors by an engine shroud, enclosure, temporary sound walls, or acoustic blankets. Where feasible, sound walls or acoustic blankets shall have a height of no less than 8 feet, a Sound Transmission Class (STC) of 27 or greater, and a surface with a solid face from top to bottom without any openings or cutouts.
- To mitigate noise from metal plates covering trenches, rubber padding or other noise-dampening materials shall be installed beneath the plates to reduce noise and vibrations caused by vehicles passing over them, and from construction activities, particularly during nighttime work.

Mitigation Measure N-1b	**Construction Notification**
Location:	All construction areas, staging yards, access, roads, areas of drone use, and helicopter landing zones
Monitoring/Reporting Action:	Notification of planned construction to be provided to all relevant agencies, sensitive receptors, residences, and utility service providers
Effectiveness Criteria:	Notification is implemented as approved
Responsible Agency:	CPUC
Timing:	Notification to agencies and nearby sensitive receptors and residences at least 1 month prior to planned construction activities. Notification to affected utilities at least 18 months prior to start of ground disturbance.

MM N-1b **Construction Notification.** (*Supersedes APM NOI-1*.) PG&E shall provide written notice at least 1 month prior to planned construction activities as follows:

- Written notice shall be provided to all affected jurisdictions, including local agencies and jurisdictions, emergency service providers, and public transit agencies.
- Written notice shall be provided to all daycare facilities, schools, elderly housing facilities, and residences, and administrators of parks and open spaces, within 500 feet of all construction sites, structure installation and removal sites, staging yards, access roads, and areas of drone use, and within 1,000 feet of helicopter landing zones. Written notices shall provide tips on reducing noise intrusion – for example, by closing windows facing the planned construction.
- PG&E shall post notices in public areas, including recreational use areas, within approximately 500 feet of the project alignment and construction work areas at least 1 month prior to planned construction activities. The announcement shall state where and when construction will occur in the area, including areas of helicopter construction.
- PG&E shall identify a public liaison to respond to concerns of neighboring receptors during construction, including residents and schools, about construction noise disturbance.
- PG&E shall provide a hotline telephone number in all posted notices and written notices to allow impacted residents, schools, or park users to call to inquire regarding schedule and noise. Throughout construction, PG&E shall document, investigate, evaluate, and attempt to resolve all project-related noise complaints. PG&E shall provide documentation to CPUC of all complaints and the actions taken to resolve complaints on a monthly basis.

If a helicopter landing zone to be used will be located on East Bay Municipal Utility District (EBMUD) or East Bay Regional Park District (EBRPD) land, PG&E shall coordinate with EBMUD and EBRPD to obtain approval on the proposed location. This approval shall be documented by providing written approval at least 30 days prior to any helicopter landing.

Noise	
	To allow adequate time for potential utility relocation in advance of Project construction, PG&E shall notify utility service providers about utilities that may require relocation at least 18 months prior the start of construction.
Mitigation Measure N-2a	**Vibration Assessment and Control**
Location:	Where pile driving may be required within 150 feet residential or commercial structures
Monitoring/Reporting Action:	Final design efforts incorporate an assessment of potential for vibration
Effectiveness Criteria:	Vibration levels do not exceed 0.5 inches per second Peak Particle Velocity or the annoyance threshold of 80 VdB at residential structures
Responsible Agency:	CPUC
Timing:	Prior to and during construction

MM N-2a **Vibration Assessment and Control.** (*Supersedes APM NOI-8*). PG&E shall limit pile driving to occur only between the hours of 8:00 a.m. and 4:00 p.m., to prevent levels that could disrupt sleep by exceeding the annoyance threshold of 80 VdB at residential structures. Where ~~pile driving may be required within 150 feet of residential or commercial structures,~~ sonic pile drivers may be used within 40 feet of a historic structure or impact pile drivers within 115 feet of a historic structure, or if an impact pile driver is used within 60 feet of an occupied structure, PG&E shall prepare a Vibration Control Plan prior to the commencement of construction activities, meeting the following requirements:

- The Vibration Control Plan shall be prepared by a licensed structural engineer and shall include all reasonable methods required to minimize vibration such that monitored vibration levels do not exceed 0.5 inches per second Peak Particle Velocity ~~or the annoyance threshold of 80 VdB at residential structures~~. These methods may include limiting the extent of pile driving activity near occupied structures and using alternative installation methods for piles. Final design efforts and construction methods will consider soils and hammer type and use when assessing potential for vibration.
- Site-specific minimization measures such as pre-drilling pilot holes to reduce resistance, modifying the type of hammer, reducing hammer energy, modifying hammer frequency, or using vibratory pile driving will be implemented as necessary to reduce the potential effects of off-site vibration.
- Vibration monitoring will be conducted during pile driving activities, or in response to a complaint, to confirm that monitored vibration levels do not exceed 0.5 inches per second Peak Particle Velocity ~~or the annoyance threshold of 80 VdB at residential structures~~.
- If threshold levels are exceeded, vibration monitoring reports shall document the site-specific minimization measures implemented to reduce or limit the duration and level of the impact and shall document actions taken to adjust construction activities in response to field conditions.
- The Vibration Control Plan shall also establish baseline conditions at potentially affected structures, provide shoring design to protect buildings and structures from damage, document damage at the conclusion of vibration generating activities, and include recommendations for repair if necessary.
- Monitoring for vibration may be reduced or eliminated when it has been established that these measures, if required, are effective for the site conditions.

Paleontological Resources	
APM PAL-1	**Retain a Qualified Paleontological Principal Investigator**
Location:	All project areas
Monitoring/Reporting Action:	PG&E to retain a Paleontological Principal Investigator

Paleontological Resources	
Effectiveness Criteria:	Paleontological Principal Investigator is ~~present~~ retained during construction activities
Responsible Agency:	CPUC
Timing:	During construction activities

APM PAL-1 **Retain a Qualified Paleontological Principal Investigator.** A Paleontological Principal Investigator who meets the standards set forth by the Society of Vertebrate Paleontology will be retained to ensure that all APMs related to paleontological resources are properly implemented during construction. The Paleontological Principal Investigator will have a master's degree or Ph.D. in geology or paleontology, have knowledge of the local paleontology, and be familiar with paleontological procedures and techniques.

APM PAL-2	**Worker Environmental Awareness Training**
Location:	At work location with excavation occurring deeper than 3 feet below ground surface
Monitoring/Reporting Action:	PG&E to implement training program
Effectiveness Criteria:	Training program is implemented as approved
Responsible Agency:	CPUC
Timing:	Prior to and during construction activities

APM PAL-2 **Worker Environmental Awareness Training.** Training on paleontological resources protection will be administered for excavation deeper than 3 feet below ground surface (bgs) at all work locations. Training may be provided by PG&E as a stand-alone training, or it may be included as part of the overall environmental awareness training as required by the Project. The training will include the following:

- The types of fossils that could occur at the Project site
- The types of lithologies in which the fossils could be preserved
- The procedures that should be taken in the event of a fossil discovery
- Penalties for disturbing paleontological resources

APM PAL-3	**Paleontological Resource Monitoring for Select Construction Activities**
Location:	Construction areas where Siesta Formation (Tst), Orinda Formation (Tor), glauconitic sandstone (Ta), and Pleistocene alluvial and fluvial deposits (Qpaf) occur at the surface and where excavation is greater than 3 feet deep and, for excavations involving drilling or augering, where a drill diameter that is larger than 3 feet will be used
Monitoring/Reporting Action:	Paleontological monitor to document monitoring activities as approved
Effectiveness Criteria:	Paleontological monitor is present in required areas
Responsible Agency:	CPUC
Timing:	During construction activities

APM PAL-3 **Paleontological Resource Monitoring for Select Construction Activities.** A paleontological monitor will be present to monitor for paleontological resources in areas where Siesta Formation (Tst), Orinda Formation (Tor), glauconitic sandstone (Ta), and Pleistocene alluvial and fluvial deposits (Qpaf) occur at the surface and where excavation is greater than 3 feet deep and, for excavations involving drilling or augering, where a drill diameter that is larger than 3 feet will be used. Monitoring is not required if this work occurs in soil or sediment that is imported or previously disturbed. Locations of activities requiring monitoring where previously disturbed or imported soil or sediment is not known are:

- Structure foundation excavation greater than 3 feet bgs using a drill that is 3 feet or greater in diameter at the following locations: RN1, RS1, RN2, RS2, RN5, RS5, RN6, RS6, RN7, RS7, RN8, RS8, RN15, RS15, RN21, RS21, TN28, TS28, and TN29.

Paleontological Resources	
	■ Vault installation within Park Boulevard beginning at its intersection with Wellington Street continuing within Park Boulevard Way to the Oakland X Substation property. The paleontological monitor will be able to: (1) recognize fossils and paleontological deposits and deposits that may be paleontologically sensitive; (2) take accurate and detailed field notes, photographs, and locality coordinates; and (3) document Project-related ground-disturbing activities, their locations, and other relevant information, including a photographic record. Monitoring at these locations can be reduced if, after initial monitoring, it is determined the Project's Paleontological Principal Investigator that there is a low likelihood of identifying paleontological resources.
APM PAL-4	**Unanticipated Paleontological Discovery**
Location:	All areas of construction activities
Monitoring/Reporting Action:	PG&E to implement discovery ~~produces~~procedures
Effectiveness Criteria:	Procedures are implemented as approved
Responsible Agency:	CPUC
Timing:	During construction activities
APM PAL-4	**Unanticipated Paleontological Discovery.** If significant paleontological resources are discovered during PG&E's construction activities, the following procedures will be followed: ■ Stop work immediately within 100 feet of the fossil find. ■ Contact the designated Project inspector and PG&E Cultural Resource Specialist (CRS) immediately. ■ Protect the site from further impacts, including looting, erosion, or other human or natural damage. ■ Arrange for a qualified paleontologist to evaluate the discovery. If the discovery is determined to be significant, PG&E will implement measures to protect and document the paleontological resource. Work may not resume within 100 feet of the find until approved by the paleontologist and CRS. ■ Obtain permission from the landowner before treating the fossils. Curate all fossils discovered in an appropriate repository. A qualified paleontologist will be notified to review the need for paleontological monitoring during subsequent ground-disturbing activities with the potential to affect paleontologically sensitive sediments at that location. The qualified paleontologist will be responsible for the reassessment of paleontological sensitivity upon the receipt of additional information from ongoing excavations, which may result in reducing or increasing the amount of monitoring required.

Recreation	
APM REC-1	**Coordination with Park and Open Space Management and Signage (*Superseded by MM R-3a*)**
APM REC-1	**Coordinate with Park and Open Space Management and Signage. *(Superseded by MM R-3a)*.** PG&E will coordinate closely with park and open space landowners for temporary public land closures during project construction activities. If traditional access is temporarily unavailable, signs advising recreational facility users of construction activities, including directions to alternative trails and/or bikeways, will be posted at entrance gates to park and open space areas. Signage will be posted at least 1 week in advance of the construction activity near a park or open space area.
Mitigation Measure REC-3a	**Coordinate with Park and Open Space management and provide signage, barriers, and monitors to ensure safety of trail and park users.**
Location:	Parks and Open Space Areas in the vicinity of construction activities

Recreation	
Monitoring/Reporting Action:	PG&E to coordinate with parks and post notification, signage, and barriers
Effectiveness Criteria:	Notification, signage, and barriers are implemented as approved. Coordination with parks and opens space managers conducted.
Responsible Agency:	CPUC
Timing:	Coordination 30 days in advance, postings 1 week prior to construction activity
MM REC-3a	**Coordinate with Park and Open Space management and provide signage, barriers, and monitors to ensure safety of trail and park users.** PG&E shall coordinate with park and open space managers at least 30 days in advance regarding temporary closures required for project construction activities. If traditional access is temporarily unavailable, signs advising recreational facility users of construction activities, including directions to alternative trails and/or bikeways, shall be posted and clearly visible at entrance gates to park and open space areas. Signage will be posted at least 1 week in advance of the construction activity near a park or open space area. Where construction activities require use of or obstruct a trail or other park area otherwise open to recreational users, barriers, tape, or other devices blocking access or warning users of construction activity shall be in place. If available, routes around the construction will be identified and clearly marked. Where a trail or site is obstructed by construction activity monitors shall be onsite to prevent unauthorized public access to the construction area and to direct recreational users around or away from the site.
Mitigation Measure REC-5a	**Coordinate with recreation facility owners or managers to identify feasible alternatives to address damage to recreation assets.**
Location:	Recreation facilities in the vicinity of construction activities
Monitoring/Reporting Action:	PG&E to notify and coordinate with recreation facilities immediately following any damage caused by the Project
Effectiveness Criteria:	Coordination to identify alternative routes, identify damage, and determine need for repair or compensation.
Responsible Agency:	CPUC
Timing:	Prior to construction and Immediately following any damage caused by construction activities
MM REC-5a	**Coordinate with managers of recreation facilities to restore damaged assets**. PG&E shall coordinate with managers or owners of public and private recreation facilities (including trails, camping areas, playgrounds, parking areas, and similar assets) to determine if reasonable feasible alternatives are available that would reduce impacts and disruption, and to assess and address any significant damage resulting directly from PG&E construction activities. PG&E will coordinate with park managers regarding the extent of the areas to be used, the access to such areas, and the timing and duration of use. If property owner agreements or agency permits stipulate usage and how to address damage, the conditions specified in any agreement or permit condition shall be applied in lieu of this mitigation measure. In the absence of such agreements or permit conditions, PG&E will identify damages and make appropriate repairs or compensation.

Transportation	
APM TRA-1	**PG&E Temporary Traffic Controls**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to develop traffic control plans and obtain required encroachment permits. Provide the CPUC with copies of all required permits and plans
Effectiveness Criteria:	PG&E to implement traffic control plans and BMPs and provide required notifications
Responsible Agency:	CPUC and Caltrans
Timing:	Prior to construction activities

APM TRA-1 **PG&E Temporary Traffic Controls**. PG&E will obtain any necessary transportation and encroachment permits from Caltrans and the local jurisdictions, as required, including those related to state route crossings and the transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during construction. PG&E will develop traffic control plans to detail road and lane closure or width reduction or traffic diversion as required by the encroachment permits. Residents and emergency service providers will be notified of upcoming road closures consistent with the notification procedures described in APM NOI-1. Construction activities that are in, along, or cross local roadways will follow best management practices and local jurisdictional encroachment permit requirements—such as traffic controls in the form of signs, cones, and flaggers—to minimize impacts on traffic and transportation, including emergency vehicle access and evacuation routes in the project area. Where work areas will occupy the end of a street with no secondary access and residential access may be restricted, PG&E will implement residential safe transport. PG&E will provide the CPUC with copies of permits obtained prior to construction activity in each jurisdiction or location. If required for obtaining a local encroachment permit, PG&E will establish a Traffic Management Plan (TMP) to address haul routes, timing of heavy equipment and building material deliveries, workers and equipment parking, potential street or lane closures, signing, lighting, and traffic control device placement. When working on state highways, PG&E will ensure traffic control operations are compliant with both the California Temporary Traffic Control Handbook, 2019 edition, and the California Manual on Uniform Traffic Control Devices, 2014 edition, and any updated versions of these documents that become available before start of construction.

APM TRA-2	**PG&E Repair of Damaged Transportation Infrastructure**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement restoration per locally issued ministerial permits
Effectiveness Criteria:	Damaged transportation infrastructure is restored in compliance with locally issued ministerial permits
Responsible Agency:	CPUC
Timing:	After completion of construction activities

APM TRA-2 **PG&E Repair of Damaged Transportation Infrastructure**. Restoration of roads and all removed or damaged curbs, gutters, and sidewalks will be done in compliance with the locally issued ministerial permits. Road restoration is based on matching the roadway's existing subbase and surface (asphalt, concrete, or a combination of both). After backfilling a duct bank trench or vault excavation, a road base backfill or slurry concrete cap will be installed and a pavement surface will be laid where the trench or excavation occurred. The edges of the pavement surface will be leveled to match the existing adjacent pavement surface. If the initial pavement surface is cold patch asphalt, then it will act as a temporary layer to return the road to service per ministerial permit conditions. Temporary cold patch asphalt will be removed before the final road pavement surface is installed. Final pavement surface restoration will use hot mix asphalt, concrete, or a combination of both depending on the ministerial permit conditions. Repaving and strip-

Transportation	
	ing will be completed sequentially as completed sections of road surface are being restored, and this process will continue until the pavement restoration activity is complete.
Mitigation Measure T-1a	**Traffic Management Plan**
Location:	All construction ~~and O&M~~ areas requiring heavy vehicle and equipment traffic on public roadways
Monitoring/Reporting Action:	PG&E to submit Traffic Management Plan to local jurisdictions and implement measures during construction
Effectiveness Criteria:	Traffic Management Plan is implemented as approved
Responsible Agency:	CPUC
Timing:	Prior to and during construction

MM T-1a **Traffic Management Plan and Safe Transport.** PG&E shall prepare a Traffic Management Plan (TMP) for ~~approval~~ review by local jurisdictions and agencies within the Project area at least 3 months prior to any construction activities requiring heavy vehicle and equipment traffic on public roadways or full or partial closure of public streets. Documentation of coordination with local jurisdictions and agencies issuing encroachment or traffic control permits will be provided to the CPUC at least 1 month prior to construction associated with the permit. Local jurisdictions and agencies may include ~~but are not limited to~~ Contra Costa County, Alameda County, City of Orinda, City of Piedmont, City of Oakland, EBMUD, EBRPD, ~~and~~ AC Transit, Caltrans, or others where appropriate. The TMP must be ~~approved~~ reviewed by local jurisdictions and agencies ~~at least 1 month~~ prior to construction, ~~with~~ which may occur separately from the approval process ~~expected to occur through~~ associated with the issuance of road encroachment or traffic control permits prior to construction. The TMP shall establish methods for minimizing construction effects on roadways, transit services, pedestrian facilities, and bicycle facilities; and address staging areas, haul routes, types of equipment anticipated to be used, timing of heavy equipment and material deliveries, workers and equipment parking, potential street or lane closures, alternative routes and detours, signing, lighting, temporary relocation or closure of bus stops, and traffic control device placement to minimize disruption and ensure safe and efficient traffic flow. The TMP shall include measures for directing delivery and haul trucks away from sensitive receptor locations (e.g., residential neighborhoods, schools) and congested intersections during construction, where reasonably feasible. The TMP shall identify routes that minimize driving of delivery and haul trucks through sensitive receptor locations as feasible. The TMP shall also establish the timing and method for notifying emergency service providers regarding Project activities and notifying the public, including wayfinding signage, regarding full or partial closure of public streets, detours, and alternative routes for various travel modes including relocated or closed bus stops.

The Traffic Management Plan shall include a separate section entitled "Safe Transport." This section shall define the following components:

- A list of all residences (by street address) that could have access blocked by construction equipment or activities and that have no alternate or secondary routes for entry or egress (see EIR Table 2.3-6).
- A defined outreach effort (stating the frequency, method, and intended audience for outreach, such as the general public or a targeted community) that identifies one or more contacts within each household to define likely transport needs during the construction timeline, including consideration of family size and age (and whether car seats or pet carriers are needed), disability or special needs, and timing of typical daily ingress and egress needs. Based on the result of the outreach efforts, PG&E shall prepare transport plan and provide all requested transport during the construction activity.
- A written communication plan to be provided to each affected household prior to the start of each week's construction that describes the anticipated daily construction

Transportation	
	activities, the specific location and type of activity, and the resulting constraints on household vehicle use.

Tribal Cultural Resources (TCR)	
APM TCR-1	**Undiscovered Potential Tribal Cultural Resources**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E cultural resources specialist to coordinate with CPUC
Effectiveness Criteria:	PG&E coordination procedures are implemented as approved
Responsible Agency:	CPUC
Timing:	During construction activities

APM TCR-1 **Undiscovered Potential Tribal Cultural Resources.** Undiscovered Potential Tribal Cultural Resources. After stopping work and following the procedure for determining eligibility in APM CUL-2, in the event that a prehistoric or protohistoric site is identified and cannot be avoided, PG&E will contact the CPUC to identify an appropriate tribe with whom to consult on treatment.

If no agreement can be reached for mitigation after discussions with the California Native American tribe(s) or it is determined that the tribe(s)' preferred mitigation is not feasible, PG&E will implement one of the example mitigation measures listed in Public Resources Code Section 21084.3(b), or other feasible mitigation.

MM TCR-2a	**Native American Monitoring**
Location:	All ground disturbing construction activity within 500 feet of a current or historic creek channel
Monitoring/Reporting Action:	Confederated Villages of Lisjan Nation (CVLN) Tribal monitor(s) shall be retained
Effectiveness Criteria:	CVLN monitor onsite at their discretion. If a CVLN monitor does not arrive onsite when needed, the Applicant will notify the CPUC and work will be allowed to continue.
Responsible Agency:	CPUC
Timing:	Prior to and during construction ground disturbing activities

MM TCR-2a **Native American Monitoring.** Prior to ground disturbing activities, a Confederated Villages of Lisjan Nation (CVLN) Tribal monitor(s) shall be retained to monitor all ground disturbing construction activity within 500 feet of a current or historic creek channel. Confederated Villages of Lisjan Tribal monitor(s) will have the authority to halt and redirect work should any archeological or tribal cultural resources be identified during monitoring. If archeological or Tribal cultural resources are encountered during ground disturbing activities, work within 100 feet of the find must halt ~~and the find must be evaluated for listing in the CRHR and NRHP~~so that a qualified archaeologist can assess its potential significance. Monitoring may be reduced or ~~halted~~ discontinued at the discretion of the CVLN monitor, in consultation with the lead agency, as warranted by soil conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 50 percent of the entire area of ground disturbance. If monitoring is reduced to spot checking, spot checking shall occur when ground disturbing activities moves to a new location within the Project site and/or when ground disturbance will extend to depths not previously reached (unless those depths are within bedrock).

MM TCR-2b	**Unanticipated Discovery of Tribal Cultural Resources**
Location:	All construction areas
Monitoring/Reporting Action:	Ground disturbing activities halted within 100 feet; preparation and implementation of a mitigation plan

Tribal Cultural Resources (TCR)	
Effectiveness Criteria:	Avoidance or treatment of unanticipated tribal cultural resources in accordance with mitigation plan
Responsible Agency:	CPUC
Timing:	During construction

MM TCR-2b **Unanticipated Discovery of Tribal Cultural Resources.** If cultural resources of Native American origin are identified during grading or excavation of the proposed Project, all ground disturbing activities within 100 feet shall cease until an archeologist has evaluated the nature and significance of the find as a cultural resource and a representative from the Confederated Villages of Lisjan Nation is consulted by the government agency. The archeologist will stake the area of discovery, placing stakes no more than 10 feet apart, forming a circle having a radius of no less than 100 feet from the point of discovery. If the entity in consultation with the consulting Tribe(s), determines that the resource is a tribal cultural resource and thus significant under CEQA and/or the Tribe, the entity shall retain a qualified archeologist and a Tribal monitor, at the Applicant's expense, to prepare a mitigation plan, which shall be implemented by the entity in accordance with state guidelines and in consultation with the consulting Tribe. The mitigation plan shall include avoidance of the resource or, if avoidance of the resource is not feasible, the plan shall outline appropriate treatment of the resource in coordination with the consulting Tribe and, if applicable, a qualified archeologist. Examples of appropriate mitigation for tribal cultural resources include, but are not limited to, protecting the cultural character and integrity of the resources, protecting traditional use of the resources, protecting the confidentiality of the resources, or heritage recovery.

MM TCR-2c	**Unanticipated Discovery of Human Remains**
Location:	All construction areas
Monitoring/Reporting Action:	All work redirected within 100 feet; County Coroner notified; report submitted to CPUC
Effectiveness Criteria:	Unanticipated human remains are properly treated
Responsible Agency:	CPUC
Timing:	During construction

MM TCR-2c **Unanticipated Discovery of Human Remains.** If human remains are encountered during construction and/or other ground disturbing activities, all work within 100 feet of the remains should be redirected and the County Coroner notified immediately. At the same time, an archaeologist shall be contacted to assess the situation. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission (NAHC) within 24 hours of this identification. The NAHC will identify a Native American Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and any associated funerary objects. There shall be no pictures taken or testing done on the Native American human remains. All bone, if not identifiable as human or animal, shall be treated as human remains and the appropriate protocols followed. The archaeologist shall record information, as appropriate and in accordance with the recommendations of the MLD and/or Tribal representative. Upon completion of the archeologist's assessment, a report should be prepared documenting methods and results, as well as recommendations regarding the treatment of the human remains and any associated archaeological materials. The report should be submitted to CPUC, the project proponent, the NWIC and the consulting Tribe. Tribal representatives will rebury the Native American human remains and associated funerary objects with the appropriate dignity, either; in accordance with the recommendations of the MLD if available or in the Project vicinity at a location agreed upon between the Tribe and the consultant, where the reburial would be accessible to Tribal members in perpetuity and would not be subject to further disturbance. The discovery and reburial is to be kept confidential and secure to prevent any further disturbance.

Utilities and Service Systems	
Mitigation Measure US-1a	**Underground Utilities Accident Response Plan**
Location:	Underground Transmission Line segment
Monitoring/Reporting Action:	Underground Utilities Accident Response Plan to be submitted to the CPUC for approval and implemented during construction
Effectiveness Criteria:	Underground utilities accidents are immediately addressed
Responsible Agency:	CPUC
Timing:	Prior to and during construction

MM US-1a **Underground Utilities Accident Response Plan.** PG&E shall prepare and implement a plan to facilitate immediate response to damage caused to an underground utility. The plan shall be submitted to the CPUC for review and approval at least 60 days before the start of construction in any underground segment. The plan shall include:

- A list of emergency contacts for all utility providers within the Underground Power Line segment ROW and for the Cities of Oakland and Piedmont emergency response providers. This information shall be retained onsite where underground construction is taking place.
- Description of actions to be taken by PG&E's construction personnel in the event of an accident affecting each different type of underground utility (e.g., natural gas, water, telecommunications, sewer).
- Description of notification processes to the affected community in the event of an unanticipated service outage.
- Description of the service areas covered by existing underground utilities so notification to the community can be effectively communicated.
- Documentation of coordination with all utility owners with facilities in the immediate vicinity of proposed Project construction, including their review of PG&E's construction plans and a description of any protective measures or compensation to be implemented to protect affected utilities.

Wildfire	
APM WFR-1	**Construction Fire Prevention Plan**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to submit construction fire prevention plan to the CPUC for approval and implementation during construction.
Effectiveness Criteria:	Construction fire prevention plan is implemented as approved
Responsible Agency:	CPUC
Timing:	30 days prior to construction activities

APM WFR-1 **Construction Fire Prevention Plan.** A project-specific Construction Fire Prevention Plan for construction of the Project will be prepared prior to initiation of construction by PG&E. The PG&E plan will be approved by the CPUC. The final plan will be approved by the CPUC at least 30 days prior to the initiation of construction activities. The plan will be fully implemented throughout the construction period, and it will include the following at a minimum:

- The purpose and applicability of the plan
- Incorporation of the requirements in PG&E's current Utility Standard TD-1464S for Preventing and Mitigating Fires While Performing PG&E Work
- Responsibilities and duties for compliance
- Preparedness training and drills
- Procedures for fire reporting, response, and prevention that include:
  - Identification of daily site-specific risk conditions
  - The tools and equipment needed on vehicles and on hand at sites

Wildfire

- Reiteration of fire prevention and safety considerations during tailboard meetings
- Daily monitoring of the Red-Flag Warning System with appropriate restrictions on types and levels of permissible activity

- Coordination procedures with federal, state, and local fire officials and emergency responders, including notifications of temporary lane or road closures
- Crew training, including the construction fire prevention practices described in APM WFR-2
- Method(s) for verifying that all plan protocols and requirements are being followed

PG&E or its contractor will be responsible for training Project personnel and enforcing all provisions of the PG&E Construction Fire Prevention Plan, as well as performing other duties related to fire detection, prevention, and suppression for the Project. Construction activities will be monitored to ensure implementation and effectiveness of the plan.

APM WFR-2	**Wildfire Prevention Practices**
Location:	All construction areas
Monitoring/Reporting Action:	PG&E to implement wildfire prevention training and procedures
Effectiveness Criteria:	Training and procedures are implemented as approved
Responsible Agency:	CPUC
Timing:	Prior to and during construction and maintenance activities

APM WFR-2 **Wildfire Prevention Practices.** PG&E will implement the following fire prevention practices at active construction sites and during maintenance activities:

- Existing PG&E personnel conducting maintenance on the Project are trained on the PG&E Utility Standard TD-1464S for Preventing and Mitigating Fires While Performing PG&E Work or relevant current standard and will follow the standard in regard to training, preparation, communication methods and means, observations of and alerts concerning weather conditions including NWS events, and PG&E's work restrictions and fire mitigation required for elevated PG&E Utility FPI ratings (R4, R5, or R5-Plus).
- Construction personnel will be trained in fire-safe actions, including PG&E's current Utility Standard for Preventing and Mitigating Fires While Performing PG&E Work, Wildfire Prevention Contract Requirements, and the Project's PG&E Construction Fire Prevention Plan concerning initial attack, firefighting, and fire reporting. Construction personnel will be trained and equipped to extinguish small fires to prevent them from growing into more serious threats.
- Construction personnel will have fire suppression equipment on all construction vehicles per PG&E Utility Standard TD-1464S and will be required to park vehicles away from dry vegetation. Water tanks and/or water trucks will be sited or available at active project sites for fire protection during construction.
- All construction crews and inspectors will be provided with radio and cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. All fires will be reported to the fire agencies with jurisdiction in the area upon discovery of the ignition.
- While performing stationary ground-level jobs or activities from which a spark, fire, or flame may originate (for example, welding, cutting, grinding), all flammable material (for example, grass, leaf litter, dead or dying tree) must be removed down to the mineral soil around the operation for a minimum of 10 feet.
- PG&E General Requirements for Wildfire Mitigation (R1 to R3) apply for PG&E work areas located farther than 5 miles from an FIA when the nearest FIA has an elevated FPI rating (R4, R5, or R5-Plus), except during NWS Red-Flag Warnings and Fire Weather Watch events when R5 mitigations would apply.
- For work within an FIA, during Red-Flag Warning and Fire Weather Watch events, as issued by the NWS, and elevated PG&E Utility FPI rating (R4, R5, or R5-Plus), all con-

Wildfire

struction activities will refer to the current PG&E Standard TD-1464S and related requirements such as PG&E Wildfire Prevention Contract Requirements, Attachment 1 – Wildfire Mitigation Matrix, and Attachment 2 – Wildfire Risk Checklist Fire Mitigations. With the increased potential fire risk of R4, additional water resources are required, and a working fire watch is assigned to be able to continue work as long as the weather conditions are evaluated to ensure it remains safe to continue work.

- For R5 and R5-Plus ratings, measures beyond R1 to R4 levels include posting a dedicated fire watch at the jobsite, making available a trailer-mounted water tank or alternative water delivery method at the jobsite, and modifying the fuel sources surrounding the jobsite. All planned work is suspended during an R5-Plus fire rating. During all emergency work being performed for an R5-Plus fire rating, personnel must have a PG&E Safety and Infrastructure Protection Team on standby or a 300-gallon water tender available. Use of heavy equipment (blades, dozers, skid steers, excavators, back hoes), construction hot work, and electrical equipment work (including tasks related to conductors, pole, and overhead equipment from which a spark, fire, or flames may originate) are allowed with the R5 mitigations in place but not allowed during R5-Plus conditions.

Mitigation Measure WF-1a	**Prepare Construction Coordination Emergency Evacuation Plan**
Location:	Roadways in the Project area
Monitoring/Reporting Action:	PG&E coordination with affected jurisdictions; Emergency Evacuation Plan and draft notification letters are submitted to CPUC
Effectiveness Criteria:	Emergency Evacuation Plan is implemented as approved by the CPUC
Responsible Agency:	CPUC
Timing:	At least 90 days before the start of construction on affected roadways and during construction

MM WF-1a **Prepare Emergency Evacuation Plan.** At least 90 days before the start of construction on affected roadways, PG&E shall submit to the California Public Utilities Commission (CPUC) for review and approval ~~a~~ Construction Coordination Emergency Evacuation Plan that defines the following information:

- Documentation of coordination with each affected jurisdiction, and incorporation of each jurisdiction's requirements.
- Identification and mapping of all designated evacuation routes defined by jurisdictions in the Project area. Evacuation route signage shall be installed and updated on a regular basis as construction activity moves. This signage would identify "critical" and "non-critical" evacuation routes. Critical evacuation routes are defined as evacuation routes that, if partially or entirely closed, would lead to an increase in evacuation times or blockage (dead-end). Non-critical evacuation routes are defined as short (less than 0.25 miles) evacuation routes that, if partially or entirely closed, would not affect evacuation times or road capacity. The evacuation routes shall be based on net evacuation time for affected populations considering factors including, but not limited to, each jurisdiction's identified evacuation routes, which will be determined in coordination with each applicable jurisdiction.
- Identification of all roads that will support any type of construction activity (including definition of construction vehicle access routes to all work areas). Maps and descriptions shall define the activity that would occur on each affected road (e.g., access only, parking, crane set-up, guard structure installation) and map the specific extent of each activity at an appropriate level of detail, including identification of all residential driveways.

Wildfire

- ~~For each location where a road would be blocked or impaired for any length of time, define an alternate route to be used for emergency egress. Detours shall be signed in the field.~~
- Provide for CPUC review of draft notification letters, which, pursuant to MM N-1b, will be provided to all affected residents a least one month prior to the start of construction, including all residents, emergency service responders, and other affected local agencies that would use affected roads in an evacuation situation. Notification shall include information on detours and schedule of road closures and shall be coordinated with requirements of other mitigation measures (including MM N-1b).
- PG&E shall provide information of closures to the City of Oakland to connect with Genasys Protect to provide real-time information on Project-related road closures to the public.

Mitigation Measure WF-1b	**Limit Construction Requiring Full Road Closures**
Location:	In work areas requiring full road closures on critical evacuation routes
Monitoring/Reporting Action:	Construction in work areas requiring full road closures on critical evacuation routes occurs between December ~~15~~ 1 and ~~February~~ March ~~28~~ 31 and no full road closures during National Weather Service Red-Flag Warnings and Fire Weather Watch events; detours have signage
Effectiveness Criteria:	Access on critical evacuation routes is maintained during times of high fire risk
Responsible Agency:	CPUC
Timing:	During construction

MM WF-1b **Limit Construction Requiring Full Road Closures.** In work areas requiring full road closures on critical evacuation routes (identified in the construction coordination emergency evacuation plan prepared under MM WF-1a) of any length of time, ~~construction activities and~~ full closures shall occur between December ~~15~~ 1 and ~~February 28~~March 31, when the risk of fire is generally the lowest. During National Weather Service Red-Flag Warnings, ~~and~~ Fire Weather Watch events, and PG&E Fire Potential Ratings of R4, R5, or R5-Plus, full road closures shall be prohibited until the warning or event has been lifted or expires.

When construction is occurring on critical evacuation routes and partial road closures are required, at least one lane shall always remain open. The lane(s) to remain open shall be the shortest route to the closest evacuation route, arterial road, or other major roadway. Work is permitted year round on partial road closure segments.

On non-critical evacuation routes (identified in the emergency evacuation plan prepared under MM WF-1a) with full closures, work is permitted year-round. Detours for these road closures shall have signage, and first responders shall be notified in accordance with the construction coordination emergency evacuation ~~.~~plan.

Mitigation Measure WF-1c	**School Session Construction Timing Restriction**
Location:	Construction activities in the vicinity of Corpus Christi School, Montera Middle School, and/or Joaquin Miller Elementary School
Monitoring/Reporting Action:	PG&E to coordinate and restrict construction timing
Effectiveness Criteria:	Construction timing is restricted as determined through coordination
Responsible Agency:	CPUC
Timing:	At least 30 days prior to the start of underground construction

MM WF-1c **School Session Construction Timing Restriction.** At least 30 days prior to planned construction of the underground rebuild segment of the Project, PG&E shall coordinate with all schools within 0.25 miles of underground power line installation to determine restricted hours of construction to avoid peak school traffic hours on weekday school days during the school year. Restricted hours shall generally ~~be between 7:30 a.m. and 8:30 a.m. and~~

Wildfire	
	~~between 3:30 p.m. and 4:30 p.m. or otherwise determined by each school~~avoid the one hour period for morning drop off and one hour period for afternoon pick-up or as otherwise determined by each school. If Alternative 4 (Skyline-Ascot Underground Alternative) is selected, the construction of the underground segment along Ascot Drive between Scout Road and Mountain Boulevard shall not be constructed while school is in session at either Montera Middle School or Joaquin Miller Elementary School.

8. LIST OF PREPARERS AND AGENCIES CONSULTED

8.1. List of Preparers

An EIR is an interdisciplinary team effort. In addition, internal review of the document occurs throughout preparation at multiple levels. The California Public Utilities Commission was the CEQA Lead Agency. Aspen Environmental Group provided technical assistance in the preparation of this document. The preparers and technical reviewers of this document are presented below.

Table 8-1. Contributor by Section and Qualifications

Authors and Reviewers	Qualifications	EIR Issue Area
Susan Lee	Senior Executive Vice President, Aspen Environmental Group ■ MS, Applied Earth Science ■ BA, Geology	Principal-in-Charge
Hedy Koczwara	Executive Vice President, Aspen Environmental Group ■ MS, Earth Systems ■ BS, Earth System	Project Manager
Grace Weeks	Environmental Scientist, Aspen Environmental Group ■ BS, Environmental Science and Management	Deputy Project Manager
Michael Clayton	Principal, Michael Clayton Associates ■ MS, Environmental Management ■ MA, Asia Pacific Environmental Affairs ■ BA, Biology	Aesthetics
Rachel Dal Porto, PhD	Environmental Engineer, Aspen Environmental Group ■ PhD, Civil and Environmental Engineering ■ MS, Civil and Environmental Engineering ■ BS, Civil Engineering ■ BA, Honors Chemistry	Air Quality; Energy; Greenhouse Gas Emissions; Noise
Brewster Birdsall, PE	Senior Associate and Engineer, Aspen Environmental Group ■ MS, Civil Engineering ■ BS with High Honors, Mechanical Engineering	Air Quality; Energy; Greenhouse Gas Emissions; Noise; Transmission Planning/Alternatives
Leane Dunn	Senior Biologist, Aspen Environmental Group ■ Master of Forestry (M.F.), emphasis on Urban Forestry and the Wildland-Urban Interface ■ BS, Ecology & Systematic Biology, Emphasis on Entomology and Invertebrate Biology	Biological Resources
Lauren DeOliveira	Senior Cultural Resources Specialist, Aspen Environmental Group ■ MS, Geographic Information Science ■ BA, Liberal Studies, Emphasis on Archaeology	Cultural Resources; Paleontological Resources; Tribal Cultural Resources
Michael Hoke	Cultural Resource Specialist, Aspen Environmental Group ■ MA, Anthropology ■ BA, Anthropology	Cultural Resources; Tribal Cultural Resources
Jeanne Ogar	Senior Environmental Planner, Aspen Environmental Group ■ Master of Environmental Science & Management ■ BA, French	Geology & Soils; Hydrology & Water Quality; Transportation & Traffic
Jim Thurber, PG, CHg, CEG	Principal, ENGEO, Inc. ■ MS, Geology ■ BS, Geology ■ BA, Geography	Geology and Soils; Senior Review

Authors and Reviewers	Qualifications	EIR Issue Area
Jennifer Knipper, PG	Project Geologist, ENGEO, Inc. ■ MS, Environmental and Urban Geosciences/ Environmental Geology ■ BS, Geology and Biology	Geology and Soils; Senior Review
Connor King	Environmental Scientist, Aspen Environmental Group ■ Master of Advanced Studies (MAS), Climate Science and Policy ■ BA, Climate Change and Human Solutions	Hazards, Hazardous Materials & Public Safety; Public Services; Utilities & Service Systems
Jonathan Hoffman, PhD	Paleontological Specialist, Aspen Environmental Group ■ PhD, Geology ■ MS, Geology ■ BA, Geology	Paleontological Resources
Fritts Golden	Senior Associate, Aspen Environmental Group ■ MRP, Regional Planning ■ BA, Biology	Recreation; Senior Review
Ian Barnes, PE	Principal/Senior Market Leader, Fehr and Peers ■ MS, Civil Engineering ■ BS, Civil Engineering	Transportation; Alternatives; Senior Review
Sam Tabibnia, PE	Senior Associate, Fehr and Peers ■ MS, Civil Engineering ■ BS, Civil Engineering	Transportation; Alternatives; Senior Review
Stephanie Tang	Environmental Scientist, Aspen Environmental Group ■ BA, Environmental Studies	Wildfire
Chuck Williams, PE	Technical Expert/Engineer, Aspen Environmental Group ■ BS, Civil Engineering	Alternatives; EMF; Transmission Engineering
Patrick Drumm, PG, CEG, CHG	Technical Expert/Engineer, Aspen Environmental Group ■ MS, Geology ■ BS, Geology	Alternatives

8.2. Agencies Consulted

The following is a list of agencies consulted by the CPUC during preparation of the EIR:

- City of Oakland Department of Transportation
- City of Oakland Fire Marshal
- City of Orinda
- City of Piedmont
- East Bay Municipal Utilities District
- East Bay Regional Park District

The Moraga-Orinda Fire District and the California Department of Forestry and Fire Protection (CAL FIRE), Santa Clara Unit, and Oakland Planning Department were also provided information for Project review. The Contra Costa County Fire Protection District and Alameda County Fire Department indicated that they do not have jurisdiction over the MOX Project.