

Egbert Switching Station (Martin Substation Extension) Project

DRAFT ENVIRONMENTAL IMPACT REPORT

Prepared for

CALIFORNIA PUBLIC UTILITIES COMMISSION

505 Van Ness Avenue

San Francisco, California 94102



Prepared by

DUDEK

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ADMINISTRATIVE DRAFT

ENVIRONMENTAL IMPACT REPORT
Pacific Gas & Electric Company Egbert Switching Station (Martin Substation Extension) Project

SCH No. 2018112046

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ACRONYMS AND ABBREVIATIONS

Acronym/ Abbreviation	Definition
AB	Assembly Bill
ACOE	U.S. Army Corps of Engineers
ANSI	American National Standards Institute
APE	area of potential effects
APM	applicant proposed measure
ATCM	Airborne Toxic Control Measure
BAAQMD	Bay Area Air Quality Management District
BCDC	San Francisco Bay Conservation and Development Commission
BMP	best management practice
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CAL FIRE	California Department of Forestry and Fire Protection
CALGreen	California Green Building Standards
Cal/OSHA	California Occupational Safety and Health Administration
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CAS	Climate Action Strategy
CBC	California Building Code
CBCO	City of Brisbane Code of Ordinances
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFC	chlorofluorocarbon
CFR	Code of Federal Regulations
CH_4	methane
CNEL	Community Noise Equivalent Level
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CWA	Clean Water Act
cy	cubic yard
dB	decibel
dBA	A-weighted decibel
DOT	U.S. Department of Transportation
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control

Acronym/ Abbreviation	Definition
EDR	Environmental Data Resources Inc.
EIR	environmental impact report
EISA	Energy Independence and Security Act
EO	Executive Order
EOP	emergency operations plan
EPA	U.S. Environmental Protection Agency
ERP	energy resource plan
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zone
First Update	First Update to the Climate Change Scoping Plan: Building on the Framework
FRA	Federal Responsibility Area
FTA	Federal Transit Administration
g	acceleration due to gravity
GHG	greenhouse gas
GIS	gas-insulated switchgear
GO	General Order
GWP	global-warming potential
HAP	hazardous air pollutant
HCFC	hydrochlorofluorocarbon
HFC	hydrofluorocarbon
HPFF	high-pressure, fluid-filled
IEEE	Institute of Electrical and Electronics Engineers
IFC	International Fire Code
in/sec	inches per second
IPCC	Intergovernmental Panel on Climate Change
ISTEA	Intermodal Surface Transportation Efficiency Act
KOP	key observation point
kV	kilovolt
kWh	kilowatt-hours
L_{dn}	day–night sound level
L_{eq}	equivalent sound level
L_{max}	maximum sound level
L_{min}	minimum sound level
LOP	local oversight program
LRA	Local Responsibility Area
LUST	leaking underground storage tank
MM	mitigation measure
MMCRP	mitigation monitoring, compliance, and reporting program
MMT	million metric ton
MRZ	mineral resource zone
MSDS	Material Safety Data Sheet
MT	metric ton

Acronym/ Abbreviation	Definition
Muni	San Francisco Municipal
M_w	moment magnitude scale
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NOA	naturally occurring asbestos
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
O_3	ozone
OSHA	Occupational Safety and Health Administration
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PDR-2	Production, Distribution, and Repair
PEA	Proponent's Environmental Assessment
PFC	perfluorocarbon
PFYC	Potential Fossil Yield Classification
PG&E	Pacific Gas & Electric Company
PGA	peak ground acceleration
Plan Bay Area	Plan Bay Area: Regional Transportation Plan and Sustainable Communities Strategy for the San Francisco Bay Area 2017–2040
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to 10 microns
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
PPV	peak particle velocity
PRC	Public Resources Code
project	Egbert Switching Station (Martin Substation Extension) Project
RCRA	Resource Conservation and Recovery Act
RFS	Renewable Fuel Standard
ROG	reactive organic gas
ROW	right-of-way
RPS	Renewables Portfolio Standard
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SBM HCP	San Bruno Mountain Habitat Conservation Plan
SCAQMD	South Coast Air Quality Management District
Scoping Plan	2008 Climate Change Scoping Plan: A Framework for Change
SF_6	sulfur hexafluoride
SFBAAB	San Francisco Bay Area Air Basin
SFDPH	San Francisco Department of Public Health
SFMTA	San Francisco Municipal Transportation Agency
SFPUC	San Francisco Public Utilities Commission

Acronym/ Abbreviation	Definition
SLCP	short-lived climate pollutant
SMP	site mitigation plan
SO_2	sulfur dioxide
SPCC	spill prevention, control, and countermeasure
SRA	State Responsibility Area
SUD	Special Use District
SWPPP	stormwater pollution prevention plan
SVOC	semi-volatile organic compound
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TPH	total petroleum hydrocarbon
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
VdB	vibration decibel
VOC	volatile organic compound
WGCEP	Working Group on California Earthquake Probabilities
XLPE	cross-linked polyethylene
ZEV	zero emissions vehicle
ZNE	zero net energy

ES. EXECUTIVE SUMMARY

ES.1 Introduction

On December 28, 2017, Pacific Gas & Electric Company (PG&E) filed an application (A.17-12-021) and a Proponent's Environmental Assessment (PEA) with the California Public Utilities Commission (CPUC) for the Egbert Switching Station (Martin Substation Extension) Project (proposed project). The purpose of PG&E's application is to obtain a Certificate of Public Convenience and Necessity from CPUC for the proposed project (PG&E 2017a).

As proposed by PG&E, the proposed project primarily consists of construction, operation, and maintenance of a new 230-kilovolt (kV) switching station in the City and County of San Francisco that would be connected to the local 230 kV system by reconfiguring two existing, underground, single-circuit 230 kV transmission lines located in the City and County of San Francisco, the City of Daly City, and the City of Brisbane. The proposed project would provide an alternative 230 kV transmission path to serve customers in the City and County of San Francisco in the event that the Martin Substation becomes inoperable due to an extreme event.

As described in Section A.3.2, Statement of Objectives, in this Environmental Impact Report (EIR), the primary objectives of the proposed project are as follows:

- Improve the reliability of PG&E's transmission system serving the City and County of San Francisco by constructing a new 230 kV switching station in the vicinity of Martin Substation that provides continued electric service to the City and County of San Francisco should an extreme event render Martin Substation inoperable.
- Construct a safe, economically and technically feasible project that minimizes environmental impacts and would receive 230 kV power from the south and transmit it to the City and County of San Francisco.
- Provide a 230 kV connection between a new switching station and Martin Substation to enable the transmission system serving the City and County of San Francisco to operate in the event that a 230 kV transmission line serving either Martin Substation or the proposed switching station experiences an unplanned outage.

CPUC is the lead agency responsible for compliance with the California Environmental Quality Act (CEQA). This EIR has been prepared by CPUC in compliance with CEQA Guidelines. This EIR discloses the environmental impacts expected to result from the construction and operation of PG&E's proposed project and mitigation measures, which, if adopted by the CPUC or other responsible agencies, could avoid or minimize significant environmental effects. In accordance with CEQA Guidelines, this EIR also evaluates alternatives to the proposed project that could avoid or minimize significant environmental effects. This EIR provides a comparison of the

environmental effects of the proposed project and the alternatives, and identifies the environmentally superior alternative.

This EIR for the proposed project is an informational document only; it does not make a recommendation regarding the approval or denial of the proposed project. The purpose of the EIR is to inform the public about the environmental setting and potential impacts resulting from the proposed project and alternatives. This EIR will be used by the CPUC to conduct the proceeding to determine whether or not to grant PG&E's requested Certificate of Public Convenience and Necessity. This executive summary provides an overview of the proposed project and the alternatives considered, identifies the environmentally superior alternative, and summarizes the environmental impacts and mitigation measures specified in this EIR.

ES.2 Description of the Proposed Project

Figure ES-1 provides and overview of the proposed project. The proposed switching station and underground transmission lines would enable transmitted electricity to bypass the existing Martin Substation in the event that it becomes inoperable. The proposed project can be divided into the following components.

ES.2.1 Proposed Egbert Switching Station

The proposed Egbert Switching Station site would be located on a 1.7-acre parcel at 1755 Egbert Avenue, San Francisco. The new 230 kV switching station would use gas-insulated switchgear equipment, housed in an approximately 11,000-square-foot building, to accommodate the three transmission cables. The building height would be approximately 40 feet above grade to accommodate the installation, operation, and maintenance requirements of the electrical equipment. Additional accessory equipment would be installed outside of the building. The switching station would be surrounded by a 12-foot-high perimeter fence, and lighting would be installed on site for safety and security purposes.

ES.2.2 Proposed Jefferson-Egbert Transmission Line

A new approximately 3.1-mile 230 kV underground transmission line would be installed between an existing Jefferson-Martin transmission line vault near the intersection of Guadalupe Canyon Parkway and Carter Street in the City of Brisbane, and the proposed Egbert Switching Station in the City and County of San Francisco. The majority of the line would be constructed using trenching methods, except for approximately 420 feet of the line that crosses U.S. Highway 101, which would be constructed using trenchless technology to avoid lane closures during construction. The transmission line remnant between the vault and Martin Substation would be left in place for possible, yet unplanned, future use not associated with the proposed project.

ES.2.3 Proposed Egbert-Embarcadero and Martin-Egbert Transmission Lines

Two new 230 kV transmission line segments, each approximately 0.4 miles long, would be installed between the proposed Egbert Switching Station and the existing Martin-Embarcadero transmission line near the intersection of Bayshore Boulevard and Bacon Street. The new transmission lines would extend east from the Bayshore Boulevard and Bacon Street intersection along Egbert Avenue to the proposed switching station site. At the end of the street, public right-of-way (ROW) ends, and four properties (three private properties and one property owned by the State of California) would be crossed to enter into the site. The bypassed existing Martin-Embarcadero transmission line remnant would be removed from service with modifications to the existing civil and electrical interconnections.

ES.2.4 Existing Martin Substation

Once the proposed switching station and transmission lines are constructed and operational, the Jefferson transmission line terminal and associated equipment at Martin Substation would be removed. All modifications would occur within the existing substation fence line. Indoor relay-related work would occur within the substation control room as necessary to coordinate with the protection and control equipment at the proposed Egbert Switching Station.

ES.2.5 Existing Embarcadero and Jefferson Substations

Minor modifications for protection and control of the rerouted existing Jefferson and Embarcadero transmission lines would occur at the existing Embarcadero and Jefferson Substations. The indoor work would occur within the substation control room and include relay-related work to coordinate the system protection schemes.

ES.3 Environmental Setting of the Proposed Project

As shown in Figure ES-1, the project is located primarily within the limits of the City and County of San Francisco, with the southern portion of the proposed Jefferson-Egbert transmission line located in San Mateo County within the Cities of Brisbane and Daly City. Dominant geographic features that intersect the proposed project include U.S. Highway 101, San Bruno Mountain State Park, and John McLaren Park.

Within the developed San Francisco neighborhoods of Bayview, Excelsior, Visitacion Valley, and Crocker Amazon, existing land use is primarily residential, with commercial along 3rd Street and the U.S. Highway 101 corridor, and a mix of residential with light industrial development in the area surrounding the proposed switching station. The portion of the proposed Jefferson-Egbert transmission line to be constructed under Daly City streets, including Geneva Avenue and Carter Street, runs next to a mix of light and heavy commercial, residential, and public park land uses. The

proposed Jefferson-Egbert transmission line includes a short 0.1-mile stretch under Brisbane streets through public park land use. Approximately 740 acres of unincorporated San Mateo County are found within 1 mile of the project, the majority of which (93%) is located within San Bruno Mountain State Park and is currently used for open space or public recreation. The remainder of unincorporated San Mateo County land within 1 mile of the project is found on the far south side and is occupied with general or heavy industrial existing uses.

ES.4 Summary of Public Involvement Activities

The CEQA EIR process for the proposed project began with the CPUC's issuance of the Notice of Preparation (NOP) of an EIR, and public involvement activities as follow:

- The CPUC issued the NOP on November 16, 2018, and distributed it to the State Clearinghouse and federal, state, and local trustees and agencies that may be affected by the proposed project. Notices were sent to 4,316 stakeholders and interested parties, including 52 to federal, state, and local agencies and organizations; 4,264 to the general distribution list of all those identified as property owners within a 300-foot radius of the project study area as well as along alternative routes identified in PG&E's PEA; and individuals requesting to be notified of the project. No tribes have requested to be notified of pending projects in this area. A total of 39 of these notices were sent via email to agencies and persons requesting to be notified via email. The public notice was also published on November 16, 2018, in the *San Francisco Chronicle.* Information was also posted on the Internet as described in the Public Notice.
- One scoping meeting was conducted prior to the selection of alternatives and preparation of the analysis documented in this EIR. The scoping meeting was held on December 3, 2018, 5:30 p.m. to 7:30 p.m., at the Double Tree by Hilton Hotel located at 5000 Sierra Point Parkway, Brisbane, California.
- Four individuals not part of the project team were documented in attendance, as indicated on the public meeting sign-in sheet.
- Nine letters were received during the NOP scoping period (November 18 to December 17) from public agencies and private citizens. In addition, the 175 letters submitted in protest directly to CPUC on February 7, 2018, were resubmitted to CPUC during the NOP scoping period, on December 17, 2018. In January 2019, a comprehensive Scoping Report was issued summarizing concerns received from the public and various agencies. The Scoping Report is available on the project website: http://www.cpuc.ca.gov/environment/info/dudek/egbert/Egbert_Scoping%20Report.pdf.

ES.5 Areas of Controversy/Public Scoping Issues

Written comments were received during the CEQA scoping process from the general public, the following state and local agencies, and private and public organizations:

State and Local Agencies

- Governor's Office of Planning and Research, State Clearinghouse
- Native American Heritage Commission
- California Department of Transportation (Caltrans), District 4
- Bayshore Sanitary District
- San Francisco Planning Department

Private Organizations and Individuals

- Five Point
- Mercy Housing
- Stephanie Gowin
- Yik Ming Wong
- Protest Letters, total 175 form letters from individuals (all letters were identical with different individuals' signatures on each)

The specific issues raised during the public scoping process are summarized according the following major themes:

- Human environment
- Project alternatives
- Mitigation and monitoring
- Permitting and coordination

Human Environment

Health and Safety Concerns

Comments from individuals questioned the potential for health impacts associated with electromagnetic fields produced by the proposed Egbert Switching Station to nearby residents. Although exact impacts are unknown, one commenter recommended erring on the side of caution and developing the switching station in an industrial area away from residential land uses. This same

commenter also noted that construction of the Egbert Switching Station is proposed in an area where toxic soils may be present from past radioactive dumping. Another comment noted concerns regarding fire hazards associated with exploding transformers. Furthermore, due to health and safety concerns, another comment suggested that the proposed switching station be placed in an alternative area, specifically the Bayshore area.

The CPUC received 175 protest letters on February 7, 2018, prior to the NOP comment period, which specifically commented on the proposed Egbert Switching Station location and associated roadways. These same letters were resubmitted to CPUC on December 17, 2018, at the close of the NOP comment period. These collective protest letters also expressed concerns regarding electromagnetic fields. They also expressed concerns regarding tearing up streets and polluting the air near adjacent residences by digging into toxic soils at the proposed Egbert Switching Station site.

Land Use Concerns

Individual comment letters expressed concerns regarding placing industrial uses in industrial areas adjacent to uses that have been converted to residential uses over time (i.e., the Egbert Switching Station is proposed in an industrial area adjacent to an area where previous industrial buildings have been converted to residential uses).

In addition, Mercy Housing (developer of the approved Sunnydale HOPE SF Master Plan Development), Five Point and San Francisco Planning Department commented that construction of transmission lines through residential areas such as Sunnydale-Velasco neighborhood or Candlestick (if alternative chosen) would affect access to residences and transportation infrastructure during construction of the approved Sunnydale HOPE SF development project. Given that the schedule of development for the Sunnydale HOPE SF project is unknown at this time, commenters stated that if Sunnydale HOPE SF were constructed before the proposed project, PG&E would be responsible for re-constructing all new improvements impacted by the project. Specifically within Recreation and Park property, the San Francisco Planning Department commented that the transmission line must be installed underground and under existing roadways, which is consistent with the proposed project.

The Native American Heritage Commission recommended a cultural resources assessment be conducted to address potential impacts to historical resources. Caltrans noted that a Transportation Management Plan would be required where vehicular, bicycle, and pedestrian traffic may be impacted during construction. Mercy Housing noted potential conflicts between the proposed route for the Jefferson-Egbert transmission line and Sunnydale HOPE SF project area that could result in environmental impacts associated with aesthetics, land use and planning, air quality, noise, recreation, and transportation and traffic.

Transportation Concerns

Multiple commenters were concerned that construction activities associated with the proposed project would disrupt existing transportation, including vehicular, public transit, bicycle, and pedestrian infrastructure. In addition, Caltrans requires all curb ramps and pedestrian facilities within the limits of the project to be brought up to current Americans with Disabilities Act (ADA) standards as part of the proposed project.

Noise Concerns

An individual commenter noted that "hums" associated with typical substations could be a concern for residences near the proposed Egbert Switching Station.

Project Alternatives

Sunnydale HOPE SF Avoidance

Several comments included requests to evaluate project alternatives to avoid potential impacts. The San Francisco Planning Department recommended revising the Jefferson-Egbert transmission line to avoid streets within the Sunnydale HOPE SF project area, because the streets are planned and approved to be realigned in the near future as part of a major public housing revitalization project, largely supported with public funds. Installation of transmission lines within this area, if not properly coordinated with Sunnydale HOPE SF construction, could cause delays for both projects or repeated disruptions for existing residents. No specific alternative route was requested, but avoidance of Sunnydale HOPE SF was recommended. Mercy Housing also noted potential conflicts between the proposed route for the Jefferson-Egbert transmission line and Sunnydale HOPE SF project area that could result in environmental impacts. HOPE SF recommended avoidance of the Sunnydale-Velasco housing development but did not propose an alternative route.

Candlestick Area Avoidance

The San Francisco Planning Department also recommended avoiding the Candlestick area, as proposed under one of the Jefferson-Egbert transmission line alternative alignments, because similar to Sunnydale HOPE SF, the area is proposed for major new construction, including roadway realignments. Five Point also commented on conflicts between the alternative route proposed for the Jefferson-Egbert transmission line through the Candlestick area. Five Point recommended avoidance of the Candlestick area but did not propose an alternative route.

Relocation of Proposed Egbert Switching Station

A total of 177 comment letters, including the 175 protest letters, were received from individuals opposed to the proposed location of the switching station due to potential impacts to nearby

residential development. As mentioned above, one commenter proposed PG&E build the switching station in an industrial area, specifically the proposed alternative Bayshore location.

Mitigation and Monitoring

Caltrans commented that, CPUC, as CEQA lead agency, is responsible for all project mitigation, including fair share contribution, scheduling, and implementation responsibilities associated with needed improvements to the State Transportation Network within the project footprint.

Permitting and Coordination

Several agencies provided comments discussing permits and agreements that may be required as part of the project. The Bayshore Sanitary District indicated that the applicant must apply for a Class 4 permit and pay appropriate fees prior to construction. The San Francisco Planning Department specified that an installation of transmission lines within McLaren Park would require application for a revocable encroachment permit and inclusion of project elements with a "park purpose" if the project impacts a Recreation and Parks property, per San Francisco's Charter. To address concerns with the proposed transmission line route and alternatives compared to other proposed and approved developments, the San Francisco Planning Department recommended the PG&E coordinate with the Office of Community Investment and Infrastructure regarding the Candlestick development area and the San Francisco Municipal Transportation Agency regarding the Harney Way widening/improvement project. The Native American Heritage Commission detailed requirements for compliance with Assembly Bill 52 and Senate Bill 18. Caltrans noted that any work or traffic control that encroached on the state ROW would require PG&E to apply for an encroachment permit through Caltrans.

ES.6 Project Alternatives

Alternatives to PG&E's proposed project are identified and evaluated in accordance with CEQA Guidelines. CEQA Guidelines, Section 15126.6(a) (14 CCR 15000 et seq.), state:

> 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.

CEQA Guidelines, Section 15364 (14 CCR 15000 et seq.), 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.

Alternatives to the proposed project were suggested during the scoping period (November–December 2018) by the general public, and state and local agencies in response to the NOP. Other alternatives were developed by EIR preparers or presented by PG&E in its PEA. In total, approximately 10 alternatives were identified that vary from developing new alternative power sources, multiple site and route options, and improvements to reduce demand on the existing electrical system. In addition, the No Project Alternative was evaluated in this EIR.

Alternatives to the proposed project were screened according to CEQA Guidelines to determine which alternatives to carry forward for analysis in the EIR and which alternatives to eliminate from detailed consideration. The alternatives were primarily evaluated according to (1) whether they would meet most of the basic project objectives, (2) whether they would be feasible considering legal and technical constraints, and (3) whether they have the potential to substantially lessen any of the significant effects of the proposed project. Other factors considered, in accordance with CEQA Guidelines (CEQA Guidelines Section 15126.6[f]), were site suitability, economic viability, availability of infrastructure, general plan consistency, other regulatory limitations, jurisdictional boundaries, and proponent's control over alternative sites.

Economic and social factors were not considered in the screening of alternatives given that CEQA Guidelines require a focus on significant physical changes in the environment when considering alternatives capable of eliminating or reducing significant environmental effects even if these alternatives may "impede to some degree the attainment of project objectives or would be more costly" (CEQA Guidelines, Section 15126.6[b]). Therefore, this EIR does not consider property values in the context of CEQA and the determination of environmental impact, because direct social and economic effects such as project effects on property value are not considered significant impacts under CEQA Guidelines Section 15131. According to Section 15360 of the CEQA Guidelines, impacts to be analyzed under CEQA must relate to either a direct or an indirect physical change in the environment. Such physical changes in the environment include changes to land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic value or significance. Change in property values are associated with a number of factors such as supply and demand, general economic conditions, and location of a property. While economic and social feasibility were not considered in this EIR's evaluation of proposed project or alternatives, they are considered in determining the ultimate feasibility of project mitigation measures and alternatives during the CPUC's decision-making process on the project. Furthermore, as a matter of policy, CPUC will consider the environmental and social justice implications of proposed actions during their decision-making process (CPUC 2019).

The detailed results of the alternatives screening analysis are contained in Section C, Alternatives, of this EIR. A summary description of the alternatives considered and the results of screening are provided as follows.

ES.6.1 Alternatives Fully Evaluated in the Environmental Impact Report

The following alternatives are those selected through the alternative screening process for detailed EIR analysis. Each of these alternatives meets most or all of the basic project objectives as identified by the CPUC and potentially reduces environmental effects of the proposed project. A more detailed description of each alternative and the rationale for full evaluation is presented in EIR Section C.

ES.6.1.1 Bayshore Switching Station Alternative

This alternative would construct a new switching station on approximately 6.6 acres of private land in the City of Brisbane, just east of Bayshore Boulevard and west of Tunnel Avenue. This alternative requires the installation of approximately 2.6 miles of new 230 kV underground transmission lines, created by re-routing existing transmission lines. The Martin-Bayshore and Jefferson-Bayshore transmission lines would be approximately 0.5 and 0.7 miles long, respectively, and would exit the site to the east onto private property.

ES.6.1.2 Geneva Switching Station Alternative

This alternative would construct a new switching station on approximately 11.1 acres of private land in the City of Daly City (west of the existing Martin Substation). The project requires the installation of approximately 2.3 miles of new 230 kV underground transmission lines. The three proposed transmission lines would be within franchise except when exiting the switching station site to the west, where a state parcel would be crossed for approximately 250 feet.

ES.6.1.3 Sunnydale HOPE SF Avoidance Line Alternative Option A

The Sunnydale HOPE SF Avoidance Line Alternative Option A (Sunnydale Option A Alternative) would redirect an approximately 0.6-mile segment of the proposed Jefferson-Egbert transmission line near the intersection of Sunnydale Avenue and Hahn Street, in the City and County of San Francisco, to avoid the approved Sunnydale HOPE SF Master Plan housing redevelopment project. The alignment would reconnect to the proposed Jefferson-Egbert transmission line on Geneva Avenue west of Santos Street.

ES.6.1.4 No Project Alternative

CEQA requires an evaluation of the No Project Alternative so that decision makers can compare the impacts of approving the project with the impacts of not approving the project. According to CEQA Guidelines (Section 15126.6[e]; 14 CCR 15000 et seq.), the No Project Alternative must include (a) the assumption that conditions at the time of the NOP (i.e., baseline environmental conditions) would not be changed since the proposed project would not be installed and (b) the events or actions that would be reasonably expected to occur in the foreseeable future if the project were not approved. The

first condition is described in the EIR for each environmental discipline as the "environmental baseline," because no impacts of the proposed project would occur. This section defines the second condition of reasonably foreseeable actions or events. The impacts of these actions are evaluated in each issue area's analysis in Section D, Environmental Analysis.

Under the No Project Alternative, the Egbert Switching Station and transmission line reconfigurations would not be constructed, and the existing electrical transmission system would continue to operate at its current vulnerable state.

As discussed in Section A.2, Overview of Proposed Project, of this EIR, the proposed project is needed to improve reliability of PG&E's transmission system serving San Francisco by enabling operation in the event that a 230 kV transmission line serving either Martin Substation or the proposed switching station experiences an unplanned outage. Therefore, the No Project Alternative would result in a higher likelihood of interrupted electric service to San Francisco in the event of unplanned outages resulting from an extreme event, which could render the electric transmission system at Martin Substation inoperable with no alternative mode of electrical transmission.

ES.6.2 Alternatives Eliminated from Full Environmental Impact Report Evaluation

The alternatives listed as follows were evaluated for their potential to meet CEQA requirements but were ultimately eliminated from consideration in the EIR. A more detailed description of each alternative and the rationale for its consideration and elimination is presented in Section C of this EIR.

ES.6.2.1 Moraga-Potrero 230 kV Transmission Line

This alternative includes development of an alternative source of power into San Francisco by constructing a new single-circuit 230 kV line from PG&E's Moraga Substation in Orinda into PG&E's Potrero Switchyard in San Francisco. The new line would likely include a 4.5-mile overhead segment, a 5- to 9-mile underground segment, and a 5- to 11-mile submarine segment across the San Francisco Bay, and associated work at Moraga and Potrero Substations.

ES.6.2.2 Eastshore-Potrero 230 kV Transmission Line

This alternative includes development of an alternative source of power into San Francisco by constructing a new single-circuit 230 kV transmission line from PG&E's Eastshore Substation in Hayward into PG&E's Potrero Switchyard in San Francisco. The new line would likely include a 0.5-mile overhead segment, a 0.5-mile underground segment, and an approximately 21-mile submarine segment, a short underground segment, and associated work at Eastshore and Potrero Substations.

ES.6.2.3 Alternative Transmission Line Options for Bayshore Switching Station

Bayshore-Embarcadero Transmission Line Options

Two alternative transmission line options were considered for the Bayshore-Embarcadero transmission line in addition to the route studied in detail as part of the Bayshore Switching Station Alternative. Bayshore-Embarcadero Alternative Line Option 1 would be developed within disturbed areas and existing roadways, except some open space near the Bayshore Switching Station site. This alternative line would be approximately 2.2 miles long. Bayshore-Embarcadero Alternative Line Option 2 would be approximately 2.6 miles long, developed primarily within disturbed areas and existing roadways.

Jefferson-Bayshore Transmission Line Options

Two alternative transmission line options were considered for the Jefferson-Bayshore transmission line in addition to the line studied in detail as part of the Bayshore Switching Station Alternative. Jefferson-Bayshore Alternative Line Option 1 would be developed primarily within disturbed areas and existing roadways. This alternative line would be approximately 0.4 miles long. Jefferson-Bayshore Alternative Line Option 2 would be approximately 1.2 miles long and developed primarily within disturbed areas and existing roadways. A conservation area for the San Bruno Habitat Conservation Plan is located west of North Hill Drive.

Martin-Bayshore Transmission Line Options

Two alternative transmission line options were considered for the Martin-Bayshore transmission line in addition to the line studied in detail as part of the Bayshore Switching Station Alternative. Martin-Bayshore Alternative Line Option 1 would be approximately 2.6 miles long and would be developed within disturbed areas and existing roadways, except some open space near the Bayshore Switching Station site. Martin-Bayshore Alternative Line Option 2 would be developed primarily within disturbed areas and existing roadways. This alternative line would be approximately 0.4 miles long.

ES.6.2.4 Alternative Transmission Line Options for Geneva Switching Station

Geneva-Embarcadero Transmission Line Options

Two alternative transmission line options were considered for the Geneva-Embarcadero transmission line in addition to the line studied in detail as part of the Geneva Switching Station Alternative. Geneva-Embarcadero Alternative Line Option 1 would be approximately 0.4 miles long. Development of Geneva-Embarcadero Alternative Line Option 1 and its associated ROW could limit future development of the Cow Palace property or require the line to be moved during redevelopment of the site. Cow Palace is an indoor arena owned by the California Department of Food and

Agriculture. The Daly City 2030 General Plan highlighted Cow Palace as one of the greatest opportunities for redevelopment within the City (PG&E 2017b). Geneva-Embarcadero Alternative Line Option 2 would be approximately 1 mile long, developed primarily within disturbed areas and existing roadways. A portion of Geneva-Embarcadero Alternative Line Option 2 along Carter Street would be developed adjacent to the San Bruno Mountain State Park.

Jefferson-Geneva Transmission Line Options

Two alternative transmission line options were considered for the Jefferson-Geneva transmission line in addition to the line studied in detail as part of the Geneva Switching Station Alternative. Jefferson-Geneva Alternative Line Option 1 would be approximately 1.1 miles long. The line would primarily be developed within franchise except when exiting the switching station site to then north, where a state parcel would be approximately 1.3 miles long. One or more easements may be necessary within the private properties between Midway Drive and Main Street.

Martin-Geneva Transmission Line Options

Two alternative transmission line options were considered for the Martin-Geneva transmission line in addition to the line studied in detail as part of the Geneva Switching Station Alternative. Martin-Geneva Alternative Line Option 1 would be approximately 0.4 miles long, developed primarily within disturbed areas and existing roadways. Martin-Geneva Alternative Line Option 2 would be approximately 1.4 miles long. One or more easements may be necessary within the private properties between Midway Drive and Main Street.

ES.6.2.5 Alternative Transmission Line Options for Egbert Switching Station

Jefferson-Egbert Transmission Line Options

Two alternative transmission line options were considered for the Jefferson-Egbert transmission line, in addition to the proposed line. Jefferson-Egbert Alternative Line Option 1 would be approximately 4.5 miles long, developed primarily within disturbed areas and existing roadways. Jefferson-Egbert Alternative Line Option 2 would be approximately 3.1 miles long, developed primarily within disturbed areas and existing roadways.

Egbert-Embarcadero Transmission Line Options

Two alternative transmission line options were considered for the Egbert-Embarcadero transmission line, in addition to the proposed line. Both Egbert-Embarcadero Alternative Line Option 1 and Option 2 alignments would be approximately 0.5 miles long, developed in primarily within disturbed areas and existing roadways.

Martin-Egbert Transmission Line Options

Two alternative transmission line options were considered for the Martin-Egbert transmission line, in addition to the proposed line. Martin-Egbert Alternative Line Option 1 would be approximately 0.5 miles long and developed in primarily within disturbed areas and existing roadways. Jefferson-Egbert Alternative Line Option 2 would be approximately 0.6 miles long, primarily within disturbed areas and existing roadways.

ES.6.2.6 Sunnydale HOPE SF Avoidance Line Alternative B (Option B)

Sunnydale HOPE SF Avoidance Line Alternative Option B (Sunnydale Option B Alternative) would redirect a segment of the proposed Jefferson-Egbert transmission line near the intersection of Sunnydale Avenue and Hahn Street, in the City and County of San Francisco. The re-routed segment would be approximately 0.30 miles long. The line would be developed primarily within disturbed areas and existing roadways, except for approximately 200 feet of turf north of Velasco Drive.

ES.6.2.7 Increase Distribution Energy Resources

Under this alternative, the proposed project would not be constructed and demand side alternatives, including distributed generation, energy efficiency, demand response, and energy storage would be used to provide energy to electric customers served by the Martin Substation, should the substation become inoperable. It is estimated that the typical weekday power demand in San Francisco is more than 650 megawatts, 350 megawatts of which is supplied by PG&E through the Martin Substation (PG&E 2017b). Demand side alternative programs would not occur at a scale that would eliminate the need for the energy delivered by the Martin Substation for the San Francisco region.

ES.7 Environmental Impacts and Mitigation Measures

ES.7.1 Impact Assessment Methodology

The analysis of environmental impacts is based upon the environmental setting applicable to each resource/issue and the manner in which the construction, operation, and maintenance of the proposed project or alternatives would affect the environmental setting and related resource conditions. In accordance with CEQA requirements and guidelines, the impact assessment methodology also considers the following three topics: (1) the regulatory setting and evaluation of whether the proposed project or alternatives would be consistent with adopted federal, state, and local regulations and guidelines; (2) growth-inducing impacts; and (3) cumulative impacts. Regulatory compliance issues are discussed in each resource/issue area section (Section D). This EIR is organized according to the following major issue area categories:

- Aesthetics

- Air quality
- Biological resources
- Cultural resources
- Energy
- Geology and soils
- Greenhouse gas (GHG) emissions
- Hazards and hazardous materials
- Hydrology and water quality
- Land use and planning
- Noise
- Transportation
- Tribal cultural resources
- Wildfire
- Electromagnetic fields (no adopted CEQA standards; therefore, included for informational purposes only)

To provide for a comprehensive and systematic evaluation of potential environmental consequences to the resource/issue areas, the environmental impact assessments for the proposed project and alternatives are based upon a classification system with the following four associated definitions:

Class I: Significant impact; cannot be mitigated to a level that is not significant

Class II: Significant impact; can be mitigated to a level that is less than significant

Class III: Less than significant; no mitigation required

Class IV: Beneficial impact

No Impact: No impact identified

In a number of instances, PG&E has proposed measures to reduce impacts to potentially affected resources or areas. These types of actions are referred to as applicant proposed measures (APMs) in the EIR and are considered in the impact assessment as part of PG&E's proposed project description. As such, these measures are different from CEQA mitigation measures but would be enforced along with the mitigation measures as part of the Mitigation Monitoring, Compliance, and Reporting Program.

ES.7.2 Mitigation Measures

This EIR describes feasible measures that could minimize significant adverse impacts (CEQA Guidelines, Section 15126.4). Within each issue area, mitigation measures are provided where environmental effects exist and could be substantially minimized. The mitigation measures provided in this EIR have been identified in the impact assessment sections of the EIR and are presented in Section G, Mitigation Monitoring and Reporting.

ES.7.3 Impact Summary Table for the Proposed Project

Table ES-1 provides a summary of proposed project impacts and classification of impacts under CEQA, mitigation measures, and residual impacts. As shown in Table ES-1, the proposed project would result in potentially significant land use impacts (Class I). The EIR analysis indicates that, assuming implementation of APMs and mitigation measures described in Section D.2 through Section D.15, the remainder of the potential environmental impacts associated with the proposed project could be mitigated to a level that is less than significant (Class II) or would not result in significant impacts (Class III).

Table ES-1
Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class	Mitigation Measures	Residual Impact
Aesthetics			
Impact AES-1: Construction and operation would have a substantial adverse effect on a scenic vista.	No Impact	None	No Impact
Impact AES-2: Construction would substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway.	No Impact	None	No Impact
Impact AES-3: Construction and operations would substantially degrade the existing visual character or quality of the site and its surroundings.	Class II	MM AE-1: Pacific Gas & Electric Company (PG&E) shall coordinate with the City and County of San Francisco regarding the installation of landscaping along the perimeter of the switching station site on Egbert Avenue. Landscaping may include low-growing landscaping such as shrubs and groundcover that meet safety and security requirements as determined by the California Public Utilities Commission (CPUC).	Less Than Significant
Impact AES-4: Construction and operations would create a new source of substantial light or glare	Class III	None	Less Than Significant

Table ES-1
Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class	Mitigation Measures	Residual Impact
that would adversely affect day or nighttime views in the area.			
Air Quality			
Impact AIR-1: Construction and operational activities would conflict with or obstruct the implementation of applicable local air quality plans.	Class III	None	Less Than Significant
Impact AIR-2: Construction, would generate emissions of criteria pollutants and toxic air contaminants in exceedance of applicable federal and state thresholds	Class III	None	Less Than Significant
Impact AIR-3: Construction and operational activities would expose sensitive receptors to substantial pollutant concentrations.	Class III	None	Less Than Significant
Impact AIR-54: Construction and operational activities would create objectionable odors affecting a substantial number of people.	No Impact	None	No Impact
Biological Resources			
Impact BIO-1: Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife	Class III	None	Less Than Significant
Impact BIO-2: Construction or operations would result in substantial adverse impacts to riparian habitat or other sensitive natural community	No Impact	None	No Impact
Impact BIO-3: Construction or Operation would result in substantial adverse impacts to federally or state protected wetlands	No Impact	None	No Impact
Impact BIO-4: Construction or operational activities would adversely affect linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites.	No Impact	None	No Impact

Table ES-1
Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class	Mitigation Measures	Residual Impact
Impact BIO-5: Impacts to local policies or ordinances protecting biological resources	No Impact	None	No Impact
Impact BIO 6: Impacts to Regional Plans, NCCPs, Habitat Conservation Plans (HCPs), Conservation Plans, and Critical Habitat.	No Impact	None	No Impact
Cultural Resources			
Impact CUL-1: Construction of the project would cause an adverse change to significant historic resources.	Class III	None	Less Than Significant
Impact CUL-2: Construction of the project would cause adverse change to archaeological resources.	Class III	None	Less Than Significant
Impact CUL-2: Construction of the project would cause an adverse change to sites known to contain human remains.	Class III	None	Less Than Significant
Energy			
Impact EN-1: Construction would result in wasteful or inefficient use of electricity, natural gas, and petroleum resources.	Class III	None	Less Than Significant
Impact EN-2: Project Operation would result in wasteful or inefficient use of electricity and petroleum.	Class III	None	Less Than Significant
Impact EN-3: Impacts due to inconsistency with adopted plans and policies.	Class III	None	Less Than Significant
Geology and Soils			
Impact GS-1(i): Substantial adverse effects involving rupture of a known earthquake fault.	Class III	None	Less Than Significant
Impact GS-1(ii): Substantial adverse effects involving strong seismic ground shaking	Class III	None	Less Than Significant

Table ES-1
Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class	Mitigation Measures	Residual Impact
Impact GS-1(ii): Substantial adverse effects seismically induced ground failure, including liquefaction.	Class III	None	Less Than Significant
Impact GS-1(iv): Substantial adverse effects involving landslides.	Class III	None	Less Than Significant
Impact GS-2: Cause substantial soil erosion or loss of topsoil	Class III	None	Less Than Significant
Impact GS-3: Cause geologic instability, resulting in ground failures on- or off-site	Class III	None	Less Than Significant
Impact GS-4: Project location on expansive soil, resulting in risk to life or property.	Class III	None	Less Than Significant
Impact GS-5: Soils incapable of supporting use of alternative wastewater disposal.	No Impact	None	No Impact
Impact GS-6: Construction of the project would cause adverse change to paleontological resources or unique geologic feature.	Class III	None	Less Than Significant
Greenhouse Gas Emissions			
Impact GHG-1: Construction and operation would generate significant GHG emissions	Class III	None	Less Than Significant
Impact GHG-2: Conflict with applicable plan, policy or regulation for the purpose of reducing GHG emissions.	Class III	None	Less Than Significant
Hazards and Hazardous Materials			
Impact HAZ-1: Construction, operation and maintenance would create significant hazard to the public or environment through routine transport, use, or disposal of hazardous materials.	Class III	None	Less Than Significant
Impact HAZ-2: Construction, operation and maintenance would create a hazard through accidental release of hazardous materials.	Class III	None	Less Than Significant
Impact HAZ-3: Release or handling of hazardous materials within one-quarter mile of a school	Class III	None	Less Than Significant

Table ES-1
Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class	Mitigation Measures	Residual Impact
Impact HAZ-4: Project located on a known hazardous materials site that would create a significant hazard to the public or environment	Class II	MM HM-1: Prior to commencing work on the Egbert Switching Station as well as all project components within 500 feet of a leaking underground storage tank (LUST), State Response site, voluntary cleanup site, historical gas station/filling station/service station, historical dry cleaner or laundry facilities, or historical auto service station, Pacific Gas & Electric Company (PG&E) shall submit site history documentation for proposed work areas for review. For work within the area designated under the Maher Ordinance, PG&E shall submit site history documentation to the San Francisco Department of Public Health (SFDPH) and the California Public Utilities Commission (CPUC). For areas not subject to the Maher Ordinance, PG&E shall submit site history documentation to the CPUC only. An independent qualified person approved by CPUC shall review all site documentation provided by PG&E and all comments, questions, or clarifications requested shall be addressed prior to report approval by CPUC. For work areas within the limits of the Maher Ordinance, if the site history indicates that hazardous materials may be present in the soil/groundwater, the CPUC and/or SFPDH, would require additional documentation, as follows: 1. PG&E shall submit a Work Plan for analysis of sampled soil and/or groundwater. 2. PG&E shall conduct subsurface soil and/or groundwater sampling requested by the CPUC and/or SFDPH and submit a subsurface investigation report (i.e., soil testing) prepared by a qualified person (professional geologist, for review and approval. The subsurface investigation report shall document sampling locations, sampling protocol, and laboratory analyses to be conducted on the samples, and shall include testing for the complete list of analytes required by the Maher Ordinance, and other hazardous substances that the CPUC and/or SFDPH determines may be present, such as known radioactive substances near the Hunter's Point Shipyard.	Less Than Significant

Table ES-1
Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class	Mitigation Measures	Residual Impact
		3. If the subsurface investigation report indicates exceedances of the Department of Toxic Substances Control's or Regional Water Quality Control Board's health risk levels or other applicable standards, PG&E shall have a qualified person prepare and if necessary, a site mitigation plan (SMP) prior to authorization to commence construction. The SMP must describe procedures, methods, and devices to protect site worker's and adjacent sensitive receptor's health and safety from contaminated soil, groundwater, and soil vapor, if present. The SMP shall include figures and drawings showing areas where soil testing indicates exposure levels may be exceeded, environmental contingency procedures, post-excavation confirmation sampling, appropriate handling and disposal of contaminated soil, and a commitment to prepare and certify a final project report. The SMP shall also reference and briefly describe construction-related documents (dust, stormwater, odor, and noise control plans). The SMP shall be reviewed and approved by the CPUC and/or SFDPH prior to construction work within applicable project work areas. The SMP would be focused on protecting site workers and adjacent sensitive receptors from any health and safety threats stemming from excavation and handling of potentially contaminated soil and/or groundwater. CPUC may waive soils testing, on a case-by-case basis, for work sites in which PG&E can demonstrate in writing that (a) there would be no soil excavation associated with the work (e.g., staging areas), or (b) the site history indicates that there is no information that hazardous substances may be present in the soil or groundwater at concentrations exceeding either the Department of Toxic Substances Control's or the Regional Water Quality Control Board's health risk levels.	

Table ES-1
Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class	Mitigation Measures	Residual Impact
Impact HAZ-5: Result in a safety hazard due to close proximity to an airport.	No Impact	None	No Impact
Impact HAZ-6: Impair implementation or physically interfere with an adopted emergency response/evacuation plan.	Class III	None	Less Than Significant
Impact HAZ-7: Significant risk of loss, injury, or death involving wildland fires.	Class II	See MM WF-1 below under Wildfire	Less Than Significant
Hydrology and Water Quality			
Impact WQ-1: Violate water quality standards, wastewater requirements or substantially degrade surface or ground water quality.	Class III	None	Less Than Significant
Impact WQ-2: Substantially decrease groundwater supplies or interfere with groundwater recharge, impeding groundwater management of the basin.	Class III (Construction) No Impact (O&M)	None	Less Than Significant
Impact WQ-3(i): Alter existing drainage pattern, resulting in substantial erosion or siltation on- or off-site.	Class III	None	Less Than Significant
Impact WQ-3(ii): Alter existing drainage pattern, resulting in substantial increased runoff, resulting in flooding on-or off-site.	Class III	None	Less Than Significant
Impact WQ-3(iii): Alter existing drainage pattern, resulting in exceedance of existing or planned stormwater system capacity	Class III	None	Less Than Significant
Impact WQ-3(iv): Alteration of existing drainage pattern that would impede or redirect flood flows.	Class III	None	Less Than Significant
Impact WQ-4: Release of pollutants from inundation due to flood hazard, tsunami, or seiche zones.	Class III	None	Less Than Significant
Impact WQ-5: Conflict or obstruct with implementation of water quality control plan or groundwater management plan	No Impact	None	No Impact

Table ES-1
Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class	Mitigation Measures	Residual Impact
Land Use and Planning			
Impact LU-1: Construction would divide an established community.	Class III	None	Less Than Significant
Impact LU-2: Construction and operation would cause a significant environmental impact due to conflict with land use plan, policy or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	Class I	MM LU-1: Pacific Gas & Electric Company (PG&E) shall coordinate the installation of the Santos Street segment of the Jefferson-Egbert transmission line with the City and County of San Francisco. The transmission line shall be installed in the realigned street section and shall avoid street sections planned for vacation/realignment in the Sunnydale HOPE SF Master Plan.	Potentially Significant
Noise			
Impact NO-1: Temporary or permanent increase in ambient noise levels in excess of established standards or ordinances	Class II (Construction) Class III (O&M)	MM NO-1: For construction occurring within the City and County of San Francisco, in the event noise levels during daytime (7 AM to 8 PM) construction activities are expected to exceed 80 dBA L_{eq} at 100 feet (for portions of the project alignment where noise-sensitive areas are located, Pacific Gas & Electric Company (PG&E) shall implement noise reduction measures to reduce noise levels to below 80 dBA L_{eq} at 100 feet. For construction occurring within the Cities of Daly City and Brisbane, in the event noise levels during daytime (8 AM to 5 PM) construction activities are expected to exceed 90 dBA L_{eq} at the closest residences (for portions of the project alignment where noise-sensitive areas are located within 190 feet of the alignment), PG&E shall implement noise reduction measures to reduce noise levels to below 90 dBA L_{eq} at the closest residences. For nighttime construction (8 PM to 7 AM) in all jurisdictions, PG&E shall implement noise reduction measures to reduce construction noise levels at residences adjacent to the construction area to no greater than 5 dBA L_{eq} above ambient noise levels. Measures to be implemented could include: (1) portable noise barriers erected temporarily to reduce noise impacts at specific locations; or (2) if noise barriers would not reduce daytime construction noise levels to below 80 dBA L_{eq} at 100 feet (City and County of San Francisco) or to 90 dBA L_{eq} at the closest residence (Cities of Daly City and Brisbane), or to no greater than 5 dBA L_{eq} above ambient noise	Less Than Significant

Table ES-1
Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class	Mitigation Measures	Residual Impact
		levels (nighttime), depending on the location of residences and the level of construction noise, PG&E shall offer to relocate affected residents until the impact has been determined to not be adverse.	
Impact NO-2: Generation of excessive groundborne vibration or groundborne noise levels	Class III (Construction) No Impact (O&M)	None	Less Than Significant
Impact N-3: Expose sensitive receptors to excessive noise levels due to proximity to an airport	No Impact	None	No Impact
Transportation			
Impact TRA-1: Conflict with a program, plan, ordinance or policy addressing the circulation system.	Class II (Construction) Class III (O&M)	MM TR-1: Prior to the permanent operation of the proposed project, as part of the final construction activities of the proposed project (i.e., transmission line installation), Pacific Gas & Electric Company (PG&E) shall restore all removed curbs, gutters, and sidewalks, repave all removed or damaged paved surfaces, restore landscaping or vegetation as necessary, and clean up the job site, including the Sunnydale HOPE SF project site.	Less Than Significant
Impact TRA-2: Conflict or be inconsistent with CEQA Guidelines Section 15064.3(b) (vehicle miles traveled)	Class III	None	Less Than Significant
Impact TRA-3: Substantially increase hazards due to geometric design feature or incompatible uses.	Class III (Construction) No Impact (O&M)	None	Less Than Significant
Impact TRA-4: Project result in inadequate emergency access.	Class III	None	Less Than Significant

Table ES-1
Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class	Mitigation Measures	Residual Impact
Tribal Cultural Resources			
Impact TCR-1: Cause substantial adverse change in the significance of a tribal cultural resource, listed or eligible for listing in the California Register of Historical Resources or a local register of historical resources.	Class II	MM TCR-1: Should a potential tribal cultural resource (TCR) be inadvertently encountered, construction activities near the encounter shall be temporarily halted and Pacific Gas & Electric Company (PG&E) and the California Public Utilities Commission (CPUC) shall be notified. If the unanticipated resource is archaeological in nature, appropriate management requirements shall be implemented, as outlined in Applicant Proposed Measures CR-3 through CR-5. PG&E, in consultation with the CPUC, shall notify Native American tribes that have been identified by the Native American Heritage Commission to be traditionally and culturally affiliated with the geographic area of the proposed project. If the CPUC determines that the potential resource appears to be a TCR (as defined by California Public Resources Code Section 21074), any affected tribe shall be provided a reasonable period of time to conduct a site visit and make recommendations regarding future ground disturbance activities and the treatment and disposition of any discovered TCRs. Depending on the nature of the potential resource and tribal recommendations, review by a qualified archaeologist may be required. Implementation of proposed recommendations shall be made based on the determination of the CPUC that the approach is reasonable and feasible. Activities shall be conducted in accordance with regulatory requirements.	Less Than Significant
Impact TCR-2: Cause substantial adverse change in the significance of a tribal cultural resource, determined by the lead agency.	Class III	None	Less Than Significant
Wildfire			
Impact WF-1: Substantially impair an adopted emergency response/evacuation plan.	Class III	None	Less Than Significant
Impact WF-2: Exacerbate wildfire risks due to slope, prevailing winds and other factors, exposing occupants to wildfire pollutants	Class II	MM WF-1: Pacific Gas & Electric Company (PG&E) shall prepare a Project Fire Prevention Plan that addresses procedures for fire prevention at active construction sites and during project	Less Than Significant

Table ES-1
Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class	Mitigation Measures	Residual Impact
		maintenance activities for the approved project areas within 1,000 feet of the San Bruno Mountain State Park (classified as a high fire hazard severity zone). The Project Fire Prevention Plan shall include requirements for carrying emergency fire suppression equipment, conducting "tailgate meetings" that cover fire safety discussions, proper use of tools and equipment, restricting smoking, idling vehicles, and restricting construction or maintenance activities during high fire hazard periods. The Project Fire Prevention Plan shall address the following fire risk reduction measures: • Training and briefing all personnel constructing or maintaining the project in fire prevention and suppression methods • Conducting a fire prevention discussion at each morning's construction safety meeting • Procedures for minimizing potential ignition, including, but not limited to, vegetation clearing, parking requirements/ restrictions, idling restrictions, smoking restrictions, proper use of gas-powered equipment, use of spark arrestors, and hot work restrictions • Work restrictions during Red Flag Warnings and High to Extreme Fire Danger days • Storage of fire suppression tools and backpack pumps with water within 30 feet of work activities • Water sources, including water storage tanks or water trucks that would be used in case of a fire • Assigning personnel to conduct a "fire watch" or "fire patrol" to ensure that risk mitigation and fire preparedness measures are implemented, immediate reporting of a fire, and to coordinate with emergency response personnel in the event of a fire The Project Fire Prevention Plan shall be submitted to the California Public Utilities Commission (CPUC) for review and approval at least 30 days prior to initiation of all construction activities in areas within 1,000	

Table ES-1
Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class	Mitigation Measures	Residual Impact
		feet of the San Bruno Mountain State Park (classified as a high fire hazard severity zone), including equipment staging and materials delivery.	
Impact WF-3: Require installation or maintenance of infrastructure that may exacerbate wild fire risk.	No Impact	None	No Impact
Impact WF-4: Expose people or structures to significant wildfire risks, including downslope flooding and landslides.	No Impact	None	No Impact

ES.8 Summary Comparison of the Proposed Project and Alternatives

ES.8.1 Evaluation of Project Alternatives

Three alternatives, in addition to the No Project Alternative, were identified for evaluation in this EIR. Table ES-2, provides a summary of environmental impact conclusions for the proposed project and each of the alternatives for each environmental issue area. The proposed project would result in a potentially significant land use impact (Class I); however, the three alternatives, in addition to the No Project Alternative, would reduce this impact to less than significant.

ES.8.2 Environmentally Superior Alternative

An EIR must identify the environmentally superior alternative to the project. Based on the analysis presented in Section D.2 through Section D.15 of this EIR, the environmentally superior alternative was determined to be the No Project Alternative on the basis of minimization or avoidance of physical impacts. Section D.16, Electromagnetic Fields, of this EIR is informative only, does not include impact analysis, and therefore, is not included in the comparison of impacts. Section 15126.6(e)(2) of the CEQA Guidelines states that if the No Project Alternative is found to be environmentally superior, "the EIR shall also identify an environmentally superior alternative among the other alternatives."

Under the No Project Alternative, the proposed project, including the Egbert Switching Station, would not be constructed. All environmental impacts associated with the construction and operation of the proposed project would be eliminated and existing environmental conditions unaffected. None of the facilities associated with the proposed project would be constructed, and the project objectives would not be achieved. This alternative would not provide the benefit of the proposed project, which would improve reliability and resiliency to the existing transmission system providing power to the

San Francisco Peninsula. However, it should be noted that the California Independent System Operator Board recommends a project to bypass the Martin Substation in case of an extreme event that would leave the San Francisco Peninsula vulnerable to power outages. As PG&E has an obligation to serve its customers by providing electric power, if the proposed project or an alternative analyzed in this EIR is not approved, PG&E would still be required to construct a similar project to provide a reliable energy source for its customers located in the San Francisco Peninsula.

Overall, based on the analysis for each alternative presented in Section D.2 through Section D.15, and as summarized in Table ES-2, the Sunnydale Option A Alternative was determined to be the environmentally superior alternative since it would avoid the Class I land use impact associated with the proposed project and not create any substantially greater impacts as compared to the proposed project. Under this alternative, the project would largely remain the same as the proposed project other than construction of a segment of the proposed Jefferson-Egbert transmission line that avoids impacts to the Sunnydale HOPE Master Plan development project. Although the segment would be approximately 0.6 miles longer than the proposed project segment, most impacts would be similar to the proposed project, with the exception of air quality, energy, and GHG emissions, which would marginally increase due construction activities for undergrounding the longer transmission line. The slight increase in impacts to air quality, energy, and GHGs during construction of the Sunnydale Option A Alternative would be considered temporary and not significant.

Because the Geneva Switching Station Alternative would also avoid the Class I land use impact of the proposed project, it would rank second to the Sunnydale Option A Alternative as the environmentally superior alternative and the Bayshore Switching Station Alternative would rank third. Both the Geneva and Bayshore alternative sites would have increased impacts to biological resources that would require mitigation; therefore the Sunnydale Option A Alternative is selected as the environmentally superior alternative after the No Project Alternative. Furthermore, the larger Geneva and Bayshore Switching Station alternative sites would increase impervious surface area when compared to the Sunnydale Option A Alternative. The Bayshore Switching Station Alternative was selected as the least environmentally superior alternative due to potential temporary construction access conflicts with the Machinery & Equipment Company property and because the site is located on artificial fill material that would require excavation thus resulting in temporary indirect construction-related impacts associated with air quality, energy, GHG emissions, and transportation.

Table ES-2 Summary of Comparison of Alternatives Impacts

Environmental Issue Area	Project	Bayshore Switching Station Alternative	Geneva Switching Station Alternative	Sunnydale HOPE SF Avoidance Line Alternative Option A	No Project Alternative
Aesthetics	Class II/MM	▲	▲	–	▼
Air Quality	Class III	▲	▼	▲	▼

Table ES-2 Summary of Comparison of Alternatives Impacts

Environmental Issue Area	Project	Bayshore Switching Station Alternative	Geneva Switching Station Alternative	Sunnydale HOPE SF Avoidance Line Alternative Option A	No Project Alternative
Biological Resources	Class III	▲	▲	—	▼
Cultural Resources	Class III	▼	▼	—	▼
Energy	Class III	▲	▼	▲	▼
Geology and Soils	Class III	▲	▼	▼	▼
Greenhouse Gas Emissions	Class III	▲	▼	▲	▼
Hazards and Hazardous Materials	Class II/MM	▼	▼	—	▼
Hydrology and Water Quality	LTS/MM	▲	▲	—	▼
Land Use and Planning	Class I	▼	▼	▼	▼
Noise	Class II/MM	▼	▼	—	▼
Transportation	Class II/MM	▲	▼	▼	▼
Tribal Cultural Resources	Class II/MM	—	—	—	▼
Wildfire	Class II/MM	▼	—	—	▼

Δ Alternative is likely to result in greater impacts to issue when compared to project.
— Alternative is likely to result in similar impacts to issue when compared to project.
▼ Alternative is likely to result in reduced impacts to issue when compared to project.

Class I = Significant unavoidable impact even with mitigation, Class II = Less-than-significant impact with mitigation, Class III = Less-than-significant impact.

ES.9 References Cited

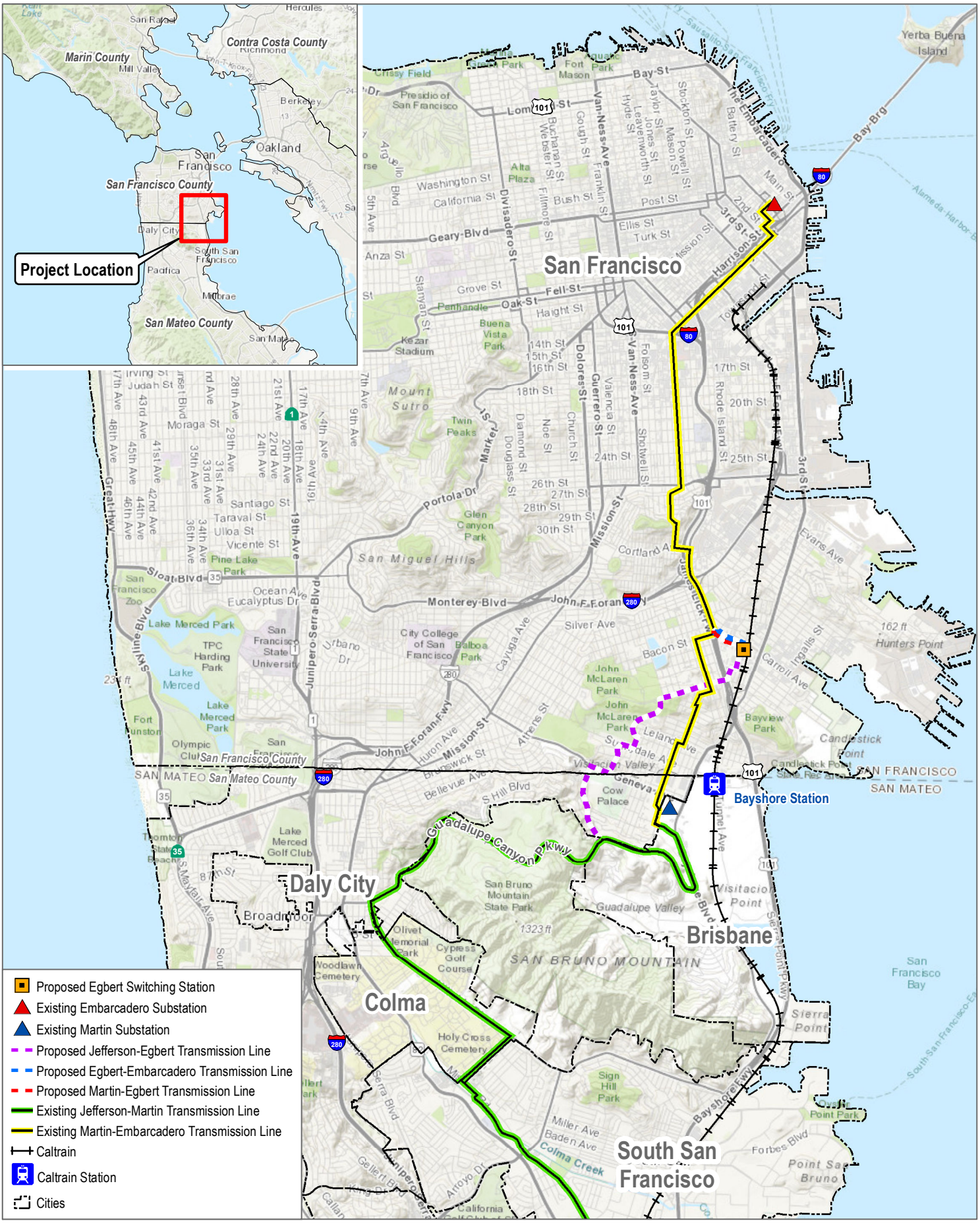
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SOURCE: PG&E 2017; ESRI 2019

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FIGURE ES-1

Project Overview

Egbert Switching Station (Martin Substation Extension) Project

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A. INTRODUCTION/OVERVIEW

This section of the Environmental Impact Report (EIR) for the proposed Egbert Switching Station (Martin Substation Extension) Project (proposed project) provides a general introduction (Section A.1); project overview (Section A.2); project objectives (Section A.3); and agency use of the EIR, including a brief description of the California Public Utilities Commission (CPUC) process for consideration of project approval (Section A.4). The organization and content of this EIR are summarized in Section A.5, and references cited are listed in Section A.6.

A.1 INTRODUCTION

This EIR has been prepared by the CPUC as the lead agency under the California Environmental Quality Act (CEQA) to inform the public and to meet the needs of local, state, and federal permitting agencies to consider the project proposed by the Pacific Gas & Electric Company (PG&E), the applicant. This EIR does not make a recommendation regarding the approval or denial of the project; it is purely informational in content and will be used by the CPUC in considering whether to approve the proposed project or an alternative.

On December 28, 2017, PG&E submitted an application (A.17-12-02) and Proponent's Environmental Assessment to the CPUC for the proposed project. The purpose of this application was to obtain a Certification of Public Necessity and Convenience (CPCN).

The purpose of this EIR is to disclose the environmental impacts expected to result from construction and operation of the proposed project, and to provide mitigation measures that, if adopted, would avoid or minimize those environmental impacts and identify alternatives to the proposed project (including the No Project Alternative) that could avoid or minimize significant environmental impacts. Based on this environmental impact assessment and the relative sensitivities of impacts in the study region, Section E, Comparison of Alternatives, of this EIR determines the Environmentally Superior Alternative as required by CEQA. This EIR does not make a recommendation regarding the approval or denial of the proposed project; it is purely information that has been prepared to inform the public and to meet the needs of permitting agencies in considering the proposed project, as described in Section A.3, Project Objectives.

The content of this EIR reflects input by government officials, agencies, non-governmental organizations, and concerned members of the public during the EIR scoping period. Table A-1 lists the issues to be evaluated in this EIR, which include comments made during the scoping period. The scoping period followed CPUC's publication of the Notice of Preparation of an EIR on November 16, 2018. During this comment period, several public involvement activities were completed: public distribution of the Notice of Preparation and a scoping meeting notice, establishment of an Internet web page, and one public scoping meeting. Comments made during the scoping period are summarized in Section H, Public Participation, of this EIR and presented in Appendix C of the Public Scoping Report for the proposed project. The Scoping Report (posted to

CPUC's website on January 30, 2019) is available at http://www.cpuc.ca.gov/environment/info/dudek/egbert/egbert.html.

Table A-1
Environmental Impact Report Issues to be Addressed

Environmental Issue Area/EIR Section	Potential Issues or Impacts
Aesthetics Section D.2	• Construction-related activities associated with the proposed project, specifically the Jefferson-Egbert transmission line, would temporarily impact views from nearby scenic vistas. • Construction activities associated with the Egbert Switching Station could cause potential temporary construction-related visual impacts to nearby residential development. • Construction of the proposed Egbert Switching Station could create moderate visual contrast to existing nearby development and character.
Air Quality Section D.3	• Project construction would produce short-term air emissions (fugitive dust and vehicle equipment exhaust). • Construction activities could expose sensitive receptors to health risks associated with diesel particulate matter.
Biological Resources Section D.4	• Project construction could adversely affect nesting birds using landscaped areas immediately adjacent to the project footprint. • Project construction activities could temporarily impact foraging habitat for special-status wildlife species.
Cultural and Paleontological Resources Section D.5	• Construction activities could potentially damage unknown historic and/or archaeological resources within the project footprint. • Project construction activities could disturb unanticipated human remains within the project footprint.
Energy Section D.6	• Construction and maintenance activities would require use of electrical and petroleum resources .
Geology and Soils Section D.7	• Portions of the proposed project could be susceptible to liquefaction and seismic-related settlement. • A portion of the Jefferson-Egbert transmission line could be susceptible to debris flow in the event of a landslide. • Construction activities could result in a temporary increase in water/wind erosion due to exposure of loose soils. • Construction activities for the switching station, lines along Egbert Avenue, and approximately half the length of the Jefferson-Egbert transmission line have potential to disturb or destroy previously unknown paleontological resources.
Greenhouse Gas Emissions Section D.8	• Construction activities would result in greenhouse gas emissions.
Hazards and Hazardous Materials Section D.9	• Leaking or spilling of petroleum or hydraulic fluids from construction equipment or other vehicles during project construction, operation, or maintenance could contaminate soils, surface waters, or groundwater. • Fire hazard during construction and operation. • Construction activities could release hazardous materials through disturbance of contaminated soils, contaminated groundwater, or leaking underground storage tanks within the project footprint.

Table A-1
Environmental Impact Report Issues to be Addressed

Environmental Issue Area/EIR Section	Potential Issues or Impacts
	• Construction activities could limit roadway access for emergency vehicles due to temporary lane closures. • Fire hazard during construction activities within a High Fire Hazard Severity Zone.
Hydrology and Water Quality Section D.10	• Project construction activities could result in stormwater runoff with levels of pollutants in excess of water quality standards. • Disturbance of contaminated soils, contaminated groundwater, or leaking underground storage tanks could result in contaminated groundwater. • Construction activities could temporarily alter existing drainage patterns. • Failure of the concrete University Mound Reservoir could impact aboveground infrastructure at the proposed Egbert Switching Station.
Land Use and Planning Section D.11	• Construction would temporarily disturb ongoing or traditional land uses within the project study area. • Construction would conflict with the approved development as proposed under the Sunnydale Hope SF Master Plan.
Noise Section D.12	• Construction could produce short-term noise (from vehicles and construction equipment) and may violate noise standards during construction. • Construction could generate localized groundborne vibration. • Project facilities would generate operational noise.
Transportation Section D.13	• Construction activities would result in a temporary increase in local traffic as a result of construction-related workforce traffic and equipment, and material deliveries. • Construction activities would require temporary road closures, which would temporarily disrupt the existing circulation in the vicinity of the closure, including pedestrian and bicycle access. • Construction activities could limit roadway access for emergency vehicles due to temporary lane closures.
Tribal Cultural Resources Section D.14	• Construction activities could potentially damage unknown tribal cultural resources within the project footprint.
Electromagnetic Fields Section D.15	• Public could be exposed to a new source of electromagnetic field.

A.2 OVERVIEW OF PROPOSED PROJECT

As proposed by PG&E, the proposed project would primarily consist of construction, operation, and maintenance of a new 230-kilovolt (kV) switching station (Egbert Switching Station) connected to the existing 230 kV system by reconfiguring two existing underground, single-circuit 230 kV lines located in San Francisco, Daly City, and Brisbane. The proposed project would include the following major components:

- **Egbert Switching Station**: A new 230 kV switching station is proposed on a 1.7-acre site located at 1755 Egbert Avenue, San Francisco. An 11,000-square-foot, 40-foot-high

building would be constructed on site, along with outdoor equipment. The site would be enclosed by a 12-foot-high perimeter fence.

- **Jefferson-Egbert Transmission Line**: The existing Jefferson-Martin 230 kV transmission line would be rerouted from the existing Martin Substation to the proposed Egbert Switching Station, creating a new approximately 3.1-mile-long underground transmission line through the City of Brisbane, City of Daly City, and the City and County of San Francisco.
- **Egbert-Embarcadero and Martin-Egbert Transmission Lines**: The existing Martin-Embarcadero No. 1 230 kV transmission line would be interconnected with two proposed line extensions that loop to the proposed Egbert Switching Station, creating two separate new lines of approximately 0.4 miles each.

In addition, PG&E proposes minor indoor control room modifications to the existing Embarcadero, Jefferson, and Martin Substations to support the proposed project. PG&E would also remove the Martin-Embarcadero No. 1 conductors that would be isolated by the creation of the loop, and would remove Jefferson-Martin 230 kV transmission line terminal equipment within the Martin Substation.

A.3 PROJECT OBJECTIVES

A.3.1 Background

The San Francisco Peninsula is completely dependent on electric power imports since there is no utility-scale power generator within the City and County of San Francisco. Electricity customers on the San Francisco Peninsula are currently served by only two sources: Martin Substation's 230 kV and 115 kV systems from the south, which send power to six substations in San Francisco; and the Trans Bay Cable LLC Trans Bay Cable from the east. Should the 230 kV and 115- V transmission systems at Martin Substation be rendered inoperable, the Trans Bay Cable, if it functions properly, could only supply approximately 46% of San Francisco's typical weekday electrical needs and about 81% of San Francisco's nighttime load (PG&E 2017). This means that a loss of the 230 kV and 115 kV systems at the Martin Substation would result in blackouts and rotating outages in San Francisco until the infrastructure at Martin Substation could be repaired. The proposed project would address San Francisco's reliability concerns by reconfiguring the existing 230 kV transmission lines terminating at the Martin Substation to provide a new 230 kV path bypassing the Martin Substation to the new Egbert Switching Station. This would provide an alternative source for San Francisco that, together with the Trans Bay Cable, could support 100% of San Francisco's power demands even if the Martin Substation is not operational. The California Independent System Operator Board approved the proposed project based on recommendations from its staff in the 2014–2015 Transmission Planning Process (PG&E 2017). The California Independent System Operator Board concluded that the proposed project was needed to increase the reliability and resiliency of the San Francisco Peninsula in case of an extreme event that could render the electric transmission system at the Martin Substation inoperable.

A.3.2 Statement of Objectives

PG&E lists the following basic objectives for the proposed project (PG&E 2017, 2018):

1. Improve reliability of PG&E's transmission system serving San Francisco by constructing a new 230 kV switching station in the vicinity of Martin Substation that provides a high likelihood of continued electric service to San Francisco should an extreme event render Martin Substation inoperable.
2. Construct a safe and economically and technically feasible project that minimizes environmental impacts and that would deliver 230 kV power received from the south to San Francisco.
3. Provide a 230 kV connection between a new switching station and Martin Substation to enable the transmission system serving San Francisco to operate in the event that a 230 kV transmission line serving either Martin Substation or the proposed switching station experiences an unplanned outage.

A.4 AGENCY USE OF THIS DOCUMENT

A.4.1 California Public Utilities Commission Process

Pursuant to Article XII of the Constitution of the State of California, the CPUC oversees the regulation of investor-owned public utilities, including PG&E. The CPUC is also the lead state agency for consideration and analysis of PG&E's proposed project pursuant to CEQA. The CPUC has directed preparation of this EIR, which will ultimately be used by the CPUC, in conjunction with other information developed in the CPUC's formal record, to act on PG&E's application for a CPCN for construction and operation of the proposed project. Under CEQA requirements, the CPUC will determine the adequacy of the Final EIR and, if adequate, will certify the document as complying with CEQA. If the CPUC approves a project despite significant and unmitigable impacts, it must provide justification in a "Statement of Overriding Considerations," which would be included in the CPUC's decision on the application.

CPUC has assigned Administrative Law Judge Jason Jungreis to oversee the proceeding on the proposed project, and Liane Randolph is the assigned commissioner for the CPCN application. The Administrative Law Judge's decision and the evidentiary hearings will cover issues specific to the proposed project, including project need, project cost, and other considerations.

A.4.2 Other Agencies

Several other state agencies will rely on information in this EIR to inform them in their decisions over issuance of specific permits related to project construction or operation (refer to Table A-2). In addition to the CPUC, state agencies such as the California Department of Transportation and

the Regional Water Quality Control Board will be involved in reviewing and/or approving the project. On the local level, ministerial permits would need to be issued by the City and County of San Francisco, and Cities of Brisbane and Daly City. In addition, the CPUC's General Order 131-D requires PG&E to comply with local building, design, and safety standards to the greatest degree feasible to minimize project conflicts with local conditions.

Table A-2
Required Permits and Approvals

Permit/Authorization	Agency	Purpose
State		
Certificate of Public Convenience and Necessity (CPCN)	California Public Utilities Commission	Overall project approval, CEQA review, and issuance of a CPCN
Encroachment Permits	California Department of Transportation	Activities related to the placement of encroachments within, under, or over state highway rights-of-way
National Pollutant Discharge Elimination System – General Construction Storm Water Permit (ministerial)	Regional Water Quality Control Board	Stormwater discharges associated with construction activities disturbing more than 1 acre of land
Local (Ministerial)		
Excavation Permit Special Traffic Permits Night Noise Permits	City and County of San Francisco, Cites of Brisbane and Daly City	Work within county roads/road rights-of-way or property
Excavation Permit San Francisco Municipal Transportation Agency Building Permit Grading Permit	City and County of San Francisco	Work within county roads/road rights-of-way or property and railroads

A.5 READER'S GUIDE TO THIS ENVIRONMENTAL IMPACT REPORT

A.5.1 Available for Review

PG&E's Proponent's Environmental Assessment and other supporting documentation, submitted as part of PG&E's Application for the proposed project (PG&E 2017), contains certain information that is incorporated by reference in some sections of this EIR. These documents are available for public review on the CPUC project website (http://www.cpuc.ca.gov/environment/info/dudek/egbert/egbert.html). The environmental documents prepared for the project will also be available during normal business hours at the locations listed in Table A-3.

Table A-3
Repository Sites

Location	Address	Telephone
Brisbane Library	250 Visitacion Avenue, Brisbane, California 94005	415.467.2060
Bayshore Branch Library	460 Martin Street, Daly City, California 94014	650.991.8074
Visitacion Valley Library	201 Leland Avenue, San Francisco, California 94134	415.355.2848
Portola Branch Library	380 Bacon Street, San Francisco, California 94134	415.355.5660
San Francisco Public Library	5075 3rd Street, San Francisco, California 94124	415.355.5757

A.5.2 Environmental Impact Report Organization

This 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.
  - **Impact Summary Tables.** A tabulation of the impacts and mitigation measures for the proposed project and alternatives.
- **Section A, Introduction/Overview.** A discussion of the background and project objectives, a brief project description, and a discussion outlining the public agency use of the EIR.
- **Section B, Project Description.** Detailed description of the proposed project.
- **Section C, Alternatives Process and Description.** Description of the alternatives evaluation process, description of alternatives considered but eliminated from further analysis and the rationale thereof, and description of the alternatives analyzed in Section D.
- **Section D, Environmental Analysis.** A comprehensive analysis and assessment of impacts and mitigation measures for the proposed project and alternatives, including the No Project Alternative. This main section is divided into subsections for each environmental issue area (e.g., air quality, biological resources) that contain the environmental setting and impacts of the proposed project and each alternative. A mitigation table is provided at the end of each issue area analysis, followed by references used to complete the environmental analysis.
- **Section E, Comparison of Alternatives.** Identification of the CEQA Environmentally Superior Alternative and a discussion of the relative advantages and disadvantages of the proposed project and alternatives that were evaluated.
- **Section F, Other CEQA Considerations.** A discussion of effects found not to be significant, growth-inducing impacts, irreversible environmental changes, significant environmental effects that cannot be avoided, and cumulative impacts.

- **Section G, Proposed Mitigation Monitoring, Compliance, and Reporting Plan.** A discussion of CPUC's mitigation monitoring program requirements.
- **Section H, Public Participation.** A brief description of the public participation program for this EIR.
- **Section I, Report Preparation.** A list of preparers of the EIR and contacts for public agencies.

A.6 REFERENCES CITED

The following list of references cited, including PG&E responses to CPUC data requests, can be found on the CPUC website (http://www.cpuc.ca.gov/environment/info/dudek/egbert/egbert.html) for the Egbert Switching Station Project:

PG&E (Pacific Gas & Electric). 2017. "Application of Pacific Gas And Electric Company (U 39 E) for a Certificate of Public Convenience and Necessity Authorizing the Construction of the Egbert Switching Station Project and Proponent's Environmental Assessment (PEA) for the Egbert Switching Station Project." Submitted to the California Public Utilities Commission in December 2017.

PG&E. 2018. "Egbert Switching Station (A. 17-12-021) Response to California Public Utilities Commission Application Completeness Review/Data Request No. 1 (and attachments)." March 14, 2018.

B. DESCRIPTION OF PROPOSED PROJECT

B.1 INTRODUCTION

The proposed Egbert Switching Station (Martin Substation Extension) Project (proposed project) includes the construction, operation, and maintenance of a new 230-kilovolt (kV) switching station in the City and County of San Francisco. The switching station would be connected to the local 230 kV system by reconfiguring two existing, underground, single-circuit, 230 kV transmission lines located in the City and County of San Francisco, City of Daly City, and City of Brisbane. The proposed project would provide an alternative 230 kV transmission path to serve customers in the City and County of San Francisco in the event that Martin Substation becomes inoperable due to an extreme event.

Pacific Gas & Electric Company (PG&E) filed an application with the California Public Utilities Commission (CPUC) for a Certificate of Public Convenience and Necessity to authorize the construction and operation of the proposed project. The application was filed December 28, 2017, and includes the Proponent's Environmental Assessment (PEA) prepared by PG&E (2017). The project application and PEA—with PG&E's responses to CPUC's data requests, including Data Request 1 (PG&E 2018a), Data Request 2 (PG&E 2018b), Data Request 3 (PG&E 2018c), Data Request 4 (PG&E 2018d), Data Request 5 (PG&E 2019a), and Data Request 6 (PG&E 2019b)—describe the proposed project.

B.2 PROJECT OBJECTIVES

The California Independent System Operator Board of Governors concluded in its 2014–2015 Transmission Plan that the low-probability yet high-impact event of a service failure at Martin Substation constituted a significant reliability concern that requires mitigation under its planning standards and recommended the proposed project (CAISO 2015).

According to PG&E, the primary objectives of the proposed project are to:

- Improve the reliability of PG&E's transmission system serving the City and County of San Francisco by constructing a new 230 kV switching station in the vicinity of Martin Substation that provides a high likelihood of continued electric service to the City and County of San Francisco should an extreme event render Martin Substation inoperable.
- Construct a safe, economically, and technically feasible project that minimizes environmental impacts and would receive 230 kV power from the south and transmit it to the City and County of San Francisco.
- Provide a 230 kV connection between a new switching station and Martin Substation to enable the transmission system serving the City and County of San Francisco to operate

in the event that a 230 kV transmission line serving either Martin Substation or the proposed switching station experiences an unplanned outage.

B.3 PROJECT LOCATION

The proposed project consists of construction of a new Egbert Switching Station; extensions to two existing 230 kV transmission lines to connect to the new switching station; and minor modifications to the existing Embarcadero, Jefferson, and Martin Substations. As shown in Figure B-1, Regional Map, the project is located primarily within the limits of the City and County of San Francisco, with the southern portion of the proposed Jefferson-Egbert transmission line located in San Mateo County within the Cities of Brisbane and Daly City. The proposed Egbert Switching Station would be constructed in the City and County of San Francisco, whereas the connecting 230 kV lines run underground beneath mostly the urban streets of San Francisco, Brisbane, and Daly City (Figure B-2, Project Location, and Figures B-2a through B-2e). Dominant geographic features that intersect the project include U.S. Highway 101, San Bruno Mountain State Park, and John McLaren Park.

Within the developed San Francisco neighborhoods of Bayview, Excelsior, Visitacion Valley, and Crocker Amazon, existing land use is primarily residential, with commercial along 3rd Street and the U.S. Highway 101 corridor, and a mix of residential with light industrial development in the area surrounding the proposed switching station. Approximately one to three staging areas totaling up to approximately 15 acres would be identified (Figure B-3, Potential Staging Areas). Two potential staging areas in San Francisco are in the Southern Waterfront industrial area owned by the Port of San Francisco. The portion of the proposed Jefferson-Egbert transmission line to be constructed under Daly City streets, including Geneva Avenue and Carter Street, runs next to a mix of light and heavy commercial, residential, and public park land uses. Two potential staging areas are adjacent to the proposed Jefferson-Egbert transmission line along Carter Street near and at the intersection with Geneva Avenue. Another two potential staging areas are within the existing Martin Substation. The proposed Jefferson-Egbert transmission line includes a short 0.1-mile stretch under Brisbane streets through public park land use. Approximately 740 acres of unincorporated San Mateo County are found within 1 mile of the project, the majority of which (93%) is located within San Bruno Mountain State Park and is currently used for open space or public recreation. The remainder of unincorporated San Mateo County land within 1 mile of the project is found on the far south side and is occupied with general or heavy industrial existing uses.

B.4 PROJECT DESCRIPTION

The proposed project evaluated in this Environmental Impact Report (EIR) includes three primary components: (1) construction of the new Egbert Switching Station; (2) construction of a new 230 kV Jefferson-Egbert transmission line, which includes modification to the existing

Jefferson-Martin 230 kV transmission line (Jefferson-Martin transmission line) where the line is rerouted from the existing Martin Substation to the proposed Egbert Switching Station; and (3) modification to the existing Martin-Embarcadero No. 1 230 kV transmission line (Martin-Embarcadero transmission line) where proposed line extensions loop the proposed Egbert Switching Station through the line, creating two separate new 230 kV lines—the Egbert-Embarcadero 230 kV transmission line (Egbert-Embarcadero transmission line) and Martin-Egbert 230 kV transmission line (Martin-Egbert transmission line). In addition, PG&E proposes minor modifications to the existing Embarcadero, Jefferson, and Martin Substations that are required to support the project. The primary project components and locations are shown on Figure B-2, Project Location, and Figures B-2a through B-2e.

B.4.1 Proposed Egbert Switching Station

The Egbert Switching Station is proposed to be constructed on approximately 1.7 acres located at 1755 Egbert Avenue, San Francisco (Figure B-2, Project Location, and Figure B-2a). The relatively flat site is currently used as a lumber yard and material storage yard, which is heavily disturbed and covered in gravel. The unvegetated site gently slopes toward the northeast, with on-site elevations ranging from approximately 29 to 36 feet above mean sea level.

The new 230 kV switching station would use gas-insulated switchgear (GIS) equipment. The 230 kV GIS would be configured as a breaker-and-a-half bus arrangement to accommodate the three transmission cables (from the existing Martin, Jefferson, and Embarcadero Substations). An approximately 11,000-square-foot building would house the following:

- GIS equipment
- Modular protection, automation, and control system for control, metering, and protection
- AC and direct current station batteries systems for power backup

The GIS equipment would connect to the underground transmission cables through a gas-insulated bus and through a cable-to-sulfur hexafluoride (SF_6) termination unit located outside the building's walls. The building height would be approximately 40 feet above grade to accommodate the installation, operation, and maintenance requirements of the electrical equipment. Figure B-4, Egbert Switching Station Site Plan, depicts the proposed components for the Egbert Switching Station. The proposed switching station's outdoor equipment would include the following:

- One 230 kV, single-phase, three-step series reactor with circuit switchers
- Two 230 kV shunt reactors
- One pad-mounted station voltage service transformer with cable-to-air bushing connections at the GIS building

- One oil pump house for the proposed Egbert-Embarcadero and Martin-Egbert transmission lines
- One station service transformer for 120/240-volt alternating-current power

The series reactor connected to the proposed Jefferson-Egbert transmission line would control the flow of current required by certain operating conditions in the transmission system. The oil-immersed shunt reactors connected to the proposed Jefferson-Egbert and Egbert-Embarcadero transmission lines would mitigate the high capacitance created by the long, underground transmission cables. The reactors would be partially enclosed to provide visual screening.

A 12-foot-high perimeter fence would surround the site and is proposed to be expanded metal mesh that would provide semi-obscured visibility into the facilities exterior yard. Along the Egbert Avenue frontage, the fence would be set back 5 to 10 feet from the property line to allow an area for new sidewalk and new landscaping. Landscaping may include low-growing landscaping such as bushes and/or groundcover that meet safety and security requirements. In addition, two approximately 20-foot-wide entry gates would be provided, one along Egbert Avenue, and the other on the northwest corner of the site. Pedestrian access gates would be installed adjacent to the vehicle entry gates.

Lighting would be installed at the Egbert Switching Station for safety and security purposes. Limited outdoor lighting would be installed near equipment and access gates, and would operate during nighttime hours. Design and layout for new outdoor lighting at the switching station would incorporate measures such as use of non-glare or hooded fixtures. The outdoor lighting would be operated only as needed to support security technology and safety during unplanned work at night. All lights would be directed downward to minimize the potential for spillover to adjacent properties.

B.4.2 Proposed Jefferson-Egbert Transmission Line

A new approximately 3.1-mile 230 kV underground transmission line would be installed between an existing Jefferson-Martin transmission line vault near the intersection of Guadalupe Canyon Parkway and Carter Street in the City of Brisbane and the proposed Egbert Switching Station in the City and County of San Francisco (Figures B-2 and B-2a through B-2e).

The proposed Jefferson-Egbert transmission line would start its bypass from the existing vault near the intersection of Carter Street and Guadalupe Canyon Parkway and continue north along Carter Street in the public right-of-way (ROW) along city streets. From Carter Street, the transmission line would turn east onto Geneva Avenue, north on Santos Street, east on Sunnydale Avenue, and north on Hahn Street before turning west on Visitacion Avenue and winding northward until crossing eastbound Mansell Avenue. Once at the westbound lane of Mansell Avenue, the proposed Jefferson-Egbert transmission line would head east to a trenchless crossing of a State of California property east of San Bruno Avenue.

The trenchless transmission line would continue east across U.S. Highway 101 to the intersection at Bayshore Boulevard and Crane Street. The transmission line would then continue north along Crane Street, crossing Paul Avenue onto privately owned properties at 400 Paul Avenue and 200 Paul Avenue until the transmission line would terminate at the proposed Egbert Switching Station. Routing on these two parcels would be refined during final design with review of the as-built data center infrastructure at 400 Paul Avenue. When the existing Jefferson-Martin transmission line from Jefferson Substation would be spliced with the new transmission line at the vault, the splice would create the proposed Jefferson-Egbert transmission line. The remnant of the existing Jefferson-Martin transmission line toward Martin Substation would be removed from service by disconnecting the transmission line at the vault. The transmission line remnant between the vault and Martin Substation would be left in place for possible, yet unplanned, future use not associated with the proposed project.

The main elements of the proposed Jefferson-Egbert transmission line would include the following:

- Installing a new duct bank system with vaults located approximately every 1,800–2,000 feet along the length of the transmission line
- Installing and splicing new cable and fiber-optic lines to connect the Jefferson transmission line with the proposed switching station

B.4.2.1 Underground Cable

To match the existing cable type and installation, the new 230 kV transmission line connecting into the proposed Egbert Switching Station from the existing Jefferson Substation would use a single-cable-per-phase, 2,500-thousand-circular-mils copper conductor, 230 kV, solid-dielectric cross-linked polyethylene (XLPE), underground cables to be installed in a buried, concrete-encased duct bank system.

The dimensions of the duct bank would be approximately 2 feet and 9 inches wide by 2 feet high, although typical dimensions may vary depending on soil stability and the presence of existing substructures. The duct bank would maintain a minimum 36 inches of cover. The duct bank would use four 6-inch and two 4-inch PVC conduits, which would be encased in a thermal concrete casing.

Fiber-optic lines for system protection and communication would be installed in the 4-inch diameter conduits that would be mounted alongside the 6-inch-diameter conduits and within the duct bank. The existing fiber-optic cable that follows the existing Jefferson-Martin underground transmission line is a 72-strand cable. A 72-strand fiber-optic cable would be installed from the existing Jefferson-Martin transmission line (vault near the intersection of Carter Street and Guadalupe Canyon Parkway) to the proposed Egbert Switching Station. At the interconnection point, the new 72-strand fiber cable would be spliced into the existing cable so that 36 of the new

fibers are directly connected toward the existing Jefferson Substation and 36 of the new fibers are directly connected to the existing Martin Substation.

Most of the duct bank would be in a two-by-two duct configuration. Depending on the existing facilities within the route, the duct bank package may require transitioning to a vertical or horizontal arrangement to maintain clearance from these existing facilities.

B.4.2.2 Trenchless Crossing at U.S. Highway 101

Auger bore installation is the expected method for the proposed Jefferson-Egbert transmission line to cross beneath U.S. Highway 101. The eastern end of the crossing is located at the intersection of Bayshore Boulevard and Crane Street. The crossing would continue under U.S. Highway 101 and San Bruno Street until reaching its western end, located west of the intersection of Mansell Street (westbound) and San Bruno Avenue. The total estimated length of the crossing is approximately 420 feet. Other locations along the routes may be considered for trenchless technology as engineering design continues and identifies constraints (e.g., utility congestion) where use of trenchless technology would reduce construction impacts.

B.4.3 Proposed Egbert-Embarcadero and Martin-Egbert Transmission Lines

To create the proposed Egbert-Embarcadero and Martin-Egbert transmission lines, two new transmission line segments, each approximately 0.4 miles long, would be installed between the proposed Egbert Switching Station and the existing Martin-Embarcadero transmission line near the intersection of Bayshore Boulevard and Bacon Street (Figure B-2a). One new transmission line would be spliced into the existing Martin-Embarcadero transmission line north of the intersection in Bayshore Boulevard to create the proposed Egbert-Embarcadero transmission line. The other transmission line would be spliced into the existing Martin-Embarcadero transmission line on the western side of the Bacon Street and Bayshore Boulevard intersection to create the proposed Martin-Egbert transmission line. The electrical interconnection with the new transmission line extensions would occur at existing Martin-Embarcadero transmission line vaults on Bayshore Boulevard and Bacon Street, respectively. The new transmission lines would extend east from the Bayshore Boulevard and Bacon Street intersection along Egbert Avenue to the proposed switching station site. The new transmission lines would exit franchise and public ROW near the northwest corner of the Egbert Switching Station site, approximately 215 feet west of the Egbert Avenue terminus. The Egbert-Embarcadero and Martin-Embarcadero transmission lines would require an easement to cross up to four properties (three private properties and one property owned by the State of California) adjacent to the northern boundary of the Egbert Switching Station site, to connect to the proposed switching station.

The main elements of the proposed Egbert-Embarcadero and Martin-Egbert transmission lines would include the following:

- Installing a new duct bank system for each transmission line with one or two vaults located on Egbert Avenue
- Installing and splicing new pipe and fiber-optic lines to loop the intersected existing Martin-Embarcadero transmission line into the proposed switching station

B.4.3.1 Underground Cable

To match the existing cable type and installation, the two new transmission line extensions connecting to the existing Martin-Embarcadero transmission line would use a single-cable-per phase, 2,500-circular-mils copper conductor, 230 kV high-pressure, fluid-filled (HPFF) kraft-paper-insulated cable.

The dimension of the duct bank would be approximately up to 4 feet wide by 2 feet and 6 inches high, and the pipe would maintain a minimum 36 inches of cover. The duct bank would use one 10-inch steel pipe and one 2-inch PVC conduit, which would be encased in a slurry or appropriate alternative such as sand. The electrical conductors would be installed in the steel pipe, and fiber-optic cable would be installed in the PVC pipe.

B.4.3.2 Bypassed Existing Martin-Embarcadero 230 kV Transmission Line

The bypassed existing Martin-Embarcadero transmission line remnant would be removed from service with modifications to the existing civil and electrical interconnections. The cable, dielectric fluid, and splices would be removed from the existing civil infrastructure (i.e., termination stands, vaults, and duct banks) and the electrical interconnections for about 200 feet. The existing steel pipe is expected to be capped in place. The civil infrastructure left in place may be used for other future yet unplanned transmission/distribution projects not associated with the proposed project.

B.4.4 Existing Martin Substation

Once the proposed Egbert Switching Station is in operation and the existing Jefferson-Martin transmission line has been rerouted to the new switching station, the Jefferson transmission line terminal and associated equipment at Martin Substation would be removed. The following equipment would be removed:

- Three 230 kV, single-phase series reactors
- One 230 kV shunt reactor
- Four sets of 230 kV circuit switchers

- One 230 kV circuit breaker
- Three 230 kV cable overhead to underground terminations and associated structures
- Three 230 kV coupling capacitor voltage transformers
- Three 230 kV surge arresters
- Four 230 kV dead-end tubular steel structures and associated bus bars and cables
- One set of 230 kV coupling capacitor voltage transformer tubular steel structures

Equipment modifications to Martin Substation would occur within the existing substation fence line. Indoor relay-related work would occur within the substation control room as necessary to coordinate with the protection and control equipment at the proposed Egbert Switching Station.

B.4.5 Existing Embarcadero and Jefferson Substations

Minor modifications for protection and control of the rerouted existing Jefferson and Embarcadero transmission lines would occur at the existing Embarcadero and Jefferson Substations. The indoor work would occur within the substation control room and include relay-related work to coordinate the system protection schemes.

B.5 PROJECT LAND AND RIGHT-OF-WAY REQUIREMENTS

The *horizontal* proposed project area of potential effect includes the location of the proposed Egbert Switching Station (1.7 acres); approximately 3.9 miles of new underground transmission line, to be installed primarily in paved streets, of which 420 feet would be installed under U.S. Highway 101 using trenchless technology (probably auger boring); equipment removal at a small area within Martin Substation; and up to approximately 15 acres of equipment staging and laydown areas in existing city streets, a warehouse, and/or on existing paved or graveled areas. The potential staging/laydown areas have existing industrial uses, including staging for construction for other projects, and no new ground disturbance is expected.

The *vertical* area of potential effect for the project includes the depth of trenching, excavation, and trenchless work along the proposed routes (up to 15 feet); the equipment foundation removal at Martin Substation (up to 3 feet of concrete foundations, with no soil disturbance); and up to 100 feet at the proposed switching station site for ground rod installation.

The project would permanently alter the use on 1.7 acres of the Egbert Switching Station site. All other areas along the 230 kV alignment would be temporarily impacted during construction of the underground transmission lines.

B.6 CONSTRUCTION ACTIVITIES AND METHODS

This section presents an overview of construction methods typically used for construction of a new switching station and installation of underground transmission lines, and describes general construction considerations for construction work areas.

Construction of the proposed project would include installation of vaults, duct banks, and a cable system using a cut-and-cover method (open trenching) along the majority of the route. Where the proposed Jefferson-Egbert transmission line crosses under U.S. Highway 101, a trenchless technology method would be used. PG&E's proposed construction schedule is presented in Section B.6.1. Sections B.6.2 through B.6.7 present descriptions of the proposed project's anticipated construction and post-construction activities and methods. Section B.6.8 provides construction employment, equipment, and materials that would be utilized during construction.

B.6.1 Construction Schedule

The proposed construction would commence after securing all required approvals and permits. The construction of all project components is expected to require approximately 22 months to complete and would require using multiple crews working simultaneously on different project components. Table B-1 provides PG&E's proposed schedule for the proposed project. While the schedule would be modified to begin after CPUC approval, Table B-1 illustrates the approximate length of each construction phase. The construction activities included in the estimate duration include the construction of underground transmission line sections; trenchless crossing (auger bore) construction for the portion beneath U.S. Highway 101; construction of the switching station, minor modification to Martin Substation, the system protection scheme updates at Embarcadero, Jefferson, and Martin Substations; and overall cable system testing and commissioning.

Construction would typically occur between 7:00 a.m. and 8:00 p.m. or during times set through coordination with the City and County of San Francisco and the Cities of Daly City and Brisbane. If trenching work would cause traffic congestion, the proposed project may require nighttime work to avoid traffic disruption. Longer workday hours and nighttime work may be required to support activities that need to continue to completion such as splicing activities. Applicable city; county; state; federal; and railroad regulations, ordinances, and restrictions would be identified and complied with prior to and during construction.

Table B-1
Proposed Construction Schedule

Project Activity	Approximate Duration (Months)
Underground transmission line construction	18
Trenchless installation	3

Table B-1
Proposed Construction Schedule

Project Activity	Approximate Duration (Months)
Switching station construction	19
Substation-remote ends construction, testing, and commissioning	5

Source: PG&E 2017.
Notes: Some project activities would be completed simultaneously.

B.6.2 Underground Transmission Line Construction

This section includes an overview of construction methods typically used for underground transmission lines, including the open trench and trenchless methods expected for the proposed project.

Construction of underground transmission lines would include installation of vaults, duct banks, and a cable system using a cut-and-cover method (open trenching) along the majority of the route. Where the proposed Jefferson-Egbert transmission line crosses under U.S. Highway 101, a trenchless technology method would be used, likely auger bore. Vehicles and equipment that are typically used to construct an underground transmission line project are listed in Table B-2.

Table B-2
Equipment Expected to be Used During Project Construction – Transmission Line

Phase/Task	Workers, Equipment	Quantity
Mobilization	Workers	6
	Pickup truck	10
	Large crane	1
	Dump truck	3
	Semi truck	1
Vault construction	Workers	6
	Pickup truck	4
	Excavator	2
	Large loader	1
	Large crane	1
	Dump truck	1
	Concrete truck	2
Trenching	Workers	24
	Large backhoe	3
	Large loader	3
	Large excavator	3
	Sheet driver attachment for excavator	1

Table B-2
Equipment Expected to be Used During Project Construction – Transmission Line

Phase/Task	Workers, Equipment	Quantity
	Portable air compressor	3
	Dump truck	3
	Pickup truck	9
	Roller	1
	Semi truck	2
	Concrete truck	1
	Baker (water) storage tanks	As needed
	Pumps	As needed
	Shoring boxes	Variable
	Tank trucks	As needed
	Material haul trucks	14
	Long haul dump trucks	1
Cable installation and splicing, including cable removal	Workers	22
	Pickup truck	4
	Semi truck	1
	Cable winch	1
	Cable reel cart	1
	Portable generator	1
Trenchless installation/restoration	Workers	6
	Auger-boring machine equipment	1
	Pickup truck	4
	Large crane	1
	Large excavator	1
	Hydraulic breaker attachment for excavator	1
	Sheet driver attachment for excavator	1
	Dump truck	3
	Semi truck	2
	Portable air compressor	1
	Mobile generator	1
	Welding machine	1
	Pavement saw-cutting equipment	1
	Material haul trucks	2

Source: PG&E 2017.

Prior to any excavation, PG&E would notify other utility companies (through the Underground Service Alert) to locate and mark existing underground structures along the proposed alignments and would also conduct exploratory excavations (potholing) to confirm there are no conflicts in the location of proposed facilities. PG&E would apply for a ministerial excavation permit from the City and County of San Francisco, City of Brisbane, and City of Daly City for trenching in city streets. No complete long-term road closures are expected, although one-way traffic controls and short-term road closures would be implemented to allow for certain construction activities and to maintain public safety as described in Section D.13, Transportation.

Materials removed during trench and trenchless excavations, having been pre-characterized, would be placed directly into trucks and removed from the area and disposed of off site at an appropriate landfill. The estimated total amount of materials to be disposed of for transmission line construction is estimated at approximately 33,500 cubic yards (cy) for transmission line excavations, including the trenchless construction. Excavated material may be used as backfill (as allowed) to fill in the pits once the trenchless installation is complete. Depending on agreements in place at the time of project construction, current landfill capacity, and the results of soil characterization, the proposed project may use Ox Mountain Sanitary Landfill, Recology Hay Road Landfill, or another appropriately approved disposal site.

Currently based on soil types, approximately 5% of the material (1,700 cy) may potentially be hazardous material and, therefore, is anticipated for disposal in a facility that accepts hazardous wastes such as Buttonwillow Landfill.

Backfilling material is expected to include various types of engineered material generically referred to as “flowable” or “controlled density fill.” Flowable thermal concrete, lime slurry, or an appropriate alternative (e.g., sand) would be used around the pipes. Controlled density fluidized thermal backfill would be above the pipes. Each material has unique properties specific to its application and both are designed to have thermal characteristics for heat displacement.

For a typical trench, the bottom 2 feet encases the conduit with flowable thermal concrete, or lime slurry in the case of the HPFF installations, and 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.

Dewatering of the trench, vault locations, bore pits, and excavations at the switching station would be conducted using a pump or well points. Groundwater encountered would be sampled and characterized prior to removal and discharge as described in Section D.10, Hydrology and Water Quality. As appropriate, the water may be pumped into containment vessels (Baker tanks); tested for parameters such as turbidity and pH or as otherwise required; and discharged to the

appropriate stormwater or combined stormwater/sewer system, if approved, or trucked to an appropriate treatment or disposal facility.

Open Trench

The first operation during construction of the duct bank and splice vault system would be the placement of the vaults. Because these would be the largest physical components of the facility to be placed underground, it would be typical to have the initial construction crew excavate and place the vaults prior to the trenching and duct bank installation crew work. This process would provide 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. Once adjacent vaults are installed, trenching and duct bank installation between the vaults could begin. Cable installation would occur once the full length of the duct bank for a new transmission line is installed.

Trenchless (Auger Bore)

Trenchless technology is anticipated for installation of the portion of the transmission line beneath U.S. Highway 101, because the existing public ROW lacks available corridors. The auger bore conduit would transition to duct bank conduits on either side of the trenchless crossing. Microtunneling may also be a technically feasible trenchless method for the crossing. However, it is typically more expensive than auger boring, and at the diameter needed, microtunneling would not allow personnel access to the tunnel face, which can make changing the cutting head tools and removing obstructions problematic, increasing the duration of construction activities. In addition, bedrock in the area may contain chert nodules, which can be highly abrasive and result in premature cutter wear during microtunneling.

Auger boring is a multistage process that typically involves jacking a steel casing from a launching pit to a receiving pit (or launching shaft to receiving shaft). The materials encountered at the face of the bore are removed by augers contained within the casing. The spoils are removed by the augers to the launching pit where, having been pre-characterized, they would be placed directly into trucks and disposed of off site at an appropriate landfill. Once the casing reaches the receiving pit, the augers are removed and the casing is cleaned. In this instance, the steel casing would be extruded by a different material casing (e.g., a pipe that is centrifugally cast, glass-fiber-reinforced, polymer mortar), which is considered a “two-pass” installation.

Typical accuracy of auger boring is in the range of approximately 6 inches per 100 feet of drive; however, this accuracy is typically increased by using a pilot tube guidance system to establish the centerline of the alignment.

Auger bore operations are expected to last for approximately 6 weeks, starting with securing the area around the pits, which generally includes closing one lane and restricting street parking on at least one side. Work would include the following steps:

1. Excavating and shoring the launching and receiving pits
2. Inserting the auger boring rig into the launching pit
3. Advancing the auger bore casing
4. Installing the HOBAS® casing, and pushing the steel boring casing out
5. Pulling fused sections of high-density polyethylene/fusible PVC conduits into the bore holes
6. Grouting the annulus between the casing and conduits
7. Connecting the ends of high-density polyethylene pipes into the duct banks
8. Pulling the cables through the high-density polyethylene/fusible PVC pipes, through the duct banks, and then into the splice vaults
9. Restoring the area to pre-construction conditions

The auger boring machine and support equipment would be readied for operation within the available temporary workspace. Plastic sheeting, or other appropriate containment, would be placed under the boring machine and under any support equipment that may have a potential for a hydraulic, fuel, or oil leak. An auger bore is not expected to use lubricant during operation. If microtunneling technology is used, a small amount of cutting lubricant (generally water or a water/bentonite mix) would be used in front of the cutting head. Lubricant containers would have secondary containment. Used containers would be placed into 50-gallon drums and disposed of using a disposal vendor. During activities using a lubricant, construction crews would place spill containment at the location. Silt fence or other erosion control devices would be implemented around the boring equipment site. A temporary chain-link fence would be installed around the boring site.

At the eastern work zone, the auger bore pit would be located approximately 90 feet from U.S. Highway 101 near the intersection of Bayshore Boulevard and Crane Street, which is roughly at grade with the adjacent U.S. Highway 101. The auger bore would run under U.S. Highway 101 and San Bruno Avenue for a total approximate length of 420 feet. The western work zone is located west of the intersection of Mansell Street (westbound) and San Bruno Avenue. The auger bore path would be installed 12–15 feet below ground.

The auger bore launch pit is expected to be approximately 15 feet wide, 35 feet long, and 15 feet deep. The receiving pit is expected to be slightly smaller, with dimensions of approximately 12 feet wide, 15 feet long, and 12 feet deep. The launching and receiving pits would be protected within temporary traffic control barriers. Excavation would result in a total loose volume of

approximately 425 cy, most of which would be hauled off site for disposal but may be used as backfill (as allowed) to fill in the pits once the trenchless installation is complete. Soil stockpiling within the work area is not expected. Excavation of launching and receiving pits would require saw cutting the asphalt and excavating with a backhoe. The launching and receiving pits are expected to require shoring components, such as driven sheet piles or slide rail steel sheeting, but the shoring type would be determined by soil and groundwater conditions. Soil borings obtained during final design work would be used to identify areas of Colma sand, a soil type that is expected to need driven sheets for excavation shoring.

Within the auger bore workspace, it is anticipated that the auger boring machine, excavator, material laydown area, and access for dump trucks for excavated/bored soils removal would be required.

Final engineering design may indicate that trenchless construction at other locations on the proposed Jefferson-Egbert transmission line, such as those with utility congestion or other constraints, would reduce construction impacts. Construction methods would be similar to the crossing of U.S. Highway 101, as described previously.

Existing 230 kV Transmission Lines Remnants – Removal from Service

To accommodate the splice to create the proposed Jefferson-Egbert transmission line, the remnant of the existing Jefferson-Martin transmission line cable would be removed from service. The transmission line remnant would remain idle in place between the splice location at the existing vault on Guadalupe Canyon Parkway near Carter Street and its termination in Martin Substation. The idle cable would be de-energized and capped at the vault work area.

Removing the existing Martin-Embarcadero transmission line remnant from service would address both the existing civil and electrical interconnections. Modifications are expected to include the removal of the cable, dielectric fluid, and splices for approximately 200 feet of the bypassed existing Martin-Embarcadero transmission line between the new transmission line interconnection points. Access is expected from existing vaults, freeze locations, or the splice locations with the new transmission lines described previously. The steel casing pipe is anticipated to be removed, capped, and pressurized with nitrogen or grouted in place. The existing civil infrastructure (i.e., termination stands, vaults, and duct banks) is expected to be left in place.

B.6.3 Egbert Switching Station Construction

Construction of the new switching station would begin with site preparation followed by the installation of the ground grid and building and exterior equipment foundations. The construction of the building would precede the exterior equipment installation, which would then be followed by the internal equipment installation, bus work, and cabling. Final grading, paving, and exterior wall

construction, along with cleaning and landscaping, would occur while testing and commissioning completes. Equipment expected to be used, including duration and purpose, is provided in Table B-3.

Table B-3
Equipment Expected to Be Used During Project Construction – Switching Station

Phase/Task	Workers, Equipment	Quantity
Civil site preparation	Workers	6
	Pickup truck	5
	Crawler backhoe	1
	Bulldozer	1
	Front loader	1
	Short-haul dump truck/material haul truck	5
	Long-haul dump truck	5
	Compactor	1
Building foundations excavation and install	Workers	8
	Pickup truck	5
	Crawler backhoe	1
	Concrete truck	14
	Front loader	1
	Short-haul dump truck	4
	Long-haul dump truck	2
	Compactor	1
Remaining equipment foundations	Workers	6
	Pickup truck	5
	Crawler backhoe	1
	Concrete truck	1
	Dump truck	4
	Compactor	1
Ground grid and conduits	Workers	6
	Pickup truck	5
	Crawler backhoe	1
	Trencher	1
	Dump truck	4
	Compactor	1

Table B-3
Equipment Expected to Be Used During Project Construction – Switching Station

Phase/Task	Workers, Equipment	Quantity
Building delivery and setup	Workers	10
	Pickup truck	2
	Man lift	1
	Forklift	1
	Boom truck	1
	Mobile crane	1
Set series and shunt reactors on pads	Workers	8
	Pickup truck	2
	Boom truck	1
	Mobile crane	1
Screen walls	Workers	6
	Pickup truck	3
	Rigging truck	1
	Forklift	1
	Man lift	1
	Mobile crane	1
Install GIS equipment and wire, control room and battery room equipment, 230 kV bus work, cable installation, and dress/test/wire equipment	Workers	34
	Pickup truck	5
	Rigging truck	1
	Forklift	1
	Man lift	2
	Boom truck	1
Install and test oil pump house, station service voltage transformers	Workers	6
	Pickup truck	4
	Mobile crane	1
Testing and commissioning	Workers	4
	Pickup truck	4
	Man lift	1
Exterior walls, final grading, and paving	Workers	6
	Pickup truck	4
	Boom truck	2
	Small backhoe	1
	Concrete truck	15

Table B-3
Equipment Expected to Be Used During Project Construction – Switching Station

Phase/Task	Workers, Equipment	Quantity
Cleanup and landscaping	Workers	8
	Pickup truck	6
	Small backhoe	1
	Concrete truck	2

Source: PG&E 2017.
Notes: GIS = gas-insulated switchgear; kV = kilovolt.

Step 1 – Site Preparation

Activities needed to prepare for switching station construction include contractor equipment and personnel mobilization, utility locations, surveys, and similar construction support. Any necessary permits would be obtained, and construction areas would be delineated, including the switching station site and trenching for underground high-voltage transmission lines leading to the switching station. Public safety systems (e.g., fencing and signage) would be put in place as part of final preparations before beginning construction work.

The estimated total volume of soil to be disposed from excavation for site preparation, building and equipment foundations, and equipment pads at the switching station is approximately 4,200 cy. Up to 25% (or approximately 1,000 cy) of the soil may be contaminated. In situ soil characterization would occur, or soils may be stored on site until waste characterization is complete, before being disposed of in one or more of the facilities described in Section F.1.6.

PG&E would install stormwater management controls at the switching station for its operations phase that comply with local regulations and guidelines.

A grounding grid composed of 4/0 American wire gauge cables would be laid out inside the property at a depth of approximately 18 inches. The grid is typically made up of sections that average 40 feet by 40 feet, but the final size of the grid sections would be determined when design is complete. In addition to ground rods, ground wells may be needed for ground grid purposes depending on the soil resistivity studies. PG&E may need to install grounding rods up to 100 feet deep, depending on the ground grid design, which is based on the ground grid analysis and soil resistivity.

Step 2 – Building and Perimeter Fencing

This step includes work related to the installation of the building, equipment enclosures, and site development (including access from Egbert Avenue), as well as preparation for the installation of exterior high-voltage equipment, including the series reactor, two shunt reactors, pump house,

and station service voltage transformer. Including the outdoor equipment, the proposed Egbert Switching Station would use the majority of the parcel with allocations for maintenance vehicle access. Power for use during construction of the building structure is expected to be provided by an existing service drop or a new distribution tap from Egbert Avenue.

The expected depth of excavation for on-site contouring would be approximately 1 foot over 16,000 square feet. The excavation for the building, driveways, and equipment slabs would be approximately 2 feet over 36,000 square feet. In total, 25 GIS building piers or piles are expected to be installed to a depth of 20 feet.

The perimeter fence and equipment enclosures are expected to require approximately 60 piers or piles installed to a depth of 15 feet. The switching station would be secured during operation by a 12-foot-high fence around the perimeter with two 20-foot-wide access gates. The perimeter fence would be set back 5–10 feet away from the property line along Egbert Avenue to provide opportunities for a new sidewalk and landscaping. The new switching station would include outdoor lighting for safety and security purposes. Design and layout for new outdoor lighting at the switching station would incorporate measures such as use of non-glare or hooded fixtures and directional lighting. The outdoor lighting would be operated only as needed to support security technology and safety during unplanned work at night.

Step 3 – 230 kV System Interconnection

The proposed Egbert Switching Station facility would connect new transmission lines to the 230 kV HPFF transmission line (existing Martin-Embarcadero transmission line from Embarcadero Substation) and the 230 kV solid dielectric transmission line (Jefferson-Martin transmission line from Jefferson Substation). These connections would occur through cable-to-GIS terminations located on the exterior walls of the GIS enclosure buildings. The XLPE cables (Jefferson-Egbert transmission line) would transition from a horizontal duct bank arrangement to a vertical installation with supporting clamps located below the terminations and GIS bus. For the HPFF transmission lines (proposed Embarcadero-Egbert and Martin-Egbert transmission lines), the 10-inch steel pipe would transition to a vertical arrangement. Once above grade, a trifurcation assembly would be installed to allow separation of the individual phase cables located within individual stainless steel pipes. This trifurcation assembly would also offer a connection point for the fluid pumping plant, which would provide the necessary fluid pressure on the HPFF cables to maintain the required electrical insulation levels. Once the cables have been trifurcated, each cable would be connected to its GIS terminations. Aboveground interconnections would be located within the Egbert Switching Station site and proposed fence line.

Step 4 – Equipment Installation and Testing

Equipment installation would begin following completion of the switching station building. The conceptual building design provides for multiple installation functions to proceed concurrently.

Cabling and equipment testing can take place alongside assembly work. Cable installation work at the switching station building would take place outside the GIS equipment building.

Step 5 – Cable Connection, Energizing, and Commissioning

Once installed, the new 230 kV cables would be connected into the new switching station equipment, then the cables would energized and final switching station tests would be performed.

Final site restoration (including general cleanup, final grading and paving, and any wall finish or exterior landscaping) is also expected to occur during this step.

B.6.4 Martin Substation Modification

Construction at the existing Martin Substation would include minor modification to disconnect the Jefferson-Martin transmission line terminal and remove its associated equipment. The Jefferson transmission line terminal at Martin Substation can be removed after the proposed Egbert Switching Station facility is in operation and the Jefferson-Martin transmission line has been rerouted to the new switching station (e.g., when the proposed Jefferson-Egbert transmission line is in operation). The following equipment would be removed:

- Three 230 kV, single-phase series reactors
- One 230 kV shunt reactor
- Four sets of 230 kV circuit switchers
- One 230 kV circuit breaker
- Three 230 kV cable overhead to underground terminations and associated structures
- Three 230 kV coupling capacitor voltage transformers
- Four 230 kV dead-end tubular steel structures and associated bus bars and cables
- One set of 230 kV coupling capacitor voltage transformer tubular steel structures

Equipment would be electrically isolated from the in-service equipment for safe disassembly and removal. Boom trucks and man lifts would be used during disassembly of the bus bars, cables, and supporting structures. The wiring to the equipment would be de-terminated and pulled back to a pull box or removed entirely. Control and protective devices would be removed or tagged as out of service.

Oil and SF_6 gas would be removed from the equipment and disposed of to prepare the units for transport. A boom truck and crane would be used to load the equipment for transporting to a material yard for reuse or to a salvage yard for disposal.

The foundations would be removed to 3 feet below grade using a backhoe, jackhammer, and hand tools. A full list of equipment expected to be used, including duration and purpose, is provided in Table B-4. Approximately eight trucks trips are expected to off-haul concrete foundation material to an appropriate recycling/disposal facility.

B.6.5 Remote-End Substations System Protection Scheme Coordination

Prior to placing the new transmission lines and switching station components into service, PG&E must ensure that the components, as well as the overall system, have adequate protection from faults and other electrical abnormalities. At the new switching station, system protection equipment would be integrated into the final design and installed as part of the station construction. The system protection equipment at Jefferson, Martin, and Embarcadero Substations and the grid control centers would be evaluated as part of the final design. To coordinate with the new equipment, the equipment (relays) may require adjustments or may need to be upgraded or replaced.

Simple setting adjustments may be sufficient for protective devices of the same vintage and compatibility. Firmware upgrades may be needed if the devices are not of the same vintage and capability. Full device replacement would be required if the vintage, capability, and compatibility cannot be matched with the new equipment at the switching station.

Work would occur within the control rooms of the existing facilities and would be 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. Depending on the scope, the duration could be 1 day, for setting adjustments, to 5 weeks, for replacement of system protection devices. The trucks expected to be used for personnel and material transport are listed in Table B-4.

Table B-4
Equipment Expected to Be Used During Project Construction – Remote-End Substations

Project Phase/Task	Workers, Equipment	Quantity
Equipment removal at Martin Substation	Workers	6
	Pickup truck	5
	Man lift	1
	Dump truck/material haul truck	2

Table B-4
Equipment Expected to Be Used During Project Construction – Remote-End Substations

Project Phase/Task	Workers, Equipment	Quantity
	Boom truck	1
	Mobile crane	1
	Semi truck	1
	Oil truck	1
	Small backhoe	1
	Jack hammer	1
Protection upgrades at Martin, Embarcadero, and Jefferson Substations	Workers	2–3
	Pickup truck	2–3

Source: PG&E 2017.

B.6.6 Construction Methods

Staging Areas

PG&E would utilize one to three staging areas, totaling up to approximately 15 acres, during construction (Figure B-3). It is anticipated that most of the staging areas would be located within approximately 3 miles of the work areas; however, existing PG&E facilities or other locations currently used for staging or storage may be used as well. Staging areas may include portions of the proposed Egbert Switching Station site; Martin Substation; warehouses; ruderal, paved, or graveled sites; or other existing commercially available off-site office, warehouse, or yard space. Potential staging areas within Martin Substation, along Carter Street in the City of Daly City and the City and County of San Francisco, and along Amador Street in the City and County of San Francisco have been identified; however, specific staging area locations would be determined based on staging areas that are available at the time of construction. Site preparation, such as sensitive vegetation removal or construction of a new access road, is not expected; however, blading uneven surfaces, compacting soil, and spreading gravel on site may be required for safety and to control erosion. In addition, temporary perimeter fencing and security measures, such as on-site security personnel, may be needed if none are currently in place.

Additional staging may occur on city streets in temporarily closed lanes associated with transmission line construction activities. Staging is expected to occur in the locations shown as auger bore work areas at the intersection of Bayshore Boulevard and Crane Street, and at the intersection of Mansell Street (westbound) and San Bruno Avenue. Typical materials that would be used for construction of the underground conduits (e.g., PVC conduit, steel pipe, rebar, shoring, and cable reels) would be staged on site in work areas during construction or at an existing commercially available warehouse or yard space. Staging area use typically includes

office trailers (which may be used by contractors or agencies for project construction offices), crew and equipment assembly areas, safety and tailboard training areas, and equipment and materials storage (e.g., water tanks and vehicle parking).

Temporary power for construction activities would be pulled from local electrical service. Portable generators (typically 2,000 watts or less) may also be used on a limited basis to provide supplemental power, depending on the number of trailers and construction activity needs.

Temporary Work Areas

During construction activities, temporary work areas would be required to construct the proposed Egbert Switching Station, extend the existing underground Jefferson-Martin 230 kV transmission line to the proposed Egbert Switching Station, and loop the proposed Egbert Switching Station through the existing underground Martin-Embarcadero transmission line.

The majority of the temporary work areas is expected to be located in public ROW for construction of the three new transmission lines; the proposed Egbert Switching Station; within Martin Substation; and within the control rooms of Embarcadero, Jefferson, and Martin Substations.

Construction work for the proposed Egbert Switching Station and work at the existing Embarcadero, Martin, and Jefferson Substations is expected to be within the respective property limits. The Jefferson-Martin transmission line termination equipment removal at Martin Substation would use the area within the substation adjacent to the equipment.

Project construction site offices are not expected to require generators, because they are typically given access to temporary power, such as a tap, or use existing office space. The proposed Egbert Switching Station construction would use power from a distribution line tap from Egbert Avenue. Embarcadero, Martin, and Jefferson Substations would use the existing power at those locations.

Prior to the duct bank installation, vaults would be installed approximately every 1,800–2,000 feet. Vault staging, excavation, installation, and backfilling activities require approximately 1,500 square feet of workspace. Once the vaults are installed, the workspace for open trenching operations to install the duct bank between the vaults may typically extend up to approximately 1,500 feet long by 12 feet wide. This workspace would include the following sequential activities:

- An active excavation or open trench, which typically extends 100–200 feet in length
- An adjacent excavated length where the duct bank is being installed
- An adjacent length being backfilled and restored
- Other typical work area activities, including temporary material staging

Trenching work is generally expected to progress at an average of 40 linear feet per day for each of the multiple crews, depending on soil conditions, existing utilities, and other considerations. In general, closure of one travel lane and one parking lane is expected during the transmission line construction, and approximately 100–200 feet of trench would be open at any one time, depending on the permitting requirements of the City and County of San Francisco, City of Daly City, and City of Brisbane. Final lane closure plans would be determined following detailed investigations into existing utilities and final construction planning.

Because numerous trucks are required for the soil hauling operation, trucks would be staged near the construction site for rotating hauling activities. Dust control and wet sweeping best management practices (BMPs) would be implemented during excavation.

A trench or excavation (vault or bore pit) would be widened or shored where needed to meet California Division of Occupational Safety and Health safety requirements. A support or excavation system would be installed to maintain the integrity of the excavation, to provide a safe workspace for the assembly of the cable pipe or duct bank package, to provide means for the support of any existing below-grade facilities that the proposed route crosses. The type of excavation support would vary throughout the proposed project based on soil conditions, depth of water table, depth of excavation, and the existing facilities to be supported or avoided.

Methods for excavation support may include, but would not be limited to, the following:

- Trench box
- Wooden shoring and timbers
- Sheet piling
- Steel plate with trench jacks

The current work plan is to, initially, utilize two crews for trenching the Jefferson-Egbert transmission line, with a crew starting at each end. As trenching nears completion on the Jefferson-Egbert transmission line, one crew would move to begin trenching on the new transmission line segments connecting to existing Martin-Embarcadero transmission line. Open trenching on Egbert Avenue is expected to occur on one transmission line at a time. Once the trenching is complete and conduit integrity is certified, final roadway restoration and any asphalt or concrete paving would be completed.

At the trenchless U.S. Highway 101 crossing location, the eastern pit of auger bore operations would be located at the intersection of Bayshore Boulevard and Crane Street within a work area of approximately 8,500 square feet. The western pit of auger bore operations would be located in the median of Mansell Street just west of the intersection of Mansell Street (westbound) and San Bruno Avenue. This western site of the trenchless activities would use a work area of

approximately 3,000 square feet. The vertical launching and receiving pits would be approximately 15 feet by 25–35 feet, depending on location and depth of shallow obstructions. Temporary vehicle barriers would be installed around the pits, and a temporary chain-link fence would be installed around both boring equipment work areas.

To intersect the existing Martin-Embarcadero transmission line, work areas would be established on each side of the transmission line before the splice areas near the intersection of Bacon Street and Bayshore Boulevard. An excavation would be made over the existing transmission line in each location to prepare for transmission line intersection. To manage the fluid in this HPFF transmission line, the current work plan is to use liquid nitrogen to freeze the fluid before cutting into the transmission line. These work areas, commonly referred to as "freeze pits," would be approximately 10 feet by 35 feet. A small shed would be built in each work area to support the freeze monitoring. A liquid nitrogen source (truck or tank) would be staged nearby to maintain the freeze.

Cable installation would occur at the two consecutive vaults. The reel trailer carrying the 14-foot by 8-foot-wide reels would be located in a workspace of approximately 200 feet by 12 feet at one of the vaults. The cable puller would be located at the other vault and would use a workspace of approximately 100 feet by 12 feet wide.

Cable splicing procedures would typically require a single crew truck adjacent to each vault. Actual splicing would occur within the vault, with access through a manhole with aboveground support. Aboveground support would typically consist of a truck with a 20–25-foot splicing trailer and traffic control. The work area required for this activity is typically approximately 75 feet by 12 feet.

The remnant of the existing Martin-Embarcadero transmission line would be removed from service by working at the existing Martin-Embarcadero transmission line splice work areas and/or existing vaults. A work area of approximately 20 feet by 50 feet would be established at the two existing Martin-Embarcadero transmission line vault locations to access the transmission line to support removing the existing transmission line remnant from service before the new transmission line extensions are spliced.

Appropriate traffic control configuration would be set up and in place ahead of construction activities and may include traffic control cones, road flares (if nighttime construction is required), electronic signage board, and temporary fixed warning signs for construction personnel prior to 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 would apply for a California Department of Transportation encroachment permit and a permit from the San Francisco Municipal Transportation Agency (SFMTA), as well as special traffic permits from the City and County of San Francisco, City of Daly City, and City of Brisbane. PG&E would also coordinate provisions for emergency vehicle and local access with city personnel.

Steel plating would be placed over trenches that are not under active construction to allow vehicular and pedestrian traffic to cross the area. In general, no equipment would be left at the trench work area overnight, with the exception of an excavator.

Access

Existing City and County of San Francisco, City of Daly City, and City of Brisbane streets and state highways would be used to access the project site. Access to Jefferson Substation in the County of San Mateo is expected to be from an existing state highway and a county road. No new access roads or road improvements would be required, because the project route is primarily within public roadways.

Vegetation Clearance

Transmission line portions of the proposed project would be underground, and most work and staging areas are expected to be in city streets and paved, graveled, or ruderal areas (e.g., the ROW across 400 Paul Avenue). The new switching station and 400 Paul Avenue are primarily non-vegetated. These sites are primarily composed of compacted dirt and gravel, with ruderal vegetation growing along the existing fence lines. Areas of ruderal vegetation may be removed when the work area would be bladed during surface contouring. Landscaping trees are located on the property of 400 Paul Avenue but are expected to be avoided by construction activities. The western trenchless crossing work area, including the bore pit, of the proposed Jefferson-Egbert transmission line would be located in the landscaped median of Mansell Street. Landscaping within this median includes non-native grasses and landscaping shrubs and trees. Trees in the median are expected to be avoided during construction activities.

In the event that vegetation clearance is needed, disturbance would be minimized to the level needed for construction, and temporarily disturbed areas would be restored to pre-construction conditions once construction is complete. Although not anticipated, should any street trees be affected, PG&E would work with the appropriate city department for tree removal permits as required. Any roots from trees and deep-rooted shrubs would be pruned above the transmission line duct bank to avoid interference.

Erosion and Sediment Control and Pollution Prevention during Construction

PG&E would prepare and implement an erosion and sediment control plan as part of a Stormwater Pollution Prevention Plan (SWPPP) for the proposed project. Measures would address elements such as track-out controls, stockpile handling, dewatering discharge, drain inlet protection, and replacement of any disturbed pavement or landscaping. See Section D.10 for additional information.

PG&E anticipates the use of the National Pollutant Discharge Elimination System General Construction Stormwater Permit for discharges of stormwater associated with Small Linear Underground/Overhead Construction Projects (General Permit) from the State Water Resources Control Board. Temporary approvals for water use and discharge would be obtained as required by the construction contractor, and construction water would be disposed of in accordance with state and federal standards.

Trash would be collected in bins or appropriate containers at the job site and would then be moved to the staging areas to be off-hauled to the appropriate solid waste facility. Soils are expected to be characterized in situ for disposal, and soils and asphalt/concrete waste would be hauled off for appropriate disposal following characterization. Excavated material may be used as backfill (as allowed) to fill in the pits once the trenchless installation is complete. When necessary, clean backfill would be imported to the project site. Backfill is typically expected to be a concrete mix or slurry sourced from a local concrete supplier.

All hazardous materials and hazardous wastes would be handled, stored, and disposed of in accordance with applicable regulations by personnel qualified to handle hazardous materials.

Cleanup and Post-Construction Restoration

Restoration typically consists of removal of equipment and materials and cover of the area disturbed by construction with gravel or repaving, depending on the original condition of the work area. Work areas, whether vegetated or not, would be restored to conditions equal to or better than pre-construction conditions. Vegetated areas disturbed by the proposed project may include limited street- or landscaped areas that would be replanted per the agreement with the city or landowner. As part of the final construction activities, PG&E would restore removed curbs, gutters, and sidewalks; repave removed or damaged paved surfaces; restore landscaping or vegetation as necessary; and clean up the job site.

B.6.7 Construction Equipment and Personnel

Transmission line and switching station construction activities are expected to occur simultaneously. Different phases of the construction process would require varying numbers of construction personnel.

During the first 2 months of construction, between 26 and 36 construction personnel are expected during mobilization and switching station site preparation. The workforce is expected to grow to approximately 65 construction personnel on average, including inspectors and monitors, over approximately 18 to 19 months during transmission line and switching station construction, with an estimated peak workforce of 88 personnel. Typically, two to three crews of 6 to 16 construction personnel would support transmission line activities, and on average,

approximately 34 construction personnel would support switching station activities. The workforce is expected to shrink to approximately eight to nine personnel during the last 3 months of construction to support removal of the Jefferson-Martin transmission line equipment from Martin Substation and to perform the protection scheme work at the remote-end substations. PG&E and its contractors expect to obtain approximately 20% of their construction workforce locally through the union hiring halls (approximately 15 to 20 employees).

Transmission line equipment expected to be used is summarized by activity and expected crew workforce as presented in Table B-2. Vault installation typically averages 10 days per vault. Trenching and duct bank installation duration assumes that work would progress at approximately 40 linear feet per day. Cable installation (between vaults) typically occurs for 5 days, and cable splicing is typically completed within 7 days. The trenchless activities are expected to occur for approximately 40 days within the period anticipated for the proposed Jefferson-Egbert transmission line trenching. Trenching for the existing Martin-Embarcadero transmission line loop-in is expected to start when the proposed Jefferson-Egbert transmission line trenching is complete. Thus, cable installation for the proposed Jefferson-Egbert transmission line would occur while trenching along Egbert Avenue occurs. Splicing the proposed Jefferson-Egbert transmission line is expected to overlap with the Egbert Avenue trenching and cable installation. Cable splicing of the proposed Martin-Egbert and Egbert-Embarcadero transmission lines is anticipated to conclude around the same time as the proposed Jefferson-Egbert transmission line.

Switching station construction is anticipated to employ an average of approximately 34 construction personnel over approximately 19 months, with an increase to approximately 60 construction personnel at construction peak during equipment installation and testing. Activities are expected to occur fairly sequentially, with minor overlap during building and exterior equipment pad construction activities. Equipment installation and cabling activities would occur over an approximately 6-month period. Testing and commissioning are planned to occur during site restoration activities over an approximately 3-month period. Four truck drivers are expected to support the site preparation and the site restoration phases. Equipment expected to be used during switching station construction is summarized by activity and expected crew workforce as presented in Table B-3.

The final construction-related activities are expected to include removing the equipment at Martin Substation, which is expected to employ approximately six construction personnel and one truck driver. Relay work at the remote-end substations (Embarcadero, Jefferson, and Martin) would employ approximately two to three construction personnel for possibly 1 day but up to 5 weeks if relays need to be replaced. Equipment expected to be used during project construction is summarized by activity along with expected crew workforce in Table B-4.

B.7 OPERATION AND MAINTENANCE

Existing operation and maintenance crews would operate and maintain the new switching station and transmission lines as part of their current operation and maintenance activities.

B.7.1 Monitoring and Control

Monitoring and control functions for the new switching station facilities would be connected to the existing PG&E transmission energy management system by telecommunication circuits. The new transmission line segments would be monitored and protected by sets of relays located at each end of the transmission line. The required constant communication between protective relays at each end would be over redundant communication paths. The relays would also be connected to PG&E's supervisory control and data acquisition system. Any alarms resulting from relay actions would be promptly announced at PG&E's grid control center located in Vacaville, California. In the event of an alarm, required corrective actions could be quickly initiated by operators on round-the-clock duty at the grid control center.

Data collection devices for the supervisory control and data acquisition system may include remote terminal units, microprocessor relays, data concentrators, and fault recorders. The devices would be capable of storing data for download through local or remote access.

B.7.2 Maintenance and Facility Inspection

Regular inspection of transmission lines, substations, instrumentation and controls, and support systems is critical for safe, efficient, and economical operation. Early identification of equipment in need of maintenance, repair, or replacement would assure continued safe operation of the proposed project. Existing operation and maintenance crews would access the switching station site and transmission lines on existing roads by vehicle. Aboveground components would be inspected at least annually for corrosion, equipment misalignment, loose fittings, and other common mechanical problems. The underground portion of the transmission line would be inspected regularly from inside the vaults using a handhole or a manhole for access; therefore, inspections would not significantly disturb traffic using city streets.

Typical XLPE transmission line, termination, and XLPE cable inspections are summarized as follows:

- Routine – Quarterly visual inspections of terminals
- Detailed – Once every 2 years, visual inspection of the XLPE transmission lines and energized vaults and infrared inspection of the terminations to detect hot spots

Typical HPFF transmission line, termination, and HPFF cable inspections are summarized as follows:

- Routine – Monthly visual inspections of terminals, including oil and nitrogen pressure checks
- Detailed – Annual inspection of the underground enclosures and oil/nitrogen system (pump plant)

B.8 APPLICANT PROPOSED MEASURES

Section 2.10 of the PG&E PEA details the proposed project protocols that would be followed during project-related activities (PG&E 2017). Proposed project protocols are specific to environmental issue areas such as air quality, biological resources, cultural resources, or traffic impacts. PG&E's protocols are herein termed "applicant proposed measures" (APMs). Table B-5 identifies the APMs for each issue area, and Table B-6 provides the APM language as proposed in the PEA. APMs as proposed are project design features and are considered to be part of the project description.

Table B-5
Applicant Proposed Measures for Each Issue Area

Issue Area	APMs
Aesthetics	AE-1 and -2
Air Quality	AQ-1, -2, and -3
Biological Resources	BIO-1, -2, and -3
Cultural Resources	CR-1, -2, -3, -4, and -5
Geology and Soils	GS-1 and -2; PR-1 and -2
Greenhouse Gas Emissions	GHG-1, -2
Hazards and Hazardous Materials	HM-1, -2, and -3
Hydrology and Water Quality	WQ-1, -2, -3, -4, and -5
Land Use and Planning	LU-1, -2
Noise	NO-1, -2, -3, -4, -5, -6, and -7
Transportation	TR-1

Table B-6
Applicant Proposed Measures

APM Number	Description
	Aesthetics
APM AE-1	**Nighttime Lighting to Minimize Potential Visual Impacts** Because much of the switching station equipment will be located within an enclosed structure, the proposed switching station will have less outdoor lighting than at a conventional outdoor switching station. Design and layout for new outdoor lighting at the switching station will incorporate measures such as use of non-glare or hooded fixtures and directional lighting to reduce spillover into areas outside the switching station site and minimize the visibility of lighting from off-site locations.
APM AE-2	**Construction Cleanup** Construction activities will be kept as clean and inconspicuous as practical. Construction debris will be picked up regularly from construction areas.
	Air Quality
APM AQ-1	**Minimize Fugitive Dust** Consistent with Table 8-2 of the CEQA Guidelines (BAAQMD, 2017c), PG&E will minimize dust emissions during construction by implementing the following measures: • Water all exposed soil surfaces (e.g., unpaved parking areas, unpaved staging areas, soil piles, graded areas, and unpaved access roads) at least twice daily, except when rains are occurring; or apply non-toxic soil stabilizers such as soil binders, crushed rock, or gravel. • Cover all trucks hauling soil, sand, and other loose materials. • Limit all vehicle speeds on unpaved roads to 15 miles per hour. • All roadways, driveways, and sidewalks to be paved will be completed as soon as possible after grading unless seeding, soil binders, or gravel are used. • Sweep streets daily (with water sprayers and brooms or mechanical sweeps, if necessary) if visible soil material is carried onto adjacent public roads. • Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person will respond and take corrective action within 48 hours. BAAQMD's phone number will also be visible to ensure compliance with applicable regulations. As shown in [PEA] Table 3.3-6 [Table D.3-4 of this EIR], there are no numeric thresholds of significance for fugitive dust. Rather, it is BAAQMD's opinion that "projects implementing construction best management practices will reduce fugitive dust emissions to a less than significant level" (BAAQMD, 2017c). Because the measures included in APM AQ-1 are consistent with Table 8-2 of the CEQA Guidelines (BAAQMD, 2017c), construction emissions resulting from fugitive dust are expected to be less than significant. Furthermore, the project is not expected to require implementation of the additional measures from Table 8-3 of the CEQA Guidelines because PM_{10} and $PM_{2.5}$ exhaust emissions are below the significance thresholds.
APM AQ-2	**Minimize Construction Exhaust Emissions** The following measures will be implemented during construction to further minimize the less-than-significant construction exhaust emissions: • Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time is dependent upon 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 such that idling is reduced as far as possible below the maximum of five consecutive minutes required by regulation (13 CCR 2449 and 2485). If a vehicle is not required for use immediately or continuously for construction activities or for other safety-related reasons, its engine will be shut off.

Table B-6
Applicant Proposed Measures

APM Number	Description
	• Maintain all construction equipment in accordance with manufacturer's specifications. Check all equipment using a certified mechanic, and confirm that equipment is in proper condition prior to operation.
APM AQ-3	**Minimize Potential Naturally Occurring Asbestos Emissions** The following measures will be implemented prior to and during construction to minimize the potential for NOA emissions: • Prior to commencement of construction, samples of the proposed Jefferson-Egbert Transmission Line construction areas within the serpentine (Sp) stratigraphic unit will be analyzed for presence of asbestos, serpentinite, or ultramafic rock • If asbestos, serpentinite, or ultramafic rock is determined to be present at the specific project location, implement all applicable provisions of the Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations (17 CCR 93105), including the following: <u>For disturbed areas of 1 acre or less:</u> -Construction vehicle speed at the work site will be limited to 15 miles per hour or less. -Prior to any ground disturbance, sufficient water will be applied to the area to be disturbed to prevent visible emissions from crossing the property line. -Areas to be graded or excavated will be kept adequately wetted to prevent visible emissions from crossing the property line. -Storage piles will be kept adequately wetted, treated with a chemical dust suppressant, or covered when material is not being added to or removed from the pile. -Equipment will be washed down before moving from the property onto a paved public road. -Visible track-out on the paved public road will be cleaned within 24 hours using wet sweeping or a High Efficiency Particulate Air filter-equipped vacuum device. <u>For disturbed areas of more than 1 acre:</u> -Submit an Asbestos Dust Mitigation Plan to BAAQMD, and obtain approval prior to commencement of construction. -Implement and maintain the provisions of the approved Asbestos Dust Mitigation Plan from the beginning of construction through the duration of the construction activity.
Biological Resources	
APM BIO-1	**General Measures** A worker environmental awareness program biological resources module will be conducted for on-site construction personnel prior to the start of construction activities. The module will explain the APMs and any other measures developed to prevent impacts on special-status species, including nesting birds. The module will also include a description of special-status species and their habitat needs, as well as an explanation of the status of these species and their protection under the federal and California ESAs, and other statutes. A brochure will be provided with color photos of sensitive species, as well as a discussion of any permit measures. A copy of the program and brochure will be provided to CPUC at least 30 days prior to the start of construction for project files. This APM also includes the following measures: • Environmental Inspector: A qualified environmental inspector will verify implementation and compliance with all APMs. The environmental inspector will have the authority to stop work or determine alternative work practices where safe to do so, as appropriate, if construction activities are likely to impact sensitive biological resources. • Litter and trash management: All food scraps, wrappers, food containers, cans, bottles, and other trash from the project area will be deposited in closed trash containers. Trash containers will be removed from the project work areas at the end of each working day unless located in an existing substation, potential staging area, or the switching station site. • Parking: Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed or developed areas or work areas as identified in this document. • Pets and firearms: No pets or firearms will be permitted at the project site.

Table B-6
Applicant Proposed Measures

APM Number	Description
APM BIO-2	**Preconstruction Surveys** If construction is to occur during the avian nesting season (February 1 through August 31), a preconstruction migratory bird and raptor nesting survey will be performed by a qualified biologist. Note that given the urban nature of the project, surveys will be limited in urban areas to along streets within 50 feet of work with public access; surveys will not occur, for instance, in residential private property or backyards other than what can be observed from the street. If nesting birds are identified in areas susceptible to disturbance from construction activities, PG&E will establish a specific buffer zone to be maintained for that nest. Factors to be considered include intervening topography, roads, development, type of work, visual screening from the nest, nearby noise sources, etc. Buffers will not apply to construction-related traffic using existing roads that are not limited to project-specific use (that is, city streets, highways, etc.). Consideration will also include timing of nesting (that is, if the birds' nests are found in the project area during actual construction). Preconstruction bird nesting surveys will be conducted in the project area no more than 15 days before work is performed in the nesting season. A nest will be determined to be active if eggs or young are present in the nest. Upon discovery of active nests, appropriate minimization measures (e.g., buffers or shielding) will be determined and approved by the PG&E biologist. PG&E's biologist will determine the use of a buffer or shield and work may proceed based upon: acclimation of the species or individual to disturbance, nest type (cavity, tree, ground, etc.), and level and duration of construction activity. In the unlikely event a listed species is found nesting nearby in this urban environment that cannot be avoided, CDFW and USFWS will be notified, and CPUC will be provided with nest survey results, if requested. When active nests are identified, monitoring for significant disturbance to the birds will be implemented. Nest checks of active nests will occur each day construction is occurring near the buffer zone. Typically, a nest check will have a minimum duration of 30 minutes, but may be longer or shorter, or more frequent than one check per day, as determined by PG&E's biologist or designated biological monitor based on the type of construction activity (duration, equipment being used, potential for construction-related disturbance) and other factors related to assessment of nest disturbance (weather variations, pair behavior, nest stage, nest type, species, etc.). The biological monitor will record the PG&E construction activity occurring at the time of the nest check and note any work exclusion buffer in effect at the time of the nest check. Non-PG&E activities in the area should also be recorded (e.g., adjacent construction sites, roads, commercial/industrial activities, residential activities, etc.). The biological monitor will record any sign of disturbance to the active nest, including but not limited to parental alarm calls, agitated behavior, distraction displays, nest fleeing and returning, chicks falling out of the nest or chicks or eggs being predated as a result of parental abandonment of the nest. Should the PG&E biological monitor determine project activities are causing or contributing to nest disturbance that might lead to nest failure, the PG&E biological monitor will coordinate with the Construction Manager to limit the duration or location of work, and/or set other limits related to use of project vehicles, and/or heavy equipment. Should PG&E's biological monitor determine that project activities are not resulting in significant disturbance to the birds, construction activity will continue and nest checks while work is occurring will be conducted periodically.
APM BIO-3	**Pre-construction Surveys/Rare Plant Surveys** If the potential Carter Street staging area will be used for the project, a pre-construction survey to assess the site will be conducted. If the area that will be impacted at this potential staging area is covered in gravel, free of vegetation, or covered in ruderal vegetation, then no further vegetation surveys will be conducted at this site prior to its use. If the pre-construction survey identifies that suitable habitat for special-status plants is present, rare plant surveys will be conducted within the staging area. If any special-status plants are observed, they will be fenced off and avoided.

Table B-6
Applicant Proposed Measures

APM Number	Description
	Cultural Resources
APM CR-1	**Pre-Construction Survey** Any locations that will be subject to ground disturbance but which were not accessible during the pedestrian survey will be surveyed by a CRS/archaeologist prior to project construction under the direction of the PG&E CRS. This will include the location of the proposed Egbert Switching Station and the work area for the proposed Jefferson-Egbert line on the 200 Paul Avenue and 400 Paul Avenue parcels; potential staging areas at Amador Street, Cow Palace, Carter Street, and Martin Substation; and any built-over areas that will be cleared for construction that were not previously surveyed. Although there have been no resources recorded in the vicinity of these locations, the proposed switching station and adjacent parcels have high sensitivity to contain buried or subsurface archaeological remains. Any archeological or historical sites, artifacts, or features identified during the surveys will be examined to determine whether further investigation is needed. If project work is occurring within 100 feet of the find, the work will be immediately redirected from within 100 feet of the find as soon as it is safe to do so. If the discovery can be avoided or protected and no further impacts will occur, the resource will be documented on California Department of Parks and Recreation 523 forms to be submitted to the PG&E CRS and the California Historical Resources Information System NWIC, and no further effort will be required.
APM CR-2	**Worker Environmental Awareness Program Cultural Resources Module** Because there are areas of High or Highest sensitivity for buried cultural resources, all project field personnel will be given training on cultural resources identification and protection, and the laws and penalties governing such protection. This training may be administered as a stand-alone session or included as part of the overall environmental awareness training as required by the project. The training will include, at a minimum, these elements: • A review of the environmental setting (prehistory, ethnography, history) associated with the project • A review of Native American cultural concerns and recommendations during project implementation • A review of applicable federal, state, and local laws and ordinances governing cultural resources and historic preservation • A review of what constitutes prehistoric or historic-era archaeological deposits (including maritime archaeological resources) and what the workers should look out for • A discussion of site avoidance requirements and procedures to be followed in the event unanticipated cultural resources are discovered during construction • A discussion of procedures to follow in the event human remains are discovered during construction • A discussion of disciplinary and other actions that could be taken against persons violating historic preservation laws and PG&E policies • A discussion of eligible and potentially eligible built environment resources and procedures to follow regarding minimizing vibration from equipment in designated areas • A statement by the construction company or applicable employer agreeing to abide by the program conditions, PG&E policies, and applicable laws and regulations All on-site project personnel, including those arriving after the start of construction, will attend this training before beginning work on the project.
APM CR-3	**Construction Monitoring** In high-sensitivity areas where a survey was not feasible (i.e., areas are covered with pavement or buildings), a qualified archaeologist will be present to monitor all ground-disturbing construction activities. The monitor will have the authority to halt the ground-disturbing work activity(ies) temporarily within 100 feet of a find when safe to do so to assess the find. The assessment, and any subsequent evaluation, will follow the processes described in APM CR-4. Monitoring at these locations can be reduced if, after initial monitoring, it is determined there is a low likelihood of identifying cultural resources.

Table B-6
Applicant Proposed Measures

APM Number	Description
APM CR-4	**Inadvertent Discoveries of Cultural Deposits** In the event that previously unidentified archaeological, cultural, or historical sites, artifacts, or features are uncovered during implementation of the project, ground-disturbing work will be suspended within 100 feet of the find and redirected to another location. A CRS or his/her designated representative will examine the discovery and determine whether additional work is needed or whether the buffer requires adjustment. The CRS will coordinate with the PG&E CRS and the state and federal 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 federal and state laws outlined above; personnel will implement data recovery or other appropriate treatment measures if warranted. A qualified historical archaeologist will complete an evaluation of historical-period resources, while evaluation of prehistoric 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 CR-5	**Unanticipated Discovery of Human Remains** If human remains, or suspected human remains, are discovered during construction, work within 100 feet of the find will stop immediately and the construction foreman will contact the designated PG&E CRS; the specialist will then call the San Francisco or San Mateo County Coroner, as appropriate. There will be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlie adjacent remains, until the county coroner has determined that the remains are not subject to provisions of Section 27491 of the Government Code. If the medical county coroner determines the remains to be Native American, he/she will contact the NAHC within 24 hours. The NAHC will appoint a Most Likely Descendent for recommendations on the treatment and disposition of the remains (Health and Safety Code Section 7050.5, PRC Section 5097.24).
Geology and Soils	
APM GS-1	**Appropriate Design Measures Implementation** A site-specific geotechnical investigation will be performed to develop appropriate conclusions and recommendations for final design.
APM GS-2	**Appropriate Soil Stability Measures Implementation** Based on available references, bedrock, artificial fills, loam, sandy loam, and clay loam are the primary subsurface materials expected to be encountered in the excavated areas as project construction proceeds. Potentially problematic subsurface conditions may include soft or loose soils. Where soft, loose, or liquefiable soils are encountered during design studies or construction, appropriate measures will be implemented to avoid, accommodate, replace, or improve soft or loose soils and liquefaction hazards. Such measures may include the following: • Locating construction staging and operations away from areas of soft and loose soil • Over excavating soft or loose soils and replacing them with suitable non-expansive engineered fill • Increasing the density and strength of soft or loose soils through mechanical vibration and/or compaction • Treating soft or loose soils in place with binding or cementing agents • Adding physical ground improvement such as in situ soil mixing, drain piles, or sheet piles • Deepening of trench and/or using trenchless technology to place the transmission line beneath liquefiable fills and/or potential for lateral spreading, where feasible
APM PR-1	**Worker's Environmental Training Awareness Program Paleontological Module** The project's worker environmental awareness program, which all workers will complete prior to beginning work on the project site, will include a module on paleontological resources (fossils). The module will discuss the laws protecting paleontological resources, recognition in the field and types of paleontological resources that could be encountered on the project, and the procedures to be followed if a paleontological resource is

Table B-6
Applicant Proposed Measures

APM Number	Description
	discovered. A copy of the project's worker environmental awareness training will be provided to CPUC for recordkeeping prior to the start of construction.
APM PR-2	**Unanticipated Paleontological Resource Discovery** If fossils are observed during excavation, work in the immediate vicinity of a paleontological find will be halted or redirected to avoid additional impact to the specimen(s), and to allow a professional paleontologist to assess the scientific importance of the find and determine appropriate treatment. If the discovery is significant, the qualified paleontologist will implement data recovery excavation (with the landowner's permission) to scientifically recover and curate the specimen.
Greenhouse Gas Emissions	
APM GHG-1	**Minimize Greenhouse Gas Emissions** • 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 foremen will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use. • Maintain construction equipment in proper working conditions in accordance with PG&E standards.
APM GHG-2	**Minimize SF_6 Emissions** • Incorporate Egbert Switching Station into PG&E's system-wide SF6 emission reduction program. CARB has adopted the Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear sections 95350 to 95359, Title 17, CCR, which requires that company-wide SF6 emission rate not exceed 1 percent by 2020. Since 1998, PG&E has implemented a programmatic plan to inventory, track, and recycle SF6 inputs, and inventory and monitor system-wide SF6 leakage rates to facilitate timely replacement of leaking breakers. PG&E has improved its leak detection procedures and increased awareness of SF6 issues within the company. X-ray technology is now used to inspect internal circuit breaker components to eliminate dismantling of breakers, reducing SF6 handling and accidental releases. As an active member of USEPA's SF6 Emission Reduction Partnership for Electrical Power Systems, PG&E has focused on reducing SF_6 emissions from its transmission and distribution operations and has reduced the SF6 leak rate by 89 percent and absolute SF6 emissions by 83 percent. • Require that the breakers at Egbert Switching Station 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 these policies become effective.
Hazards and Hazardous Materials	
APM HM-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 and, as appropriate, during the operation and maintenance phase. 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 (see APM WQ-1). A site-specific Spill Prevention Control and Countermeasure (SPCC) Plan and a Hazardous Materials Business Plan will be developed for the proposed Egbert Switching Station facility prior to the construction date (see APM WQ-4).

Table B-6
Applicant Proposed Measures

APM Number	Description
	Worker environmental awareness program hazards and hazardous material module. A worker environmental awareness program will be developed prior to construction. The worker environmental awareness program will communicate environmental issues and appropriate work practices specific to this project to all field personnel. These will include spill prevention and response measures and proper BMPs implementation. The program will emphasize site-specific physical conditions to improve hazard prevention, and will include a review of applicable portions of PG&E's health and safety plan. A copy of the worker environmental awareness program record will be provided to CPUC for recordkeeping. 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 on-site, as applicable. **Potentially contaminated soil.** Soil that is suspected of being contaminated (based on existing analytical data or visual, olfactory, or other evidence) and is removed during trenching or excavation activities will be segregated and tested; if the soil is contaminated above hazardous levels, it will be contained and disposed of off-site at a licensed waste facility. The presence of known or suspected contaminated soil will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations. If suspected hazardous substances are unexpectedly encountered during trenching or other construction activities (using indicators such as sheen, odor, and/or soil discoloration), work will be stopped until the material is properly characterized and appropriate measures are taken to protect human health and the environment. Appropriate personal protective equipment will be used, and waste management will be performed in accordance with applicable regulations. If excavation of hazardous materials is required, the materials will be disposed of in accordance with applicable regulations. **Groundwater.** If necessary, groundwater will be collected during construction, contained, and disposed of in accordance with all applicable regulations. Non-contaminated groundwater will be released to one of the city's combined sanitary and stormwater drainage systems (with prior approval) or will be contained, tested, and disposed of in accordance with applicable regulations. **Underground storage tanks.** If underground or aboveground storage tanks are found to be located along the project route and the route cannot be adjusted to avoid disturbance, the tanks will be removed prior to installation of new facilities at the tank location. If it is determined that removal and disposal of tanks is necessary, a separate work plan describing the proper decommissioning and removal of the tanks and removal of any associated impacted soil will be prepared prior to removal. **Hazardous materials and hazardous wastes**. All hazardous materials and hazardous wastes will be handled, stored, and disposed of in accordance with all applicable regulations by personnel qualified to handle hazardous materials. Practices during construction will include, but will not be limited to, the following: • Proper disposal of potentially hazardous materials • Site-specific buffers for construction vehicles and equipment located near sensitive resources/receptors • Emergency response and reporting procedures to address any potential hazardous material spills as described in Section 3.9, Hydrology and Water Quality Applicable portions of PG&E plans for Martin Substation (e.g., Risk Management Plan or Site Management Plan) and testing for potential hazardous materials in soil as required under the Maher Ordinance (see Section 3.8.2.1) will also be adhered to. For the operation and maintenance phase of the project, existing operational hazardous substance control and emergency response plans will be updated as appropriate to incorporate necessary modifications resulting from this project.

Table B-6
Applicant Proposed Measures

APM Number	Description
APM HM-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 escapes during pouring, it will be directed to adjacent lined and bermed areas, where the concrete will dry, and then be transported for disposal per applicable regulations.
APM HM-3	**Soil, Groundwater, Underground Tank, and Wastewater Characterization** In areas where existing data are not available, soil and groundwater sampling will be conducted in project areas prior to or upon commencement of construction. Appropriate handling, transportation, and disposal locations will be determined based on results of the analyses performed on soil and groundwater. In addition, results will be provided to contractor and construction crews to inform them about soil and groundwater conditions and potential hazards. The location, distribution, and/or frequency of the sampling locations will be determined during final design with the intent to provide adequate representation of the conditions in the construction area. Sampling will likely be more intensive in areas along the project alignment (1) where potential residual contamination associated with the four former LUST and two EnviroStor cleanup sites may exist, (2) near the transformer oil spill in the vicinity of 607 Carter Street, San Francisco, (3) near the locations of six historic auto service stations and two historic dry cleaners, and (4) subject to the Maher Ordinance (see Section 3.8.3). The sampling program in areas subject to the Maher Ordinance must be reviewed and approved by the SFDPH prior to construction.
Hydrology and Water Quality	
APM WQ-1	**Development and Implementation of a Stormwater Pollution Prevention Plan** Stormwater discharges associated with project construction activities are regulated under the General Construction Permit. Cases in which construction will disturb more than 1 acre of soil require submittal of a Notice of Intent, development of a 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 General Construction Permit requirements. Following project approval, PG&E will prepare and implement a SWPPP, which will address erosion and sediment control to minimize construction impacts on surface water quality, as well as reduce the potential for stormwater to impact adjacent properties. The SWPPP will be designed specifically for the hydrologic setting of the proposed project (e.g., surface topography, storm drain configuration, etc.). 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/or silt fences will be installed in compliance with the SWPPP and the General Construction Permit. 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 manufacturers specifications and according to standard industry practice. Erosion and sediment control measures may include the following: • Straw wattle, silt fence, or gravel bag berms • Track out control at all entrances and exits • Stockpile management • Effective dust control measures • Good housekeeping measures • Stabilization measures which may include wood mulch, gravel, or revegetation Identified erosion and sediment control measures will be installed prior to the start of construction activities and will be inspected and improved as needed as required by the Construction General Permit. Temporary sediment control measures intended to minimize sediment transport from temporarily disturbed areas such as silt fences or

Table B-6
Applicant Proposed Measures

APM Number	Description
	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 water body or drainage channel, the staging of construction materials and equipment and excavation spoil stockpiles will be placed and managed in a manner which minimizes 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 Construction General Permit.
APM WQ-2	**Worker Environmental Awareness Program Water Quality Module** A worker environmental awareness program will be developed and provided separately to CPUC staff prior to construction. The project's worker environmental awareness program will communicate environmental issues and appropriate work practices specific to this project to all field personnel. These will include spill prevention and response measures and proper BMP implementation. A copy of the project's worker environmental awareness program record will be provided to CPUC for recordkeeping at the completion of the project. An environmental monitoring program will also be implemented to ensure that the plans are followed throughout the construction period.
APM WQ-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 WQ-4	**Spill Prevention, Control, and Countermeasure (SPCC) Plan for Egbert Switching Station** PG&E will prepare an SPCC plan for the new switching station for implementation during operation as required by applicable regulations (CFR 40 Part 112). The plan will include engineered and operational methods for preventing, containing, and controlling potential releases (e.g., construction of a retention pond, moats, or berms) as well as provisions for quick and safe cleanup.
APM WQ-5	**Stormwater Control Plan for Egbert Switching Station** PG&E will prepare and implement a Stormwater Control Plan to manage stormwater during operation at the new switching station to align with the City of San Francisco Ordinance Number 64-16 of the Public Works Code-Stormwater Management Requirements.
	Land Use and Planning
APM LU-1	**Provide Construction Notification and Minimize Construction Disturbance** A public liaison representative will provide the public with advance notification of construction activities, between two and four weeks prior to construction. The announcement will state specifically where and when construction will occur in the area. Notices will provide tips on reducing noise intrusion (e.g., closing windows facing the planned construction).
APM LU-2	**Provide Public Liaison Person and Toll-Free Information Hotline** PG&E will identify and provide a public liaison person before and during construction to respond to concerns of neighboring residents about noise, dust, and other construction disturbance. Procedures for reaching the public liaison officer via telephone, email, or in person will be included in notices distributed to the public as described above. PG&E will also establish a toll-free telephone number for receiving questions or complaints during construction.
	Noise
APM NO-1	**Noise Minimization with Portable Barriers** Compressors and other small stationary equipment used during construction will be shielded with portable barriers if appropriate and if located within 200 feet of a residence.

Table B-6
Applicant Proposed Measures

APM Number	Description
APM NO-2	**Noise Minimization with Quiet Equipment** Quiet equipment will be used during construction whenever possible (e.g., equipment that incorporates noise-control elements into the design, such as quiet model compressors, can be specified).
APM NO-3	**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 NO-4	**Noise Disruption Minimization through Residential Notification** In the event that nighttime construction is necessary, such as if certain activities such as line splicing or auger-boring in certain soil conditions 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 NO-5	**Auger Bore Noise Minimization Measures** Temporary barriers utilizing materials such as intermodal containers or frac tanks, plywood walls, mass-loaded vinyl (vinyl impregnated with metal), sound-absorbing blankets, hay bales, or similar materials will be used to reduce noise generated by the auger bore operations. Auger bore activities will be limited to daylight hours unless a situation arises where ceasing the activity would compromise safety (both human health and environmental) and/or the integrity of the project. If nighttime auger bore activities are required, the project will monitor actual noise levels from auger bore activities between 8:00 p.m. and 7:00 a.m. If the nighttime noise levels created by the auger bore operation are found to result in a complaint and are in excess of the ambient noise level by 5 dBA at the nearest residential property plane, PG&E will, within 24 hours of the excess measurement, employ additional minimization measures to the extent practicable. Such measures may include ensuring that semi-permanent stationary equipment (e.g., generators) are stationed as far from sensitive areas as practicable, utilizing sound attenuated “quiet” or “Hollywood/Movie Studio” silencing packages, or modifying barriers to further reduce noise levels.
APM NO-6	**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 NO-7	**Incorporate Vibration Assessment into Project Construction** Where pile driving may be required within streets with adjacent residential 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, or modifying hammer frequency 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.
Transportation	
APM TR-1	**Traffic Management Implementation** PG&E will 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 will coordinate construction traffic access at the proposed switching station and proposed transmission lines within the city and county of San Francisco with SFMTA during project construction. Access during project construction to Martin Substation and the transmission lines within the cities of Brisbane and Daly City, respectively, will be coordinated with SamTrans. PG&E is a member of the California Joint Utility Traffic Control Committee, which published the California Joint Utility Traffic Control Manual (2010). PG&E will 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. These recommendations include provisions for safe access of police, fire, and other rescue vehicles.

Table B-6
Applicant Proposed Measures

APM Number	Description
	In addition, PG&E will apply for an Excavation Permit and a Special Traffic Permit from each of the cities (San Francisco, Brisbane, and Daly City), and will also submit a Traffic Management Plan as part of each application. The Traffic Management Plan will include the following elements and activities: • Consult with SF Muni and SamTrans at least 1 month prior to construction to coordinate bus stop relocation (as necessary) and to reduce potential interruption of transit service. • Include a discussion of work hours, haul routes, limits on lengths of open trench, work area delineation, traffic control, and flagging. • Identify all access and parking restrictions and signage requirements, including any bicycle route or pedestrian detours, should the need for these arise during final design. • Lay out a plan for notifications and a process for communicating with affected residents and businesses prior to the start of construction. Advance public notification would include postings of notices and appropriate signage of construction activities. The written notification will include the construction schedule, the exact location and duration of activities within each street (i.e., which lanes and access points/driveways would be blocked on which days and for how long), and a toll-free telephone number for receiving questions or complaints. • Include a plan to coordinate all construction activities with emergency service providers in the area at least 1 month in advance. Emergency service providers will be notified of the timing, location, and duration of construction activities. All roads will remain passable to emergency service vehicles at all times. • Include the requirement that all open trenches be covered with metal plates at the end of each workday to accommodate traffic and access. • Specify the street restoration requirements pursuant to PG&E's franchise agreements with the City and County of San Francisco, City of Brisbane, and City of Daly City. • Identify all roadway locations where special construction techniques (e.g., trenchless techniques or night construction) would be used to minimize impacts to traffic flow. • Develop circulation and detour plans to minimize impacts to local street circulation. This may include the use of signing and flagging to guide vehicles through and/or around the construction zone. These plans will also address loading zones. • Consult Caltrans and obtain an encroachment permit if necessary per final construction and engineering design.

Notes: APM = applicant proposed measure; CEQA = California Environmental Quality Act; PG&E = Pacific Gas & Electric Company; BAAQMD = Bay Area Air Quality Management District; PEA = Proponent's Environmental Assessment; EIR = environmental impact report; PM_{10} = particulate matter less than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; NOA = Notice of Availability; ATCM = Airborne Toxic Control Measure; ESA = Endangered Species Act; CPUC = California Public Utilities Commission; CDFW = California Department of Fish and Wildlife; USFWS = U.S. Fish and Wildlife Service; CRS = Cultural Resource Specialist; NWIC = Northwest Information Center; DPR = Department of Parks and Recreation; NAHC = National American Heritage Commission; SF_6 = sulfur hexafluoride; CARB = California Air Resources Board; USEPA = U.S. Environmental Protection Agency; BMP = best management practice; LUST = leaking underground storage tank; SFDPH = San Francisco Department of Public Health; SWPPP = Stormwater Pollution Prevention Plan; dBA = A-weighted decibel; SFMTA = San Francisco Municipal Transportation Agency; SF = San Francisco; Caltrans = California Department of Transportation.

B.9 REFERENCES CITED

CAISO (California Independent System Operator). 2015. *2014–2015 Transmission Plan*. Board approved March 27, 2015. Accessed September 2018. http://www.caiso.com/Documents/Board-Approved2014-2015TransmissionPlan.pdf.

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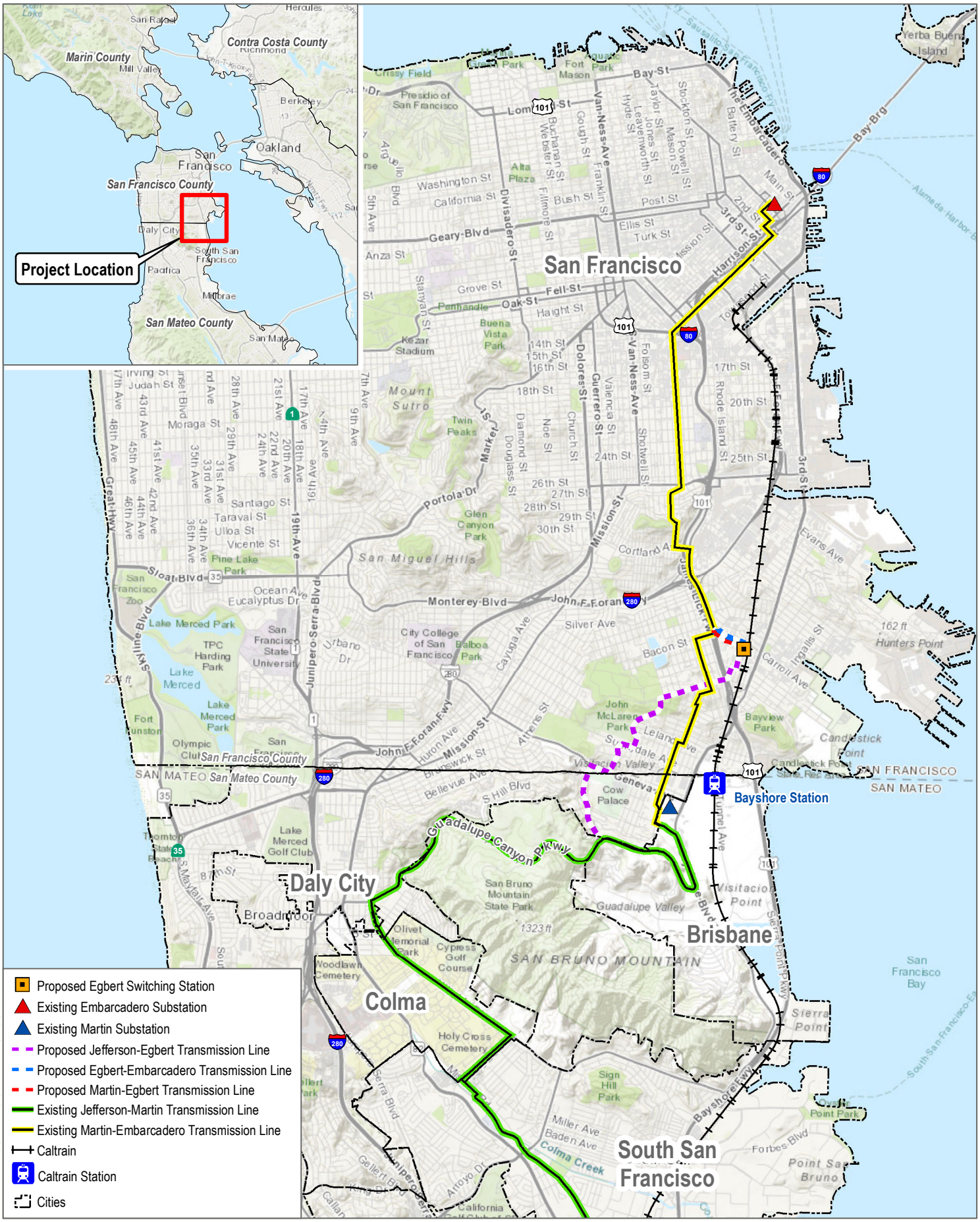
PG&E. 2018b. "Pacific Gas and Electric Company Martin Substation/Egbert Switching Station Project (A. 17-12-021) Response to California Public Utilities Commission Application Data Request No. 2." April 26, 2018.

PG&E. 2018c. "Pacific Gas and Electric Company Martin Substation/Egbert Switching Station Project (A. 17-12-021) Response to California Public Utilities Commission Application Data Request No. 3." June 7, 2018.

PG&E. 2018d. "Pacific Gas and Electric Company Martin Substation / Egbert Switching Station Project (A. 17-12-021) Response to California Public Utilities Commission Application Data Request No. 4." August 28, 2018.

PG&E. 2019a. "Pacific Gas and Electric Company Martin Substation / Egbert Switching Station Project (A. 17-12-021) Response to California Public Utilities Commission Application Data Request No. 5." July 21, 2019.

PG&E. 2019b. "Pacific Gas and Electric Company Martin Substation / Egbert Switching Station Project (A. 17-12-021) Response to California Public Utilities Commission Application Data Request No. 6." August 6, 2019.



SOURCE: PG&E 2017; ESRI 2019

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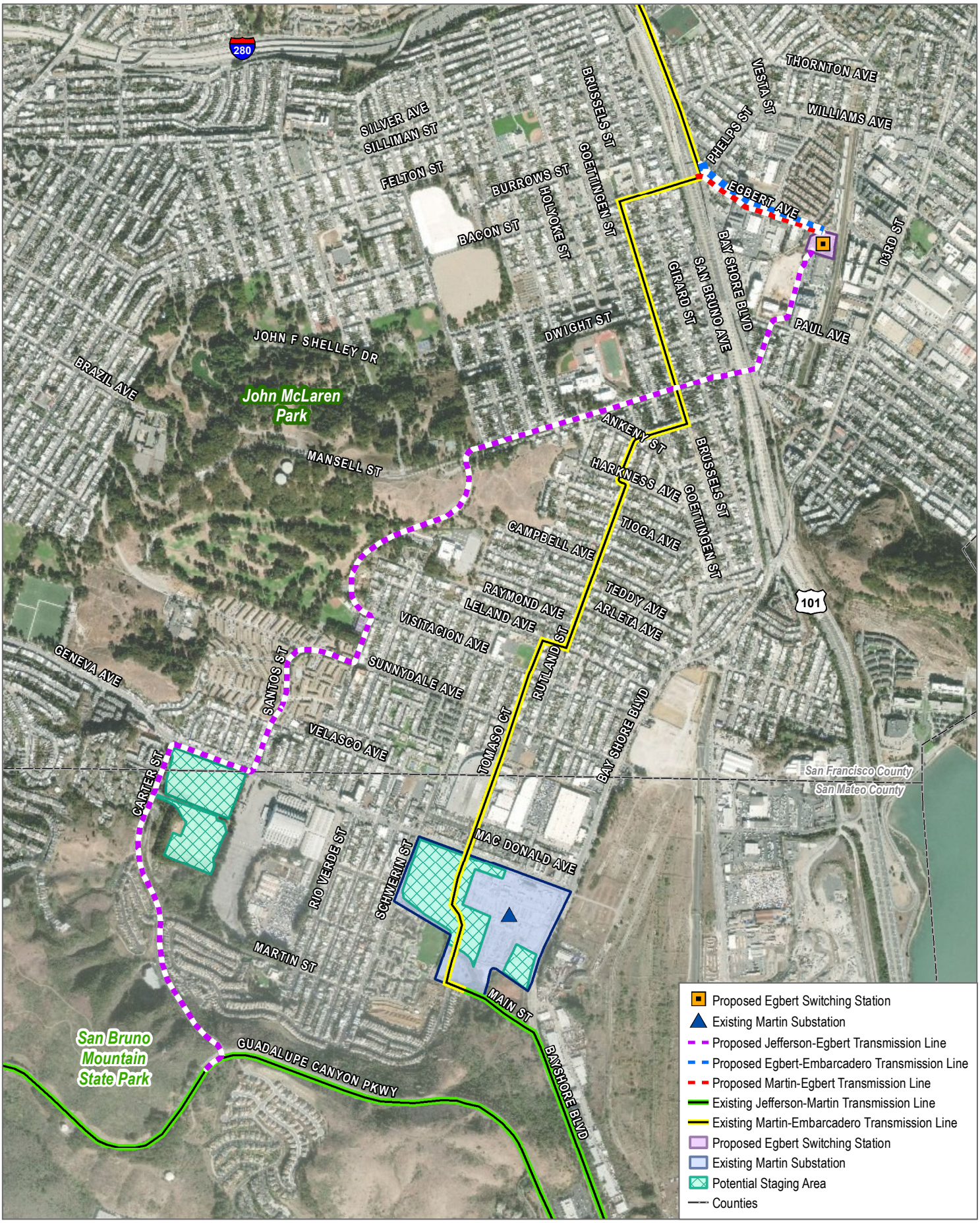
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FIGURE B-1

Regional Map

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

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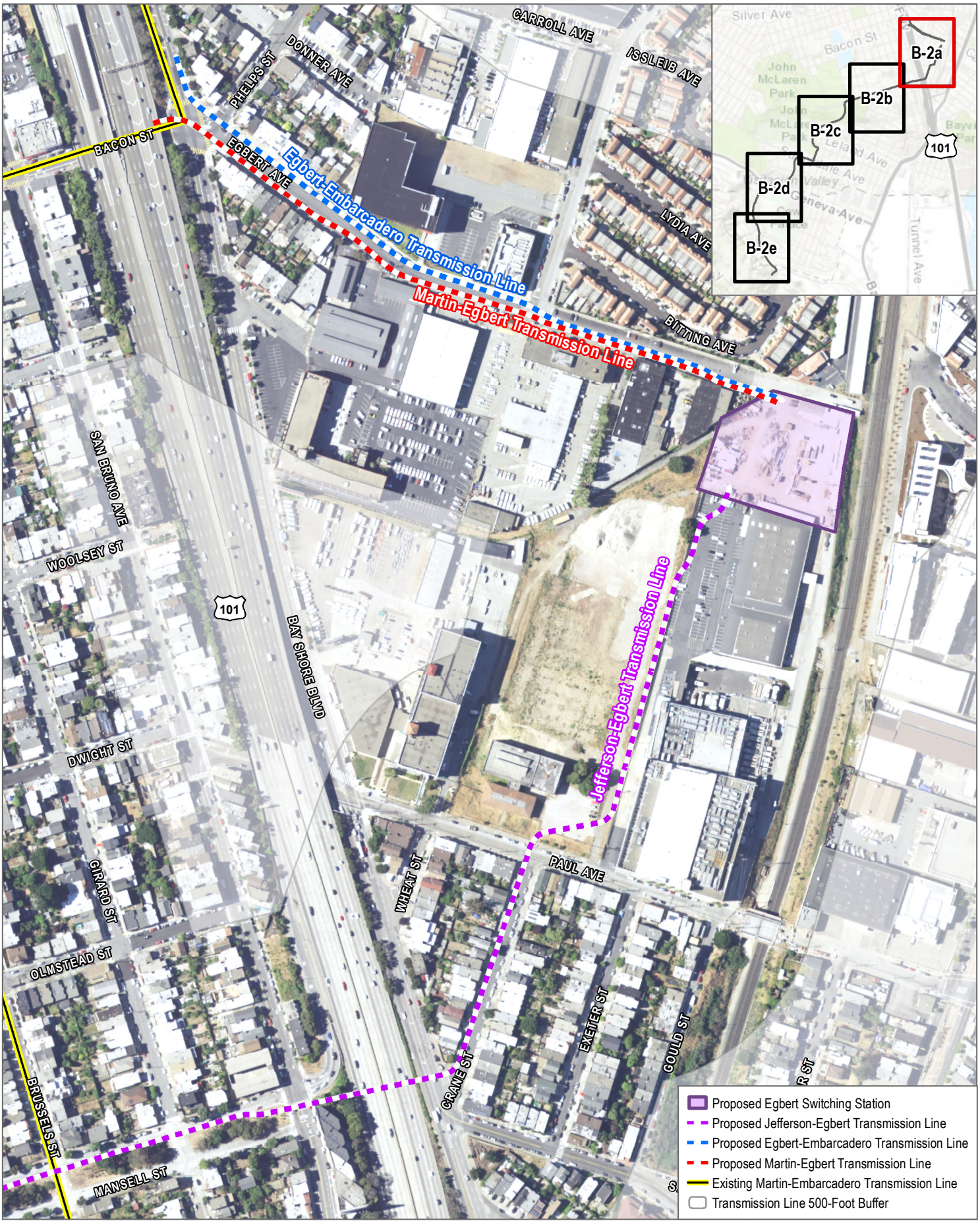
0 1,000 2,000 Feet

FIGURE B-2

Project Location

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

DUDEK

0 150 300 Feet

FIGURE B-2a

Detailed Site and Routes

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

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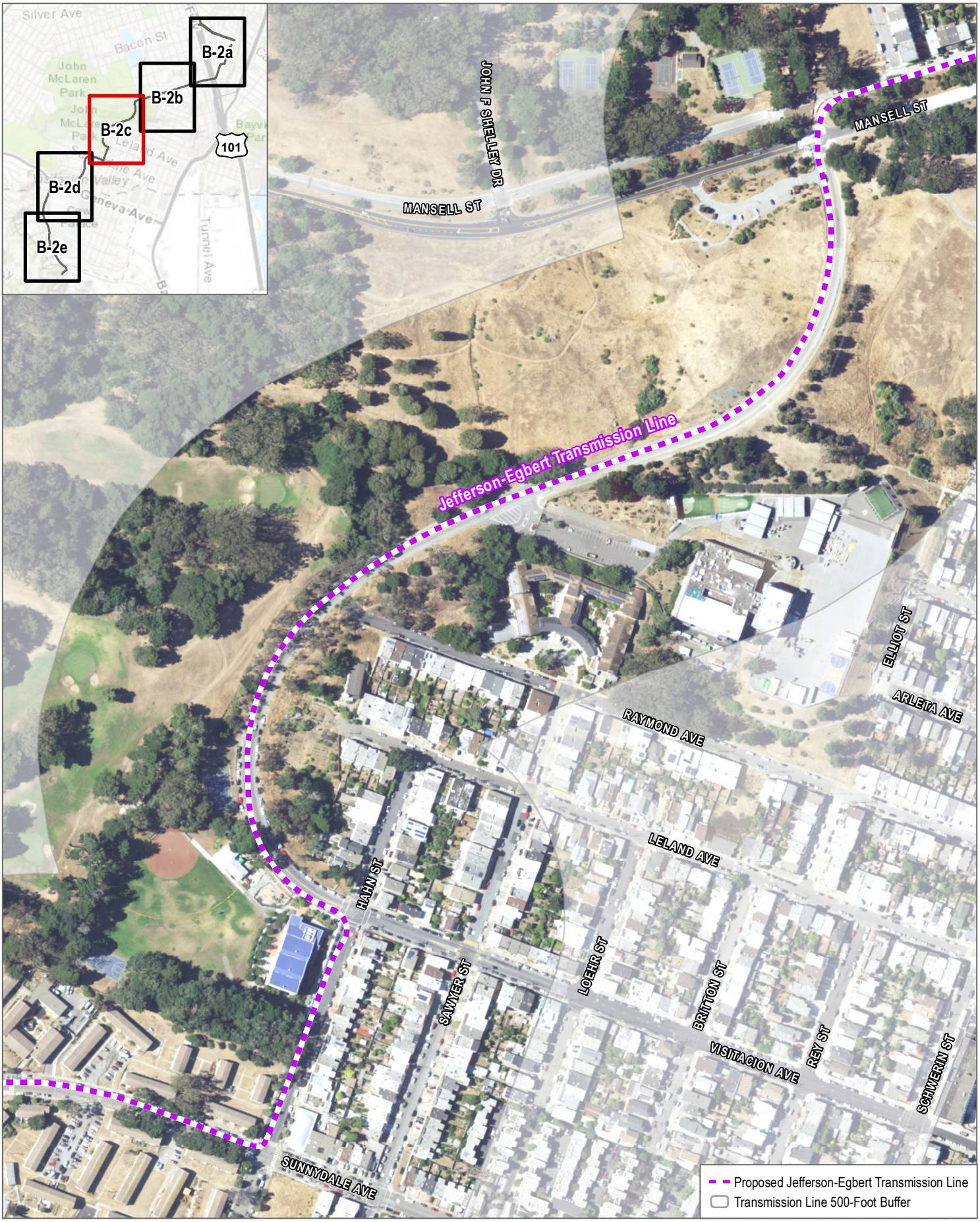
0 150 300 Feet

FIGURE B-2b

Detailed Site and Routes

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

DUDEK

0 150 300 Feet

FIGURE B-2c

Detailed Site and Routes

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

DUDEK

0 150 300 Feet

FIGURE B-2d

Detailed Site and Routes

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

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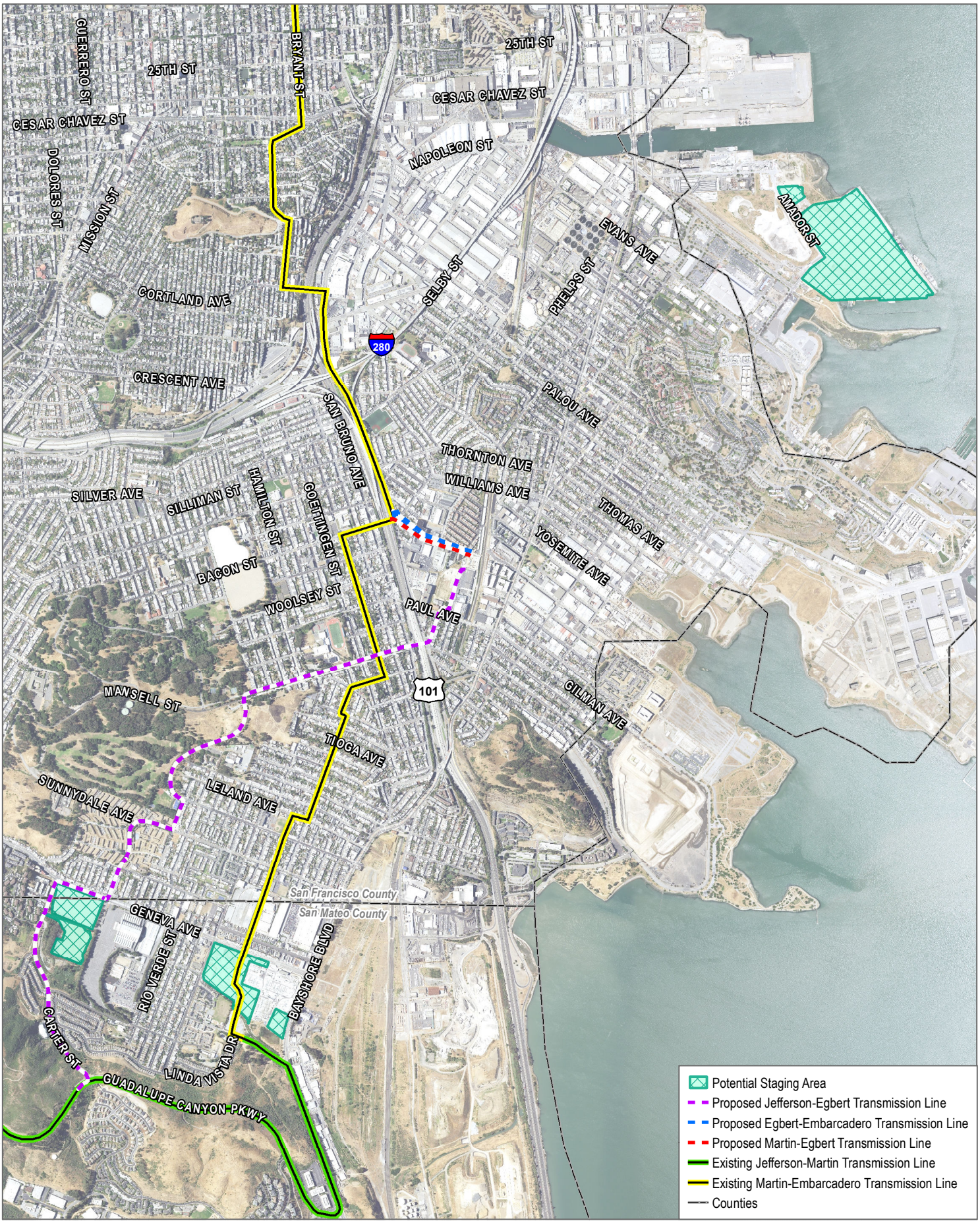
0 150 300 Feet

FIGURE B-2e

Detailed Site and Routes

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

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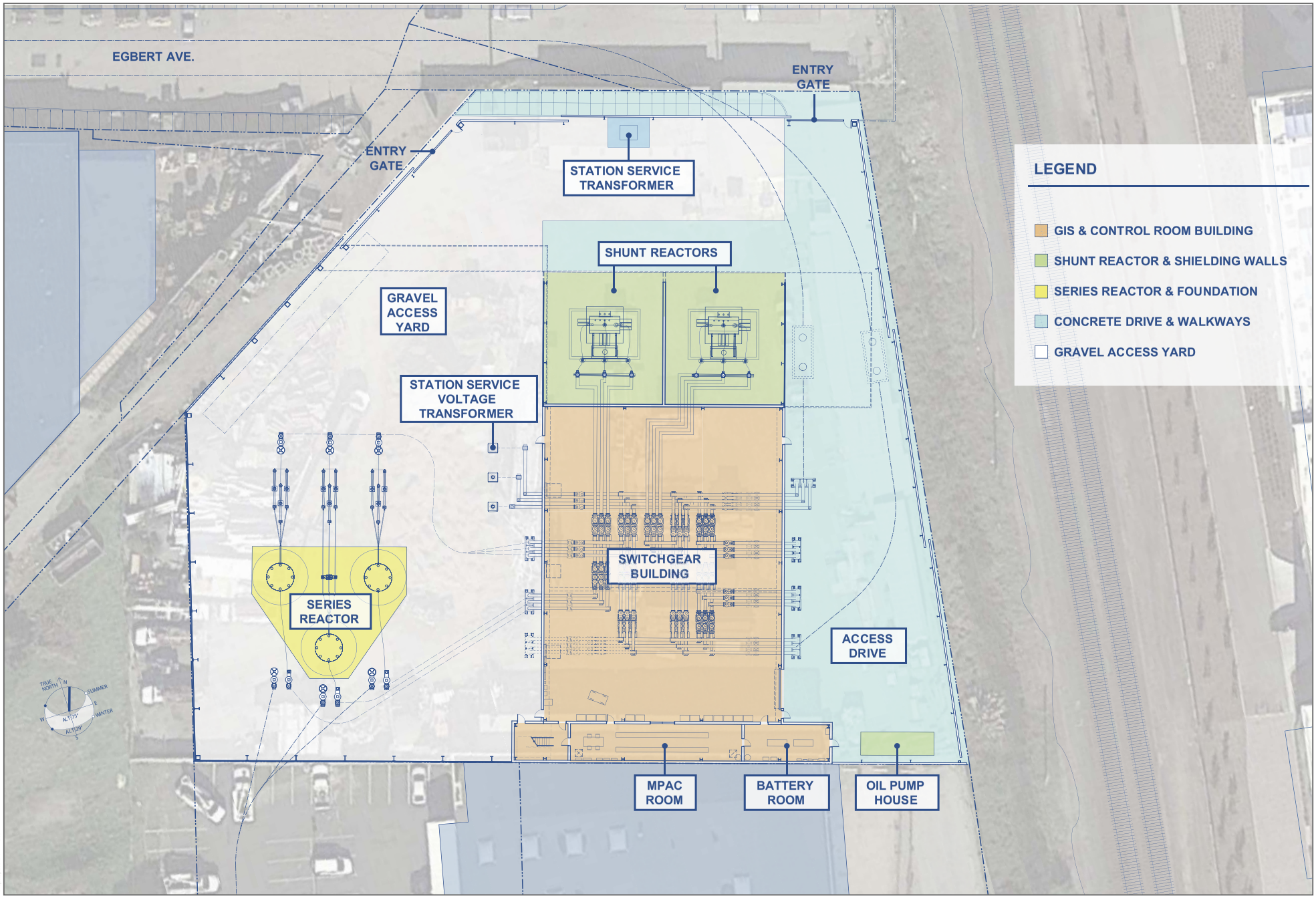
0 1,500 3,000 Feet

FIGURE B-3

Potential Staging Areas

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: PG&E 2018a

DUDEK

FIGURE B-4

Egbert Switching Station Site Plan

Egbert Switching Station (Martin Substation Extension) Project

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C. ALTERNATIVES

This section is organized as follows:

- Section C.1 – Overview of the alternatives screening process
- Section C.2 – Description of the methodology used for alternatives evaluation
- Section C.3 – A summary of the alternatives selected for full Environmental Impact Report (EIR) analysis and those eliminated based on California Environmental Quality Act (CEQA) criteria
- Section C.4 – Description of the alternatives retained for full EIR analysis in Section D, Environmental Analysis
- Section C.5 – Description of the alternatives eliminated from full EIR analysis and the rationale for elimination
- Section C.6 – Description of the No Project Alternative

C.1 ALTERNATIVES DEVELOPMENT AND SCREENING PROCESS

One of the most important aspects of the environmental review process is the identification and assessment of reasonable alternatives that have the potential for avoiding or minimizing the impacts of a proposed project. In addition to mandating consideration of the No Project Alternative, CEQA Guidelines (Section 15126.6[d]; 14 CCR 15000 et seq.) emphasize the selection of a reasonable range of potentially feasible alternatives and adequate assessment of these alternatives to allow for a comparative analysis for consideration by decision makers. CEQA Guidelines state that the discussion of alternatives shall focus on alternatives capable of eliminating or reducing significant adverse environmental effects of a proposed project, even if these alternatives would impede to some degree the attainment of the project objectives or would be more costly. However, CEQA Guidelines declare that an EIR need not consider an alternative that fails to meet most of the basic project objectives, whose effects cannot be reasonably ascertained, or whose implementation is remote or speculative.

The Egbert Switching Station (Martin Substation Extension) Project (proposed project) is described in detail in Section B, Project Description, of this EIR. Alternatives to the proposed project were suggested during the scoping period (November through December 2018) by the general public, state, and local agencies in response to the Notice of Preparation (NOP). Other alternatives were presented by Pacific Gas & Electric Company (PG&E) in its Proponent's Environmental Assessment.

In total, eight alternatives were considered in the screening process. Alternatives include system alternatives, demand side alternative, and site and line option alternatives.

C.2 ALTERNATIVES SCREENING METHODOLOGY

Evaluation of alternatives to the proposed project was completed using a screening process that consisted of the following three steps:

Step 1: Clarify the description of each alternative to allow comparative evaluation.

Step 2: Evaluate each alternative using CEQA criteria (defined below).

Step 3: Determine the suitability of each alternative for full analysis in the EIR. If the alternative is unsuitable, eliminate it from further consideration. Infeasible alternatives and alternatives that clearly offered no potential for overall environmental advantage were removed from further analysis.

Following this three-step screening process, the advantages and disadvantages of the remaining alternatives were carefully weighed with respect to CEQA's criteria for consideration of alternatives.

CEQA Guidelines (Section 15126.6[a]; 14 CCR 15000 et seq.) state 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.

To comply with CEQA's requirements, each alternative suggested or developed for this project has been evaluated in three ways:

- Does the alternative meet most basic project objectives?
- Is the alternative feasible (legal, technical, regulatory)?
- Does the alternative avoid or substantially lessen any significant environmental 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)?

C.2.1 Consistency with Project Objectives

Section 15126(a) of the CEQA Guidelines (14 CCR 15000 et seq.) requires that project objectives be set forth in an EIR to help define alternatives to the proposed project that meet most of the basic project objectives. Moreover, a project may not limit its objectives in such a way as to effectively confine the range of feasible alternatives that are available. Having taken into consideration the project objectives set forth by PG&E for the proposed project (Section A.3.2, Statement of Objectives, of this EIR), the California Public

Utilities Commission (CPUC) has identified the following basic project objectives used to screen alternatives:

- Improve reliability of PG&E's transmission system serving San Francisco by constructing a new 230-kilovolt (kV) switching station in the vicinity of Martin Substation that provides a high likelihood of continued electric service to San Francisco should an extreme event render Martin Substation inoperable.
- Construct a safe and economically and technically feasible project that minimizes environmental impacts and that will deliver 230 kV power received from the south to San Francisco.
- Provide a 230 kV connection between a new switching station and Martin Substation to enable the transmission system serving San Francisco to operate in the event that a 230 kV transmission line serving either Martin Substation or the proposed switching station experiences an unplanned outage.

C.2.2 Feasibility

CEQA Guidelines (Section 15364; 14 CCR 15000 et seq.) define 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."

In addition, CEQA requires that the lead agency consider site suitability, economic viability, availability of infrastructure, general plan consistency, regulatory limitations, jurisdictional boundaries, and proponent's control over alternative sites in determining the range of alternatives to be evaluated in the EIR (CEQA Guidelines Section 15126.6[f]; 14 CCR 15000 et seq.). Feasibility can include the following:

Legal Feasibility: Does the alternative involve lands that have legal protections that may prohibit or substantially limit the feasibility of permitting a new substation and associated facilities?

Technical Feasibility: Is the alternative feasible from a technological perspective, considering available technology; the construction, operation, and maintenance or spacing requirements of multiple facilities using common rights-of-way (ROWs), and the potential for common mode failure?

Regulatory Feasibility: Do regulatory restrictions substantially limit the likelihood of successful permitting of a high-voltage transmission line? Is the alternative consistent with regulatory standards for transmission system design, operation, and maintenance?

For the screening analysis, the legal, technical, and regulatory feasibility of potential alternatives was assessed. The assessment was directed toward reverse reason; that is, a determination was made as to whether there was anything about the alternative that would be infeasible on legal, technical, or regulatory grounds.

The screening analysis did not focus on relative economic factors or costs of the alternatives given that 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 project objectives or would be more costly" (CEQA Guidelines Section 15126.6[b]; 14 CCR 15000 et seq.). The CPUC's Certification of Public Necessity or Convenience proceedings will separately and specifically consider cost issues.

C.2.3 Potential to Eliminate Significant Environmental Effects

CEQA requires that to be fully considered in an EIR, an alternative must have the potential to "avoid or substantially lessen any of the significant effects of the project" (CEQA Guidelines Section 15126.6[a]; 14 CCR 15000 et seq.). If an alternative was identified that clearly does not provide potential overall environmental advantage as compared to the proposed project, it was eliminated from further consideration. At the screening stage, it is not possible to evaluate all of the impacts of the alternatives in comparison to the proposed project with absolute certainty, nor is it possible to quantify impacts. However, it is possible to identify elements of an alternative that are likely to be the sources of impact and to relate them, to the extent possible, to general conditions in the subject area.

C.3 ALTERNATIVES CONSIDERED

The proposed project is located in an urban area with minimal undeveloped lands. To determine a preliminary range of alternatives, the EIR evaluated the existing electrical transmission infrastructure to determine several potential system and switching station alternative sites and associated transmission line options. Alternative site locations within a 2-mile radius of PG&E's existing Martin Substation in Daly City were reviewed. PG&E searched for sites that were vacant or under-utilized, where proposed equipment would fit, that would allow for screening and setbacks of structures, and would be located within a reasonable distance to existing transmission lines.

Several alternative approaches were evaluated to increase the likelihood of continued electric service to customers of San Francisco in the event that the transmission system at Martin Substation is rendered inoperable. Table C-1 lists the alternatives that were considered in the screening process, including two alternative switching station locations, as shown on Figure C-1 and Figure C-2.

System Alternatives

- Moraga-Potrero 230 kV Line
- Eastshore-Potrero 230 kV Line

Site and Transmission Line Alternatives

- Bayshore Switching Station Site and Transmission Lines
- Bayshore Switching Station Line Options (6 total)
- Geneva Switching Station Site and Transmission Lines
- Geneva Switching Station Transmission Line Options (6 total)
- Egbert Switching Station Transmission Line Options (6 total)
- Sunnydale HOPE SF Avoidance Line Alternative Option A (Sunnydale Option A Alternative)
- Sunnydale HOPE SF Avoidance Line Option B (Sunnydale Option B Alternative)

Demand Side Alternatives

- Distribution Energy Resources Improvement

C.4 SUMMARY OF SCREENING RESULTS

Table C-1 provides a composite list of the alternatives considered and the results of the screening analysis with respect to the criteria findings for consistency with project objectives, feasibility, and environmental effectiveness. Alternatives carried forward for full EIR analysis are described in the following Section C.5. The alternatives eliminated from further consideration are described in Section C.6.

Table C-1
Summary of Alternatives Screening Analysis

Alternative	Project Objectives Criteria	Feasibility Criteria	Environmental Criteria
System Alternatives[1]			
1. Montrero-Potrero 230 kV Line – Alternative source of power from new transmission line	Meets CEQA screening criteria for most project objectives, but would likely result in greater environmental impacts than the proposed project.	Meets criteria for legal feasibility. Due to steep terrain and existing development, alternative would likely face regulatory and/or technical feasibility issues associated with siting and ROW.	Meets environmental criteria, although may result in greater impacts from longer transmission line.
2. Eastshore-Potrero 230 kV Line – Alternative source of power from new transmission line	Meets CEQA screening criteria for most project objectives, but would likely result in greater environmental impacts than the proposed project.	Meets criteria for legal feasibility. Due to steep terrain and existing development, alternative would likely face regulatory and/or technical feasibility issues associated with siting and ROW.	Meets environmental criteria, although may result in greater impacts from longer transmission line.
Alternative Site and Transmission Line Options[1]			
Bayshore Switching Station Transmission Line Options			
3. Bayshore Switching Station Alternative – Alternative Site and Transmission Line Options (Bayshore-Embarcadero Transmission Line, Jefferson-Bayshore Transmission Line, Martin Bayshore Transmission Line)	Meets CEQA screening criteria for all project objectives.	Meets criteria for legal feasibility, but may have some technical feasibility challenges due to steep terrain within the transmission line route and regulatory feasibility issues associated with ROW acquisition.	Meets environmental criteria, although may result in significant impacts pertaining to land use compatibility and biological resources. Alternative could also have impacts associated with geologic hazards and hazardous materials.
4. Alternative Transmission Line Options for Bayshore Switching Station – (Bayshore-Embarcadero Transmission Line Options, Jefferson-Bayshore	Meets CEQA screening criteria for most project objectives, but would likely result in greater environmental impacts due to a longer line length.	Meets criteria for legal feasibility, but would likely face regulatory feasibility issues associated with ROW acquisition and technical feasibility	Meets environmental criteria, although may result in greater impacts due to longer lines than proposed project.

Table C-1
Summary of Alternatives Screening Analysis

Alternative	Project Objectives Criteria	Feasibility Criteria	Environmental Criteria
Transmission Line Options; Martin-Bayshore Transmission Line Options)		issues associated with utility congestion and design.	
Geneva Switching Station and Transmission Line Options			
5. Geneva Switching Station Alternative – Alternative Site and Transmission Line Options (Geneva-Embarcadero Transmission Line, Jefferson-Geneva Transmission Line, Martin-Geneva Transmission Line)	Meets CEQA screening criteria for all project objectives.	Meets criteria for legal and regulatory feasibility, but would likely face technical feasibility issues associated with operational congestion.	Meets environmental criteria, although may result in impacts pertaining to land use compatibility, biological resources, and geologic conditions.
6. Alternative Transmission Line Options for Geneva Switching Station (Geneva-Embarcadero Transmission Line Options, Jefferson-Geneva Transmission Line Options, Martin-Geneva Transmission Line Options)	Meets CEQA screening criteria for most project objectives, but would likely result in greater environmental impacts due to a greater line length.	Meets criteria for legal feasibility, but would likely face regulatory feasibility issues associated with ROW acquisition and technical feasibility issues associated with utility congestion and design.	Meets environmental criteria, although may result in greater impacts due to longer lines than line options analyzed as part of the Geneva Switching Station Alternative.
Egbert Transmission Line Options			
7. Alternative Transmission Line Options for Proposed Egbert Switching Station – (Jefferson-Egbert Transmission Line Options, Egbert-Embarcadero Transmission Line Options, Martin-Egbert Transmission Line Options)	Meets CEQA screening criteria for most project objectives, but would likely result in greater environmental impacts due to a greater line lengths.	Meets criteria for legal feasibility, but would likely face technical feasibility constraints due to utility density and regulatory feasibility constraints compatibility issues and ROW acquisition.	Meets environmental criteria, although may result in greater impacts due to longer lines than proposed project; may result in greater impacts pertaining to land use compatibility, biological and cultural resources, hazardous materials, and transportation.
Sunnydale HOPE SF Avoidance Line Options[2]			
8. Sunnydale HOPE SF Avoidance Line Alternative Option A – Alternative Transmission Line Option	Meets CEQA screening criteria for all project objectives.	Meets criteria for technical, legal, and regulatory feasibility.	Meets environmental criteria.
9. Sunnydale HOPE SF Avoidance Line Alternative Option B – Alternative Transmission Line Option	Meets CEQA screening criteria for project objectives.	Meets criteria for legal and regulatory feasibility, but may have technical feasibility issues associated with underground utility congestion.	Alternative has potential for significant land use impacts and would not substantially lessen any significant environmental effects of the proposed project.

Table C-1
Summary of Alternatives Screening Analysis

Alternative	Project Objectives Criteria	Feasibility Criteria	Environmental Criteria
Demand Side Alternatives[1]			
10. Increase Distribution Energy Resources – Improvements to reduce electrical system demand (e.g., distributed generation, energy efficiency, demand response and energy storage)	Would not meet CEQA screening criteria for project objectives because the alternative would not meet the hour-to-hour demand shortfall resulting from an outage of Martin Substation.	Not technically feasible because the technology does not exist to provide Distribution Energy Resources that would offset the potential loss of power if the Martin Substation were inoperable.	Unable to determine if alternative would meet environmental criteria since DER improvements would be widespread and exact improvements are unknown.

Notes: kV = kilovolt; CEQA = California Environmental Quality Act; ROW = right-of-way; **Bold** = alternatives that have been recommended through the alternative screening process for detailed Environmental Impact Report (EIR) analysis; DER = Distribution Energy Resources.

1 Source: PG&E 2017a.

2 Source: Dudek 2019; PG&E 2019.

C.5 ALTERNATIVES EVALUATED IN THIS EIR

Overall, the EIR evaluated four alternative approaches to the proposed project in order to estimate the increasing likelihood of continued electric service to customers of San Francisco in the event that the transmission system at Martin Substation is rendered inoperable. All system alternatives would provide a new 230 kV single circuit into San Francisco without going through Martin Substation. Of the four approaches, two included alternative switching station locations. Additionally, a new alignment option was developed based on comments received during the public scoping period in an effort to avoid potential impacts to the approved Sunnydale HOPE SF redevelopment project. This section provides a summary of the additional two system alternatives, including two alternative switching station location and one alignment option alternative to avoid the Sunnydale HOPE SF Project, as well as the No Project Alternative.

C.5.1 Bayshore Switching Station Alternative

Description: This alternative includes construction of a new switching station on approximately 6.6 acres of private land at 3435 Bayshore Boulevard in the City of Brisbane (Figure C-1). Existing zoning at this location within Brisbane is C-1, Commercial Mixed Use. A native plant nursery with a greenhouse is operational at the southern portion of this parcel. The adjacent and nearby land uses include a fire station, a machinery and equipment business, Union Pacific Railroad tracks, and a Kinder Morgan tank farm. Residential areas are within 0.25 miles of the site. The topography and vegetation could provide visual screening from sensitive locations.

This alternative requires the installation of approximately 2.6 miles of new 230 kV underground transmission lines, created by re-routing existing transmission lines. The Martin-Bayshore and Jefferson-Bayshore transmission lines would be approximately 0.5 and 0.7 miles long, respectively, and would exit the site to the east on private property to either side of a manufacturing facility. The Martin-Bayshore transmission line would cross an unnamed drainage south of Ice House Hill. The lines would then turn north staying west of the rail line and progressing along the base of Ice House Hill before turning west once north of the hill. The alignments are in disturbed area with sections of pavement, gravel, dirt, mature trees, and ruderal vegetation. The lines would generally follow existing dirt road and would circle back through an area with a corral and horse stables before reaching Bayshore Boulevard and the interconnection with an existing transmission line. The Bayshore-Embarcadero transmission line would exit the switching station site to the west across an area with dense, scrub vegetation and some mature trees onto Bayshore Boulevard within franchise. Existing commercial land uses are present along the western side of Bayshore Boulevard. The line would continue north within franchise through areas of open space and industrial use before turning west onto Main Street, which runs along the southern side of the Martin Substation property. The line would continue west where Main Street ends and a graveled access road begins. The access road changes to a paved one-lane road with a gate and connects to Midway Drive in Daly City, where the line enters a residential area for the remainder of the line

extension. One or more easements would be expected within the private properties between Main Street and Midway Drive. The line would continue west within Midway Drive in franchise before turning north on Schwerin Street, where it would intersect with an existing transmission line near the intersection with Ottillia Street, for a total length of approximately 1.4 miles.

Rationale for Full Analysis: This alternative meets the CEQA screening criteria for project objectives and feasibility. The Bayshore Switching Station Alternative meets most environmental effectiveness criteria and was recommended to be carried forward to full EIR analysis to provide a comparison to the proposed project (see Section D for each topic impact analysis and Table E-1 for a comparison to the proposed project).

C.5.2 Geneva Switching Station Alternative

Description: This alternative would require the construction of a new switching station on approximately 11.1 acres of private land at 2150 Geneva Avenue in Daly City (Figure C-2). The project requires the installation of approximately 2.3 miles of new 230 kV underground transmission lines. Existing zoning at this proposed location in Daly City is commercial. The site is currently used as a construction station and laydown use area, and originally the site was a drive-in movie theater. The switching station site is within the Cow Palace Master Plan area, designated as a commercial-mixed use area. Residential land uses are located near the switching station site, west and southwest of Carter Street.

The three proposed transmission lines would be within franchise except when exiting the switching station site to Carter Street, where a state parcel would be crossed for approximately 250 feet. Continuing north along Carter Street, the Geneva-Embarcadero and Martin-Geneva transmission lines, located within franchise, would turn east along Geneva Avenue and interconnect with an existing transmission line near the Bayshore Boulevard. The lines would connect back to the Embarcadero Substation and Martin Substation, respectively. The eastern side of Carter Street and a portion of the southern side of Geneva Avenue include a parking lot and the Cow Palace complex. The remaining line for both lines is surrounded by commercial/residential area. The extension between the Jefferson-Martin transmission line and the site would follow the same alignment described for the Jefferson-Egbert transmission line within Guadalupe Canyon Parkway and Carter Street connecting into the site before Geneva Avenue.

Rationale for Full EIR Analysis: This alternative meets the CEQA screening criteria for project objectives and feasibility, but would require greater ROW acquisition than the proposed project. The Geneva Switching Station Alternative meets most environmental effectiveness criteria and was recommended to be carried forward to full EIR analysis to provide a comparison to the proposed project (see Section D for each topic impact analysis and Table E-1 for a comparison to the proposed project).

C.5.3 Sunnydale HOPE SF Avoidance Alternative Line Option A

Description: The Sunnydale Option A Alternative would redirect the proposed Jefferson-Egbert transmission line near the intersection of Sunnydale Avenue and Hahn Street, in the City and County of San Francisco (Figure C-3). The approximately 0.6-mile line would turn east along Sunnydale Avenue and south along Sawyer Street. The line would jog to the east, continuing south onto Calgary Street and turn west onto Geneva Avenue. Sunnydale Option A would reconnect to the proposed Jefferson Egbert transmission line on Geneva Avenue west of Santos Street. The line would be developed within disturbed areas and existing roadways. Existing land uses near the alignment include primarily residential development with some commercial uses on Sunnydale Avenue and Geneva Avenue. Cow Palace is directly south of the proposed route on Geneva Avenue.

Rationale for Full EIR Analysis: This alternative line meets the CEQA screening criteria for project objectives and feasibility. The Sunnydale Option A Alternative meets all environmental effectiveness criteria and was recommended to be carried forward to full EIR analysis to provide a comparison to the proposed project (see Section D for each topic impact analysis and Table E-1 for a comparison to the proposed project).

C.5.4 No Project Alternative

CEQA requires an evaluation of the No Project Alternative so that decision makers can compare the impacts of approving the project with the impacts of not approving the project. According to CEQA Guidelines (Section 15126.6[e]; 14 CCR 15000 et seq.), the No Project Alternative must include (a) the assumption that conditions at the time of the NOP (i.e., baseline environmental conditions) would not be changed since PG&E's proposed project would not be installed and (b) the events or actions that would be reasonably expected to occur in the foreseeable future if the project were not approved. This section describes reasonably foreseeable events or actions expected to occur if the project is not approved. Section D of this EIR describes the impacts associated with these reasonably foreseeable events by issue area. Section D also describes conditions at the time the NOP was issued for each environmental issue area as the "environmental baseline," since no impacts of PG&E's proposed project would be created.

Under the No Project Alternative, there would be no new 230 kV electric transmission line bypassing Martin Substation and connected to the San Francisco Peninsula system. The Egbert Switching Station and associated transmission lines or proposed alternatives would not be constructed, and there would be no new infrastructure to provide improved reliability and resiliency to the existing transmission system. Therefore, the No Project Alternative would result in a higher likelihood of interrupted electric service to San Francisco in the event of unplanned outages resulting from an extreme event rendering the electric transmission system at Martin Substation inoperable. The No Project Alternative fails to meet the project objectives.

As outlined in Section A.3.1, Background, of this EIR, the California Independent System Operator Board recommends a project to bypass the Martin Substation in case of an extreme event that would leave the San Francisco Peninsula vulnerable to power outages. As PG&E has an obligation to serve its customers electric power, PG&E would be required to construct a similar project in order to provide a reliable energy source for its customers located in the San Francisco Peninsula.

C.6 ALTERNATIVES ELIMINATED FROM FULL EIR ANALYSIS

C.6.1 Moraga-Potrero 230 kV Line

Description: This system alternative includes development of an alternate source of power into San Francisco by constructing a new single-circuit 230 kV line from PG&E's Moraga Substation in Orinda into PG&E's Potrero Switchyard in San Francisco. The new line would require an approximately 4.5-mile overhead segment, a 5- to 9-mile underground segment, and a 5- to 11-mile submarine segment across the San Francisco Bay, and associated work at Moraga and Potrero Substations.

Under this alternative, construction would require traversing the bay, steep terrain, and residential areas along the existing ROW. A significant amount of engineering and public outreach to locate an acceptable route between Moraga Substation and San Francisco Bay would be required.

Rationale for Elimination: This alternative did not meet the CEQA screening criteria for most project objectives. Although it would provide system resiliency, it was determined that this alternative would not meet environmental effectiveness criteria because the longer line and overall greater area of disturbance is anticipated to result in greater environmental impacts. This alternative would face regulatory and technical feasibility issues associated with siting and ROW acquisition. Therefore, this alternative was not recommended to be carried forward for full EIR analysis.

C.6.2 Eastshore-Potrero 230 kV Line

Description: This alternative includes development of an alternative source of power into San Francisco by constructing a new single-circuit 230 kV line from PG&E's Eastshore Substation in Hayward into PG&E's Potrero Switchyard in San Francisco. The new line would include an approximately 0.5-mile overhead segment, a 0.5-mile underground segment, and an approximately 21-mile submarine segment, a short underground segment, and associated work at Eastshore and Potrero substations.

Rationale for Elimination: This alternative did not meet the CEQA screening criteria for most project objectives. Although it would provide system resiliency, it was determined that this alternative would not meet environmental effectiveness criteria because the longer line, and overall greater area of disturbance, is anticipated to result in greater environmental impacts. This alternative would face regulatory and technical feasibility issues associated with siting and ROW acquisition. Therefore, this alternative was not recommended to be carried forward for full EIR analysis.

C.6.3 Alternative Transmission Line Options for Bayshore Switching Station

Bayshore-Embarcadero Transmission Line Options

Description: Two alternative transmission line options were considered for the Bayshore-Embarcadero transmission line (Figure C-4A) in addition to the route studied in detail as part of the Bayshore Switching Station Alternative.

Bayshore-Embarcadero Alternative Line Option 1 would exit the east side of the Bayshore Switching Station, cross the existing railroad tracks, follow the Tunnel Avenue alignment, and turn west on Blanken Avenue in the City and County of San Francisco. The line would continue west onto Arleta Avenue and connect to an existing transmission line at Rutland Street. The line along Tunnel Avenue is within an area approved for development as part of the Brisbane Baylands Master Plan. Land uses proposed near the alignment include open space, renewable energy generation, office, retail, and residential. Specific development, including roadway alignments, within the Baylands Master Plan area are not finalized at this time, so development of the line within this area could lead to inconsistent land uses or require reconstruction of the line if roadways are realigned. The alignment within San Francisco County would be primarily surrounded by residential development. Bayshore-Embarcadero Alternative Line Option 1 would be developed within disturbed areas and existing roadways, except some open space near the Bayshore Switching Station site. This alternative line would be approximately 2.2 miles long.

Bayshore-Embarcadero Alternative Line Option 2 would exit the west side of the Bayshore Switching Station and follow Bayshore Boulevard north. The line would turn west and follow Guadalupe Canyon Parkway, continue north on Carter Street, east on Martin Street, and north along Schwerin Street to connect to an existing line adjacent to Martin Substation. Existing land uses near the alignment on Bayshore Boulevard include industrial/commercial development to the west and open space known as Ice House Hill to the east. Icehouse Hill contains occurrences of and habitat for various sensitive wildlife species. The alignment along Guadalupe Parkway and Carter Street is largely surrounded by open space, including a conservation area for the San Bruno Habitat Conservation Plan directly south of the Guadalupe Parkway and the San Bruno National Forest directly west of Carter Street. The remainder of the line would be adjacent to residential land uses. This alternative line would be approximately 2.6 miles long, developed primarily within disturbed areas and existing roadways.

Rationale for Elimination: These alternative line options met the CEQA screening criteria for project objectives. They would provide system resiliency by connecting the Alternative Bayshore Switching Station and the existing Martin Substation and are technically feasible. These alternative lines would not meet environmental effectiveness criteria because the longer routes, and overall greater area of disturbance, is anticipated to result in greater environmental impacts than the

transmission lines included in the Bayshore Switching Station Alternative. Additionally, Bayshore-Embarcadero Alternative Line Option 1 could result in potentially significant land use impacts if the line is developed within roadways that are proposed to be realigned for projects within the Baylands Master Plan area. Bayshore-Embarcadero Alternative Line Option 2 would have greater potential to impact sensitive biological resources because the line would be developed adjacent to Icehouse Hill and approximately 1.1 miles of the line would be developed adjacent to a San Bruno Habitat Conservation Plan conservation area and the San Bruno National Forest. Also, Bayshore-Embarcadero Alternative Line Option 2 would result in greater air quality, noise and traffic impacts, because it would impact more residential development than the Bayshore-Embarcadero transmission line analyzed under the Bayshore Switching Station Alternative in the EIR. Therefore, the Bayshore-Embarcadero alternative line options were not recommended to be carried forward for full EIR analysis.

Jefferson-Bayshore Transmission Line Options

Description: Two alternative transmission line options were considered for the Jefferson-Bayshore transmission line (Figure C-4B) in addition to the line studied in detail as part of the Bayshore Switching Station Alternative.

Jefferson-Bayshore Alternative Line Option 1 would exit the west side of the Bayshore Switching Station and follow Bayshore Boulevard north to connect to an existing transmission line at Guadalupe Canyon Parkway. Industrial land uses are developed west of Bayshore Boulevard and Ice House Hill, an area containing extensive sensitive wildlife habitat and species, is located directly east of Bayshore Boulevard along the line. Jefferson-Bayshore Alternative Line Option 1 would be developed primarily within disturbed areas and existing roadways, but has potential to impact sensitive biological resources on Ice House Hill, adjacent to the line. This alternative line would be approximately 0.4 miles long.

Jefferson-Bayshore Alternative Line Option 2 would exit the west side of the Bayshore Switching Station and follow Bayshore Boulevard south, turn west to follow Valley Drive, and turn north to follow North Hill Road to connect to an existing transmission line at Guadalupe Canyon Parkway. Existing land uses near the alignment include primarily industrial/commercial development and residential development and open space west of North Hill Drive near its intersection with Guadalupe Canyon parkway. A conservation area for the San Bruno Habitat Conservation Plan is located west of North Hill Drive. This alternative line would be approximately 1.2 miles long, developed primarily within disturbed areas and existing roadways.

Rationale for Elimination: These alternative lines met the CEQA screening criteria for most project objectives. Although they would provide system resiliency by connecting the Alternative Bayshore Switching Station and the existing Martin Substation, Jefferson-Bayshore Alternative Line Option 1 may not be feasible in conjunction with the Bayshore-Embarcadero transmission line analyzed as part

of the Bayshore Switching Station Alternative due to congestion of existing utilities within Bayshore Boulevard. While the Jefferson-Bayshore Alternative Line Option 1 may be technically feasible, it may not be economically feasible and due to longer line length and construction outside of franchise.

Jefferson-Bayshore Alternative Line Option 1 would meet environmental effectiveness criteria because it is the shortest line, and it would be located within disturbed areas surrounded by industrial/commercial development. Jefferson-Bayshore Alternative Line Option 2 would not meet environmental effectiveness criteria because the longer line, and overall greater area of disturbance, is anticipated to result in greater environmental impacts. Additionally, Jefferson-Bayshore Alternative Line Option 2 would have greater potential to impact sensitive biological resources because approximately 0.1 miles of the line would be developed adjacent to a San Bruno Habitat Conservation Plan conservation area. Therefore, the Jefferson-Bayshore alternative line options were not recommended to be carried forward for full EIR analysis.

Martin-Bayshore Transmission Line Options

Description: Two alternative transmission line options were considered for the Martin-Bayshore transmission line (Figure C-4C) in addition to the line studied in detail as part of the Bayshore Switching Station Alternative.

Martin-Bayshore Alternative Line Option 1 would exit the east side of the Bayshore Switching Station, cross the existing railroad tracks, follow the Tunnel Avenue alignment, and turn west on Blanken Avenue in the City and County of San Francisco. The line would turn south and follow Bayshore Boulevard to connect to an existing transmission line near the southeast corner of the existing Martin Substation. This line option would be constructed primarily within the Baylands Subarea. The entire subarea is designated as Planned Development-Residential Prohibited, except in the northwest portion where residential would be permitted generally north of the Main Street extension. Existing land uses on Bayshore Boulevard along the alignment include industrial and commercial development with some residential development nearby. Martin-Bayshore Alternative Line Option 1 would be developed within disturbed areas and existing roadways, except some open space near the Bayshore Switching Station site. This alternative line would be approximately 2.6 miles long.

Martin-Bayshore Alternative Line Option 2 would exit the west side of the Bayshore Switching Station and follow Bayshore Boulevard north to connect to an existing transmission line. Industrial land uses are developed west of Bayshore Boulevard, and Ice House Hill, an area containing extensive sensitive wildlife habitat and species, is located directly east of Bayshore Boulevard along the line. Martin-Bayshore Alternative Line Option 2 would be developed primarily within disturbed areas and existing roadways, but has potential to impact sensitive biological resources on Ice House Hill, adjacent to the line. This alternative line would be approximately 0.4 miles long.

Rationale for Elimination: These alternative lines met the CEQA screening criteria for most project objectives. Although they would provide system resiliency by connecting the Alternative Bayshore Switching Station and the existing Martin Substation, Martin-Bayshore Alternative Line Option 2 may not be technically feasible in conjunction with other potential line alternatives along Bayshore Boulevard due to congestion of existing utilities within Bayshore Boulevard. Although Martin-Bayshore Alternative Line Option 1 may be technically feasible, it may face regulatory feasibility issues associated with ROW acquisition.

Martin-Bayshore Alternative Line Option 1 would not meet environmental effectiveness criteria because the longer line, and overall greater area of disturbance, is anticipated to result in greater environmental impacts. Although Martin-Bayshore Alternative Line Option 2 is shorter than the proposed line and meets environmental effectiveness criteria, it may not be technically feasible due to underground utility congestion within Bayshore Drive. Therefore, the Martin-Bayshore alternative line options were not recommended to be carried forward for full EIR analysis.

C.6.4 Alternative Transmission Line Options for Geneva Switching Station

Geneva-Embarcadero Transmission Line Options

Description: Two alternative transmission line options were considered for the Geneva-Embarcadero transmission line (Figure C-5A) in addition to the line studied in detail as part of the Geneva Switching Station Alternative.

Geneva-Embarcadero Alternative Line Option 1 would exit the northeast corner of the Geneva Switching Station Site, through an existing paved parking lot directly south of Cow Palace and along Ottilia Street alignment to connect to an existing transmission line adjacent to the existing Martin Substation. Existing Land Uses near the alignment include commercial/industrial mixed use and residential development (Figure C-5A). Cow Palace is an indoor arena owned by the California Department of Food and Agriculture. The Daly City 2030 General Plan highlighted Cow Palace as one of the greatest opportunities for redevelopment within the City (PG&E 2017a). Development of Geneva-Embarcadero Alternative Line Option 1 and its associated ROW could limit future development of the Cow Palace property or require the line to be moved during redevelopment of the site. This alternative line would be approximately 0.4 miles long.

Geneva-Embarcadero Alternative Line Option 2 would exit on the west side of the Geneva Switching Station site, follow the Carter Street alignment south, continue east along Martin Street, and turn north along Schwerin Street to connect to an existing transmission line adjacent to the existing Martin Substation (Figure C-5A). Land uses along the alignment primarily include open space and residential development. A portion of Geneva-Embarcadero Alternative Line Option 2 along Carter Street would be developed adjacent to the San Bruno Mountain State Park. This alternative line would be approximately 1 mile long, developed primarily within disturbed areas and existing roadways.

Rationale for Elimination: These alternative lines met the CEQA screening criteria for most project objectives. Although they would provide system resiliency by connecting the Alternative Geneva Switching Station and the existing Martin Substation, Geneva-Embarcadero Alternative Line Option 1 may result in land use inconsistencies associated with the City's anticipated redevelopment of the Cow Palace property. The ROW would run through the middle of the property, limiting potential redevelopment opportunities to achieve the City's overall General Plan goals. Although both alternatives are technically feasible, it was determined that there may be regulatory feasibility issues with this line option associated with ROW acquisition.

Geneva-Embarcadero Alternative Line Option 1 would not meet environmental effectiveness criteria because the line could result in potentially significant land use impacts, limiting the City's redevelopment opportunities for the Cow Palace property, as identified in Task LU-3.2 in City's General Plan. Geneva-Embarcadero Alternative Line Option 2 would result in greater construction air quality, noise, and traffic impacts on nearby residential development. Geneva-Embarcadero Alternative Line Option 2 also has potential for greater impacts to sensitive biological resources and wildfire risk within the San Bruno Mountain State Park adjacent to Carter Street. Therefore, the Geneva-Embarcadero alternative line options were not recommended to be carried forward for full EIR analysis.

Jefferson-Geneva Transmission Line Options

Description: Two alternative transmission line options were considered for the Jefferson-Geneva transmission line (Figure C-5B) in addition to the line studied in detail as part of the Geneva Switching Station Alternative.

Jefferson-Geneva Alternative Line Option 1 would exit the north end of the Geneva Switching Station site through an existing paved parking lot, turn east along the Geneva Avenue alignment, and turn south along the Bayshore Boulevard alignment to connect at an existing terminal within the Martin Substation, for a total length of approximately 1.1 miles. Existing land uses near the alignment include a mix of commercial, residential and industrial development. The line would primarily be developed within franchise except when exiting the switching station site to then north, where a state parcel would be crossed for approximately 500 feet.

Jefferson-Geneva Alternative Line Option 2 would exit the west side of the switching station site, turn south along Carter Street, turn east along Martin Street, turn north along Schwerin Street, and turn east along Midway Drive. The line would continue onto a gravel access road at the east end of Midway Drive and continue along Main Street to the east where it would connect to existing transmission line west of Bayshore Boulevard, for a total length of approximately 1.3 miles. One or more easements would be expected within the private properties between Midway Drive and Main Street. Existing land uses near the alignment include primarily residential and open space, and some nearby commercial and industrial land uses.

Rationale for Elimination: These alternative lines meet the CEQA screening criteria for project objectives and legal and technical feasibility, but both lines would require greater right-of-way acquisition than the Jefferson-Geneva transmission line analyzed in the EIR, reducing regulatory feasibility of the line option. Jefferson-Geneva Alternative Line Option 1 would cross an existing parking lot directly north of the switching station, which could result in potentially significant land use compatibility impacts associated with redevelopment of Cow Palace. Jefferson-Geneva Alternative Line Option 2 would result in greater construction air quality, noise, and traffic impacts to adjacent residential land uses along approximately 1.0 mile of the line option. The Geneva-Embarcadero Alternative Line Option 2 also has potential for greater impacts to sensitive biological resources and wildfire risk within the San Bruno Mountain State Park adjacent to Carter Street. Therefore, Geneva-Embarcadero alternative line options were not recommended to be carried forward for full EIR analysis.

Martin-Geneva Transmission Line Options

Description: Two alternative transmission line options were considered for the Martin-Geneva transmission line (Figure C-5C) in addition to the line studied in detail as part of the Geneva Switching Station Alternative.

Martin-Geneva Alternative Line Option 1 would exit the east side of the switching station site, across the existing parking lot for Cow Palace, directly south of the arena. The line would continue east on Ottilia Street and connect to existing transmission line at the Martin Substation. The Martin-Geneva Alternative Line Option 1 would be approximately 0.4 miles long. Existing land uses near the alignment include the Cow Palace and residential development to the north and south.

Martin-Geneva Alternative Line Option 2 would exit the west side of the switching station site, turn south along Carter Street, turn east along Martin Street, turn north along Schwerin Street, and turn east along Midway Drive. The line would continue onto a gravel access road at the east end of Midway Drive, continue along Main Street to the east where it would turn north along Bayshore Boulevard and connect to existing transmission line at the southeast corner of the Martin Substation, for a total length of approximately 1.4 miles. One or more easements would be expected within the private properties between Midway Drive and Main Street. Existing land uses near the alignment include primarily residential and open space, and some nearby commercial and industrial land uses.

Rationale for Elimination: These alternative lines meet the CEQA screening criteria for project objectives and feasibility individually, but both lines would require greater right-of-way acquisition than the Martin-Geneva transmission line analyzed in the EIR. Martin-Geneva Alternative Line Option 1 would be located directly south of Cow Palace, which could result in potentially significant land use compatibility impacts associated with City's desired redevelopment of the Cow Palace property. Martin-Geneva Alternative Line Option 2 would result

in greater air quality, noise, and traffic impacts associated with construction adjacent to approximately 1.0 mile of residential land uses. Martin-Geneva Alternative Line Option 2 also has potential for greater impacts to sensitive biological resources and wildfire risk within the San Bruno Mountain State Park adjacent to Carter Street. Therefore, Martin-Geneva alternative line options were not recommended to be carried forward for full EIR analysis.

C.6.5 Alternative Transmission Line Options for Egbert Switching Station

Jefferson-Egbert Transmission Line Options

Description: Two alternative transmission line options were considered for the Jefferson-Egbert transmission line, in addition to the proposed line. Both alternatives are shown on Figure C-6A, as purple dashed lines.

Jefferson-Egbert Alternative Line Option 1 would exit the Egbert Switching Station to the east, cross the existing railroad, and continue along Carroll Avenue in an industrial area. The line would continue south on Jennings Street into a residential area and run around the exterior of the existing Bayview Park. The line would continue west across U.S. Highway 101 on Blanken Avenue, turn south following Tunnel Avenue, and turn north along Bayshore Boulevard to connect to the existing transmission line near the intersection of Bayshore Boulevard and Guadalupe Canyon Way. A comment was received during public scoping that this alternative line would conflict with approved roadway improvements/reconfiguration in the Executive Park and Candlestick area.

Jefferson Egbert Alternative Line Option 2 would exit the west side of the Egbert Switching Station, run southwest along a dirt road, and continue southwest on undeveloped land between a U-Haul development and an existing post office on Paul Avenue. The line would continue along Wheat Street and turn southeast on Bayshore Boulevard before crossing US Highway 101 in a southwest orientation to San Bruno Avenue near Ordway Street. The line would continue north on San Bruno Avenue and west on Mansell Street. The remainder of Jefferson-Egbert Alternative Line Option 2 would be consistent with the proposed line, except, as shown in Figure C-6A, it would continue straight on Hahn Street and turn west on Blythdale Avenue to reconnect to the proposed line, rather than following Sunnydale Avenue. This line would be developed among existing industrial, residential, open space, and commercial land uses.

Rationale for Elimination: These alternative lines met the CEQA screening criteria for most project objectives. The alternative line options would provide system resiliency by connecting the proposed Egbert Switching Station and the existing Martin Substation, and exhibit legal, technical, and regulatory feasibility. These alternative line options would not meet environmental effectiveness criteria because the longer lines and overall greater area of disturbance are anticipated to result in greater environmental impacts. Additionally, Jefferson-Egbert Alternative

Line Option 1 would have a potentially significant land use impact due to conflicts with approved roadway improvements/reconfigurations near the Executive Park and Candlestick areas and Jefferson-Egbert transmission line 2 would result in potentially significant land use impacts due to conflicts with approved improvements in the Mercy Housing Project surrounding Sunnydale Avenue. Therefore, the Jefferson Egbert alternative line options were not recommended to be carried forward for full EIR analysis.

Egbert-Embarcadero Transmission Line Options

Description: Two alternative transmission line options were considered for the Egbert-Embarcadero transmission line, in addition to the proposed line. Both alternatives are shown on Figure C-6B, as blue dashed lines.

Egbert-Embarcadero Alternative Line Option 1 would exit the northwest side of the Egbert Switching Station along Egbert Avenue, consistent with the proposed line. This alternative would turn north on Newhall Street and continue west along Carroll Avenue to meet up with the existing transmission line at the Thornton Avenue and Bayshore Boulevard intersection. This alternative would be developed near existing industrial, commercial, and residential land uses.

Egbert-Embarcadero Alternative Line Option 2 would exit the southwest side of the Egbert Switching Station along a dirt road. This alternative would be developed through an existing commercial area with paved parking lots, running between existing buildings, to Fitzgerald Avenue. The line would cross U.S. Highway 101, installed via trenchless technologies, and connect to the existing transmission line on Wyland Street. This alternative would be developed near existing industrial, commercial, and residential land uses.

Rationale for Elimination: These alternative line options met the CEQA screening criteria for most project objectives. The line options would provide system resiliency by connecting the proposed Egbert Switching Station and the existing Martin Substation, and exhibit legal feasibility. These alternative lines are expected to experience regulatory feasibility issues associated with ROW acquisition.

These alternative lines would not meet environmental effectiveness criteria because the longer lines and overall greater area of disturbance are anticipated to result in greater environmental impacts. Additionally, Egbert-Embarcadero Alternative Line Option 1 would result in greater air quality, noise, and traffic impacts, because it would impact more residential development than the proposed line. Also, Egbert-Embarcadero Alternative Line Option 2 would result in potentially significant land use and traffic impacts due to construction activities within and existing operational commercial parking lot area. Therefore, these alternative line options were not recommended to be carried forward for full EIR analysis.

Martin-Egbert Transmission Line Options

Description: Two alternative transmission line options were considered for the Martin-Egbert transmission line, in addition to the proposed line. Both alternatives are shown on Figure C-6C, as red dashed lines.

Martin-Egbert Alternative Line Option 1 would exit the southwest corner of the Egbert Switching Station, continue south on vacant land directly east of an existing industrial building, and head directly west of an existing post office on Paul Avenue. The line would continue west along Paul Avenue, travel under U.S. Highway 101, and connect to an existing transmission line in Dwight Street. Residential development is present along the south side of Paul Avenue and on both sides of Dwight Street.

Jefferson Egbert Alternative Line Option 2 would exit the west side of the Egbert Switching Station, head southwest along a dirt road, and continue southwest on undeveloped land between a U-Haul development and an existing post office on Paul Avenue. The line would continue along Wheat Street and turn southeast on Bayshore Boulevard before crossing U.S. Highway 101 in a southwest orientation to San Bruno Avenue near Ordway Street. The line would continue north on San Bruno Avenue and meet up with the proposed Jefferson-Egbert transmission line at Mansell Street.

Rationale for Elimination: These alternative line options met the CEQA screening criteria for project objectives. They would provide system resiliency by connecting the proposed Egbert Switching Station and the existing Martin Substation, and they exhibit legal and technical feasibility. Although the Martin-Egbert transmission line 2 would be technically feasible, constraints associated with crossing the U.S. Highway 101 would require additional coordination and engineering. Both line options are anticipated to have regulatory issues associated with greater ROW acquisition in a developed area.

These alternative line options would not meet environmental effectiveness criteria because the longer lines and overall greater area of disturbance are anticipated to result in greater environmental impacts. Additionally, Martin-Egbert transmission line 1 would result in greater construction impacts on sensitive receptors, because it would require construction adjacent to more residential development than the proposed line. Therefore, these alternative line options were not recommended to be carried forward for full EIR analysis because they would not substantially lessen any significant environmental effects of the proposed project due to longer line lengths.

C.6.6 Sunnydale HOPE SF Avoidance Line Alternative Option B

Description: Sunnydale HOPE SF Avoidance Line Alternative Option B (Sunnydale Option B Alternative) would redirect the proposed Jefferson-Egbert transmission line near the intersection of Sunnydale Avenue and Hahn Street, in the City and County of San Francisco (Figure C-7). The approximately 0.30-mile line would continue south along Hahn Street and turn west along Sunrise Way where the street dead-ends into a cul-de-sac. The line would continue approximately 20–30 feet past the existing pavement into a turf area and turn south for approximately 200 feet within the turf. The line would turn west along Velasco Avenue, south on Santos Street, and reconnect to the proposed Jefferson-Egbert transmission line on Geneva Street west of Santos Street in the City of Daly City. The line would be developed primarily within disturbed areas and existing roadways, except for approximately 200 feet of turf north of Velasco Drive.

Rationale for Elimination: This alternative line meets the CEQA screening criteria for project objectives, but preliminary review highlighted some potential technical feasibility issues. PG&E confirmed that Sunrise Way already has numerous existing underground utilities, and that in order to avoid the congested utility corridor, the Sunnydale Option B Alternative line would require tight turns that could be problematic. Although, technically feasible, it would be challenging to construct and require more coordination, splicing, manholes, etc. Additionally, street improvements are proposed to be constructed on Sunrise Way within the alignment in 2019/2020. A portion of Sunrise Way would require construction twice, resulting in increased construction impacts to nearby sensitive receptors. Additionally, the portion of the Sunnydale Option B Alternative that travels south within the turf area, west of Sunrise Way, is within the Sunnydale HOPE SF Master Plan area, and a residential structure is proposed with minimal setbacks and landscaping near the eastern border of the site. The proposed structure may need to be reduced in size to provide an adequate utility easement for maintenance purposes. Also, due to the tight curve of the underground transmission line, turning south from Sunrise Way, if PG&E determined during construction that the tight turn is not feasible, the alignment may need to be revised, requiring a wider utility easement depending on the final placement of the transmission line. Therefore, due to potential limited technical feasibility, potential for a significant land use impact associated with incompatible land uses, and potential cumulative construction impacts, the Sunnydale Option B Alternative was not recommended to be carried forward for full EIR analysis.

C.6.7 Increase Distribution Energy Resources

Description: Under this alternative, the proposed project would not be constructed and demand side alternatives, including distributed generation, energy efficiency, demand response, and energy storage would be used to provide energy to electric customers served by the Martin Substation, should the substation become inoperable. It is estimated that the typical weekday power demand in San Francisco is more than 650 MW, 350 MW of which is supplied by PG&E through the Martin Substation (PG&E 2017a).

Rationale for Elimination: Distributed generation, energy efficiency, demand response, and energy storage programs would not provide the reliability or connection of a 230 kV electric system should the Martin Substation experience an unplanned outage, as stated in the project objectives. Rooftop solar generation is not available in the early morning or evening hours. Demand response programs have limitations on the frequency and hours in the day when power to customers can be interrupted. Furthermore, energy storage would require a significant amount of time to recharge every day. Therefore, this alternative would not meet the feasibility criteria. Demand side alternative programs would not occur at a scale that would eliminate the need for the energy delivered by the Martin Substation for the San Francisco region.

While this alternative may avoid the environmental impacts of the proposed project, this alternative was not recommended to be carried forward for full EIR analysis because it would not meet project objectives nor feasibility criteria.

C.7 REFERENCES CITED

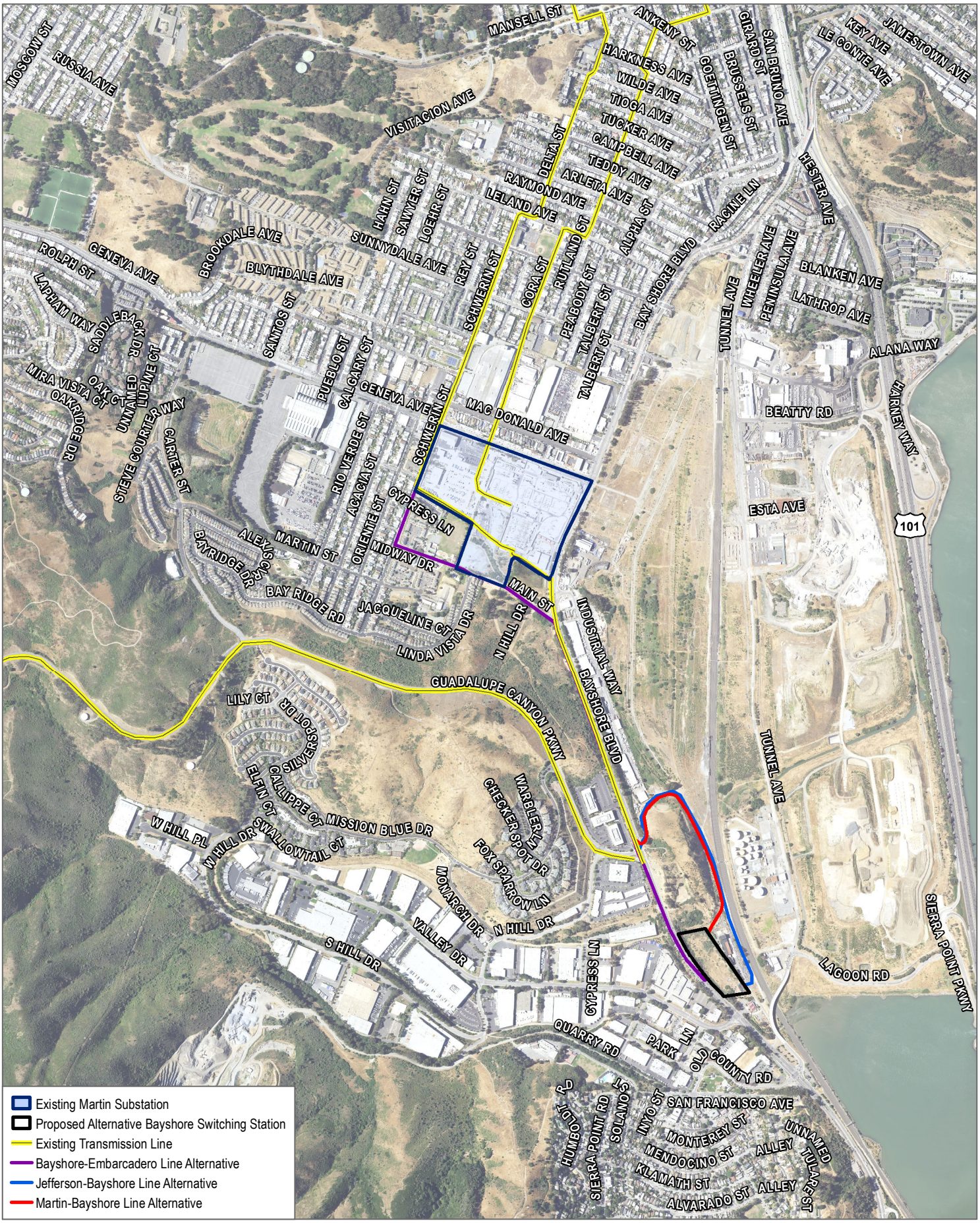
14 CCR 15000–15387 and Appendix A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

Dudek. 2019. Scoping Report, Environmental Impact Report, Pacific Gas & Electric, Certification of Public Convenience and Necessity to authorize the construction and operation of the Egbert Switching Station (Martin Substation Extension) Project, SCH #2018112046. Accessed at: https://www.cpuc.ca.gov/environment/info/dudek/egbert/Egbert_Scoping%20Report.pdf.

PG&E (Pacific Gas & Electric Company). 2017a. Proponent's Environmental Assessment (PEA) for the Egbert Switching Station Project. Prepared by ch2m. December 2017.

PG&E. 2019. Pacific Gas and Electric Company Martin Substation Extension/Egbert Switching Station Project (A. 17-12-021) Response to California Public Utilities Commission Application Data Request No. 5.

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SOURCE: PG&E 2017; San Francisco County 2018; San Mateo County 2018; USDA 2016

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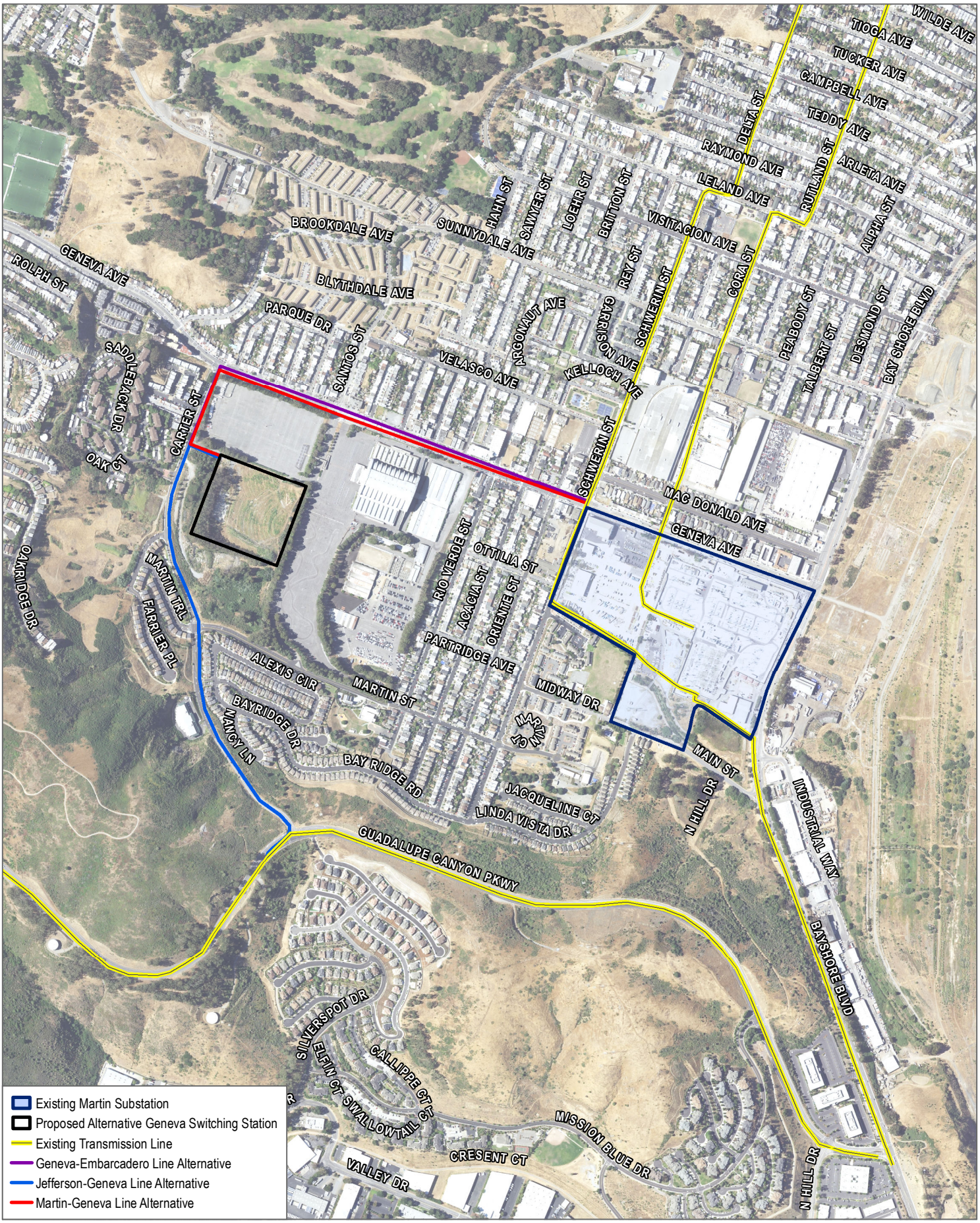
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FIGURE C-1

Bayshore Switching Station Alternatives

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: PG&E 2017; San Francisco County 2018; San Mateo County 2018; USDA 2016

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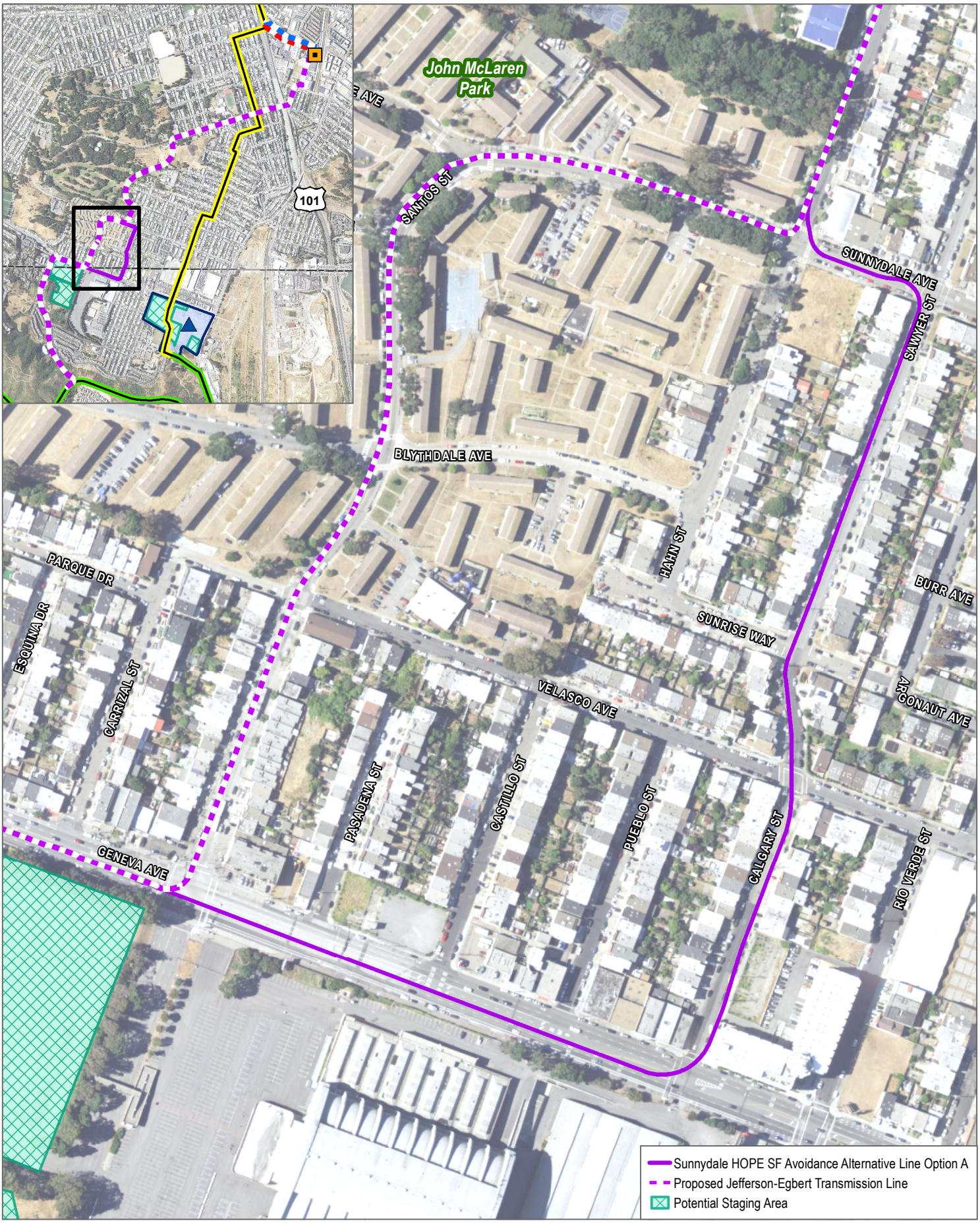
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FIGURE C-2

Geneva Switching Station Alternatives

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: USDA 2016; PG&E 2017, 2019; San Francisco County 2018; San Mateo County 2018

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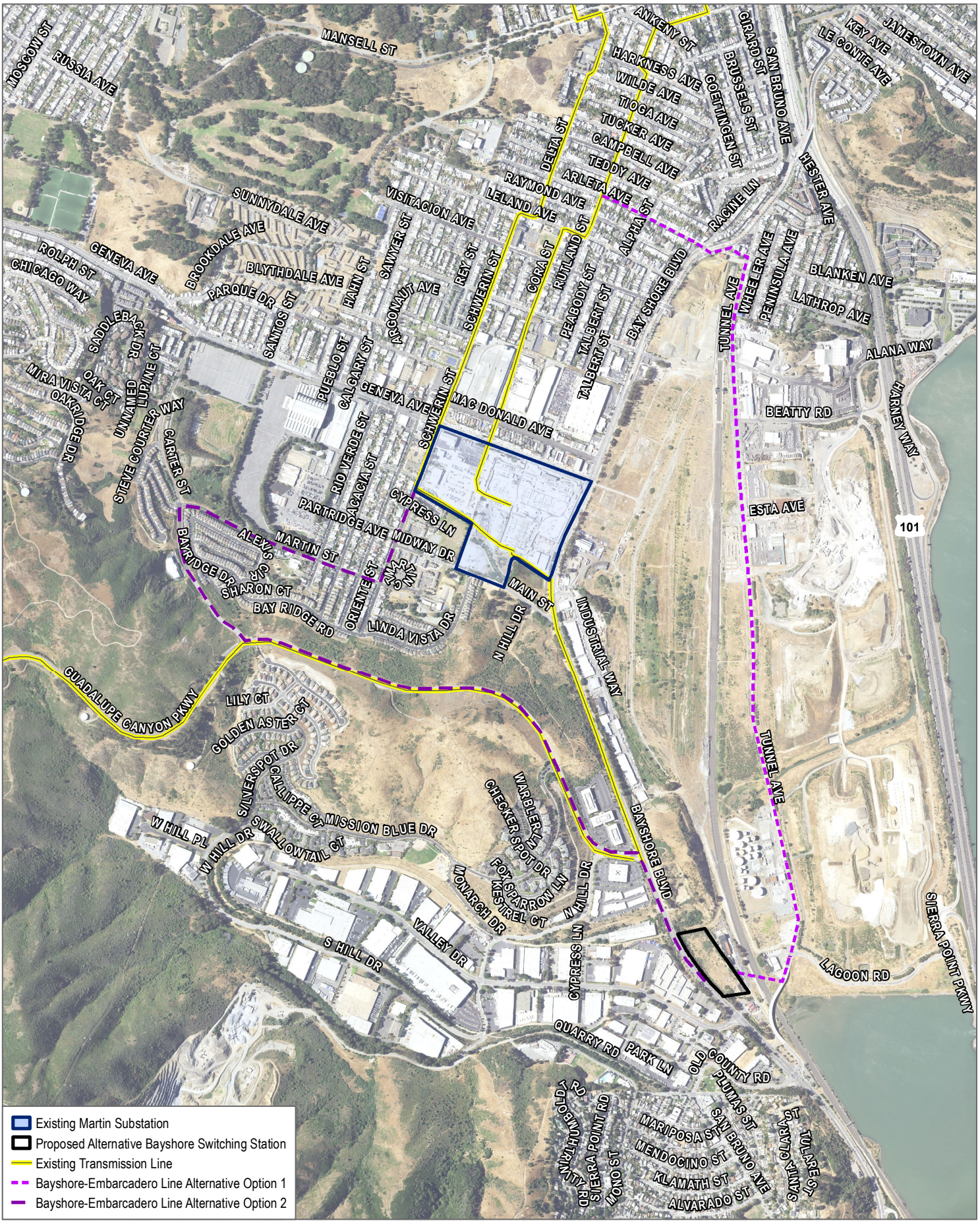
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FIGURE C-3

Sunnydale HOPE SF Avoidance Alternative Line Option A

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: PG&E 2017; San Francisco County 2018; San Mateo County 2018; USDA 2016

FIGURE C-4A

Bayshore-Embarcadero Line Alternative Options (*Eliminated*)

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: PG&E 2017; San Francisco County 2018; San Mateo County 2018; USDA 2016

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FIGURE C-4B

Jefferson-Bayshore Line Alternative Options (*Eliminated*)

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: PG&E 2017; San Francisco County 2018; San Mateo County 2018; USDA 2016

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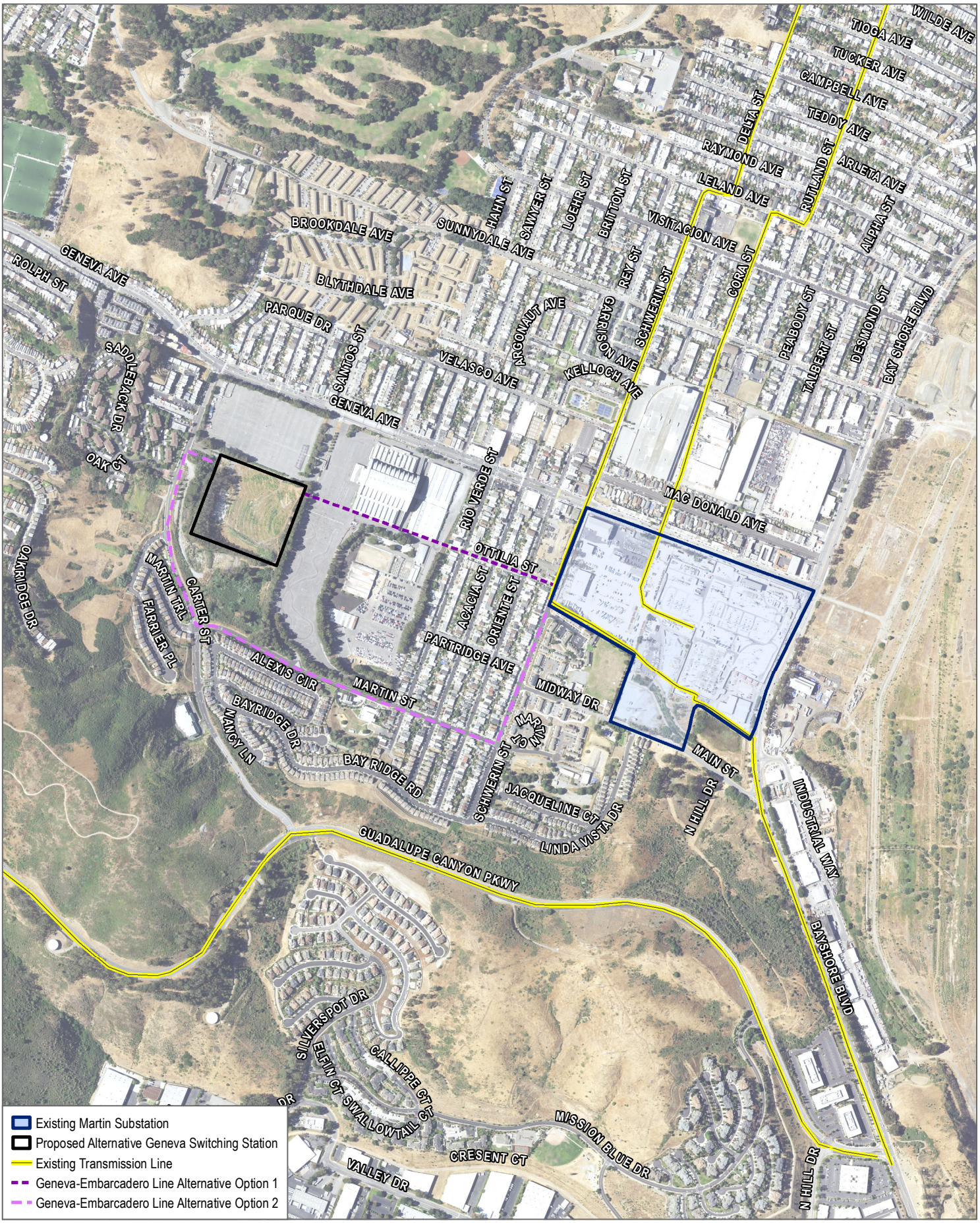
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FIGURE C-4C

Martin-Bayshore Alternative Line Options (*Eliminated*)

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: PG&E 2017; San Francisco County 2018; San Mateo County 2018; USDA 2016

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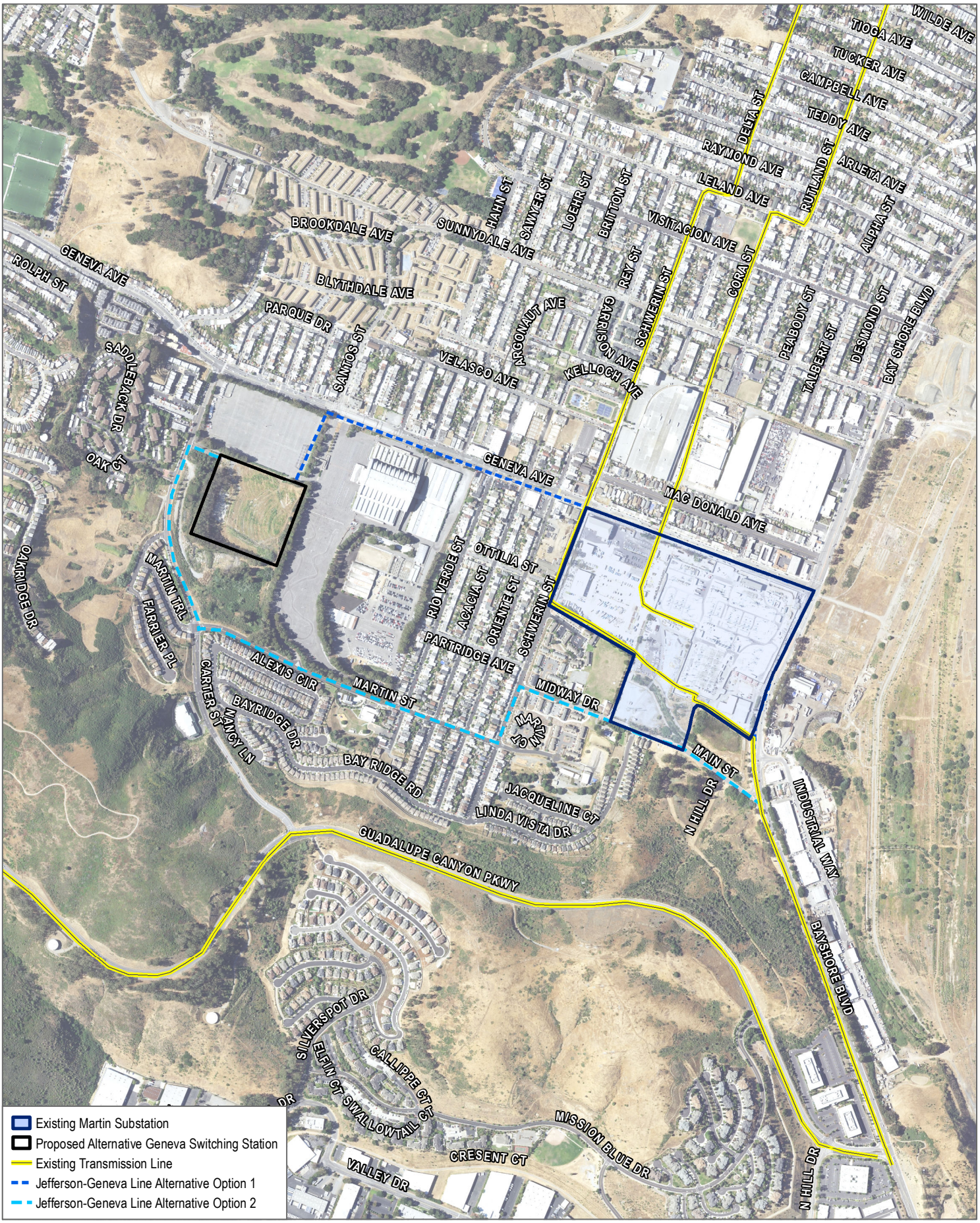
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FIGURE C-5A

Geneva-Embarcadero Line Alternative Options (*Eliminated*)

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: PG&E 2017; San Francisco County 2018; San Mateo County 2018; USDA 2016

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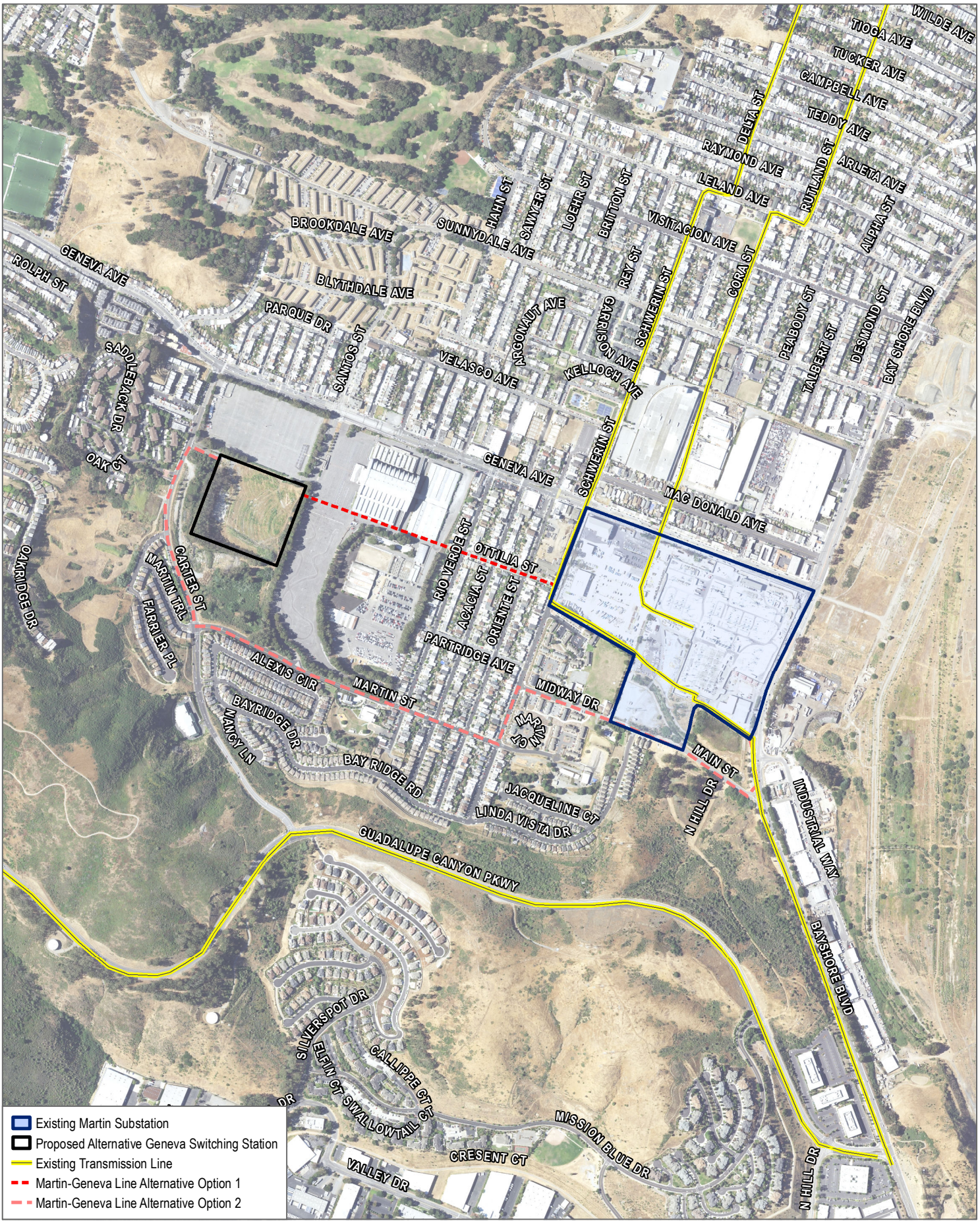
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FIGURE C-5B

Jefferson-Geneva Line Alternative Options (*Eliminated*)

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: PG&E 2017; San Francisco County 2018; San Mateo County 2018; USDA 2016

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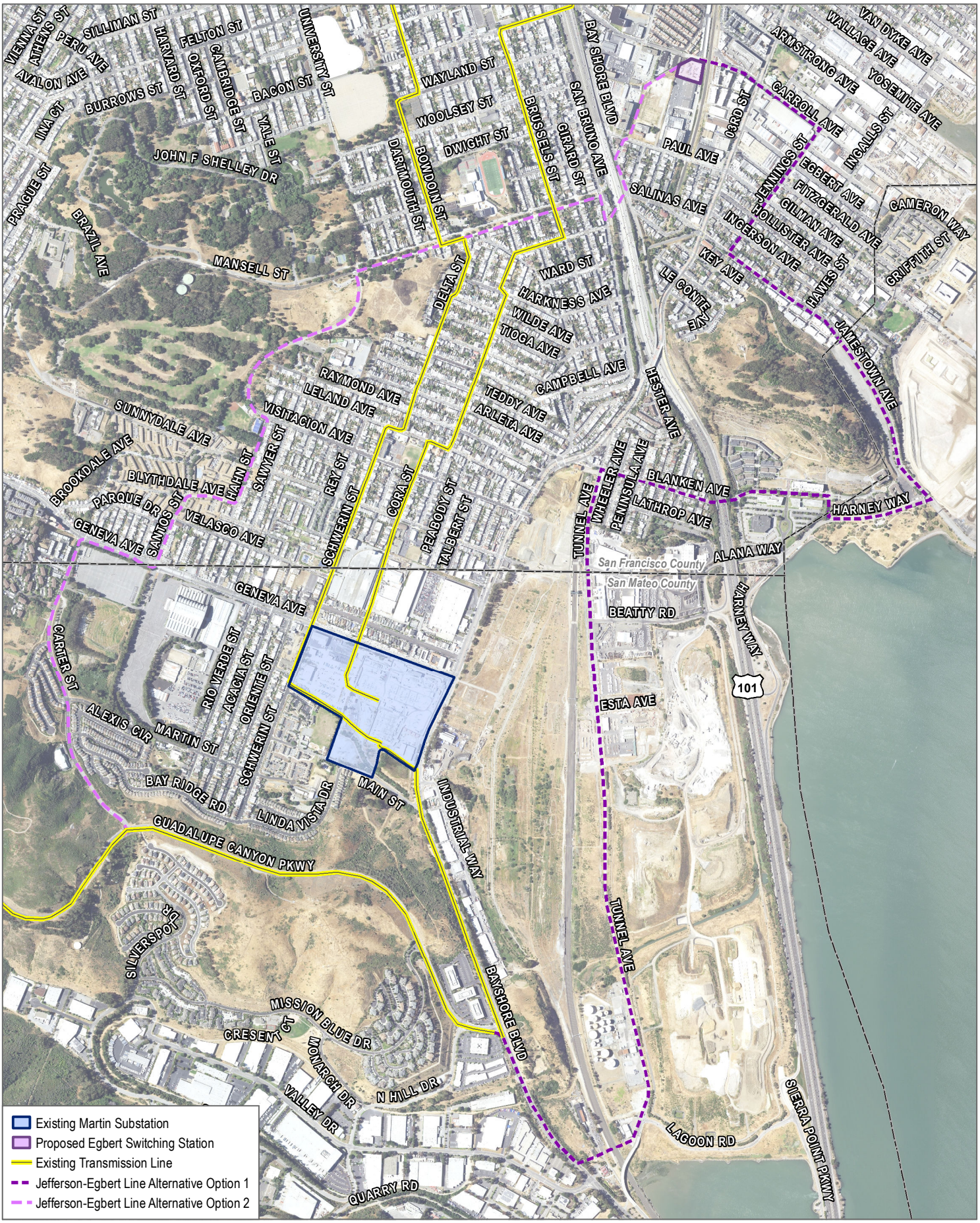
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FIGURE C-5C

Martin-Geneva Line Alternative Options (*Eliminated*)

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: PG&E 2017; San Francisco County 2018; San Mateo County 2018; USDA 2016

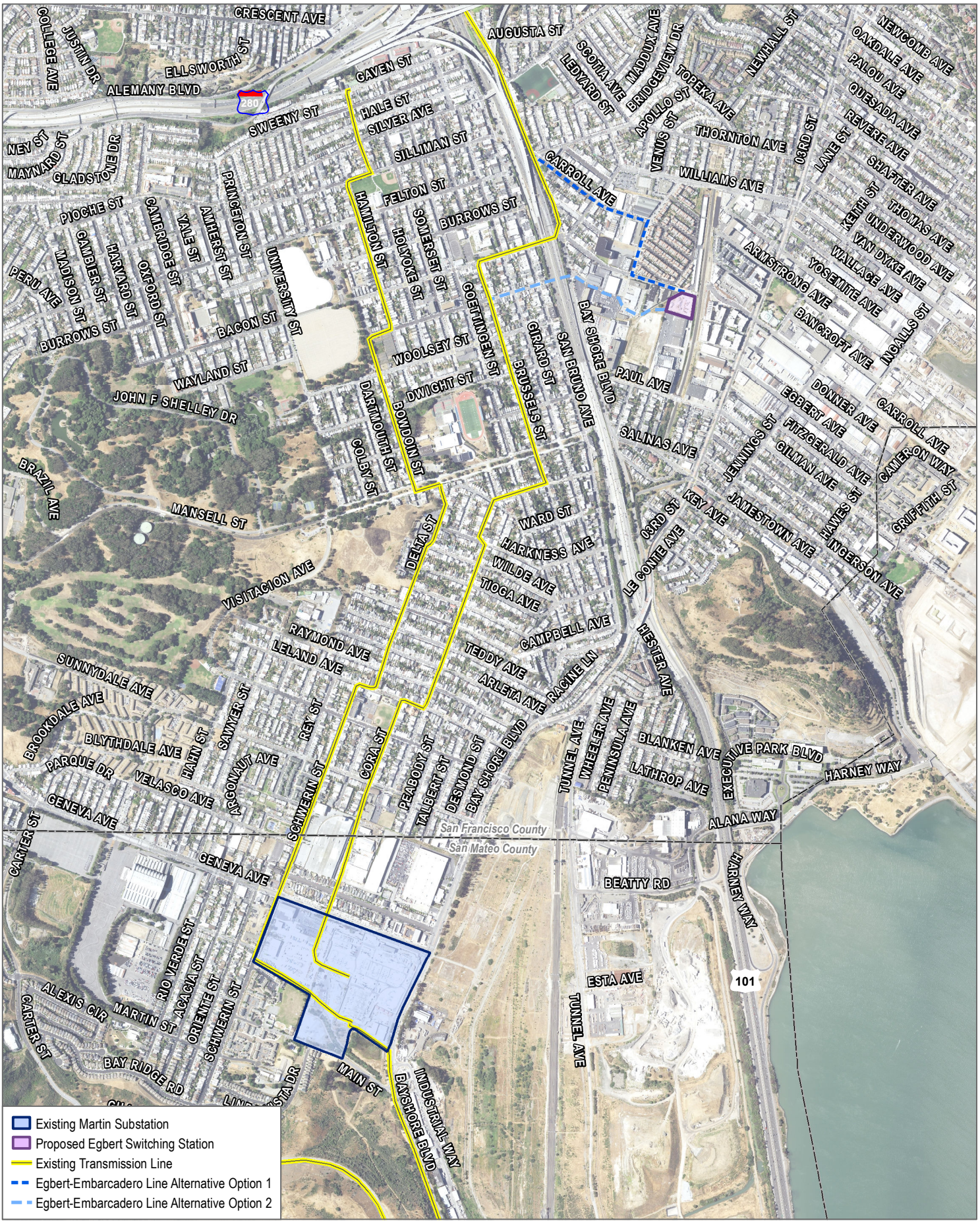
FIGURE C-6A

Jefferson-Egbert Line Alternative Options (*Eliminated*)

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: PG&E 2017; San Francisco County 2018; San Mateo County 2018; USDA 2016

FIGURE C-6B

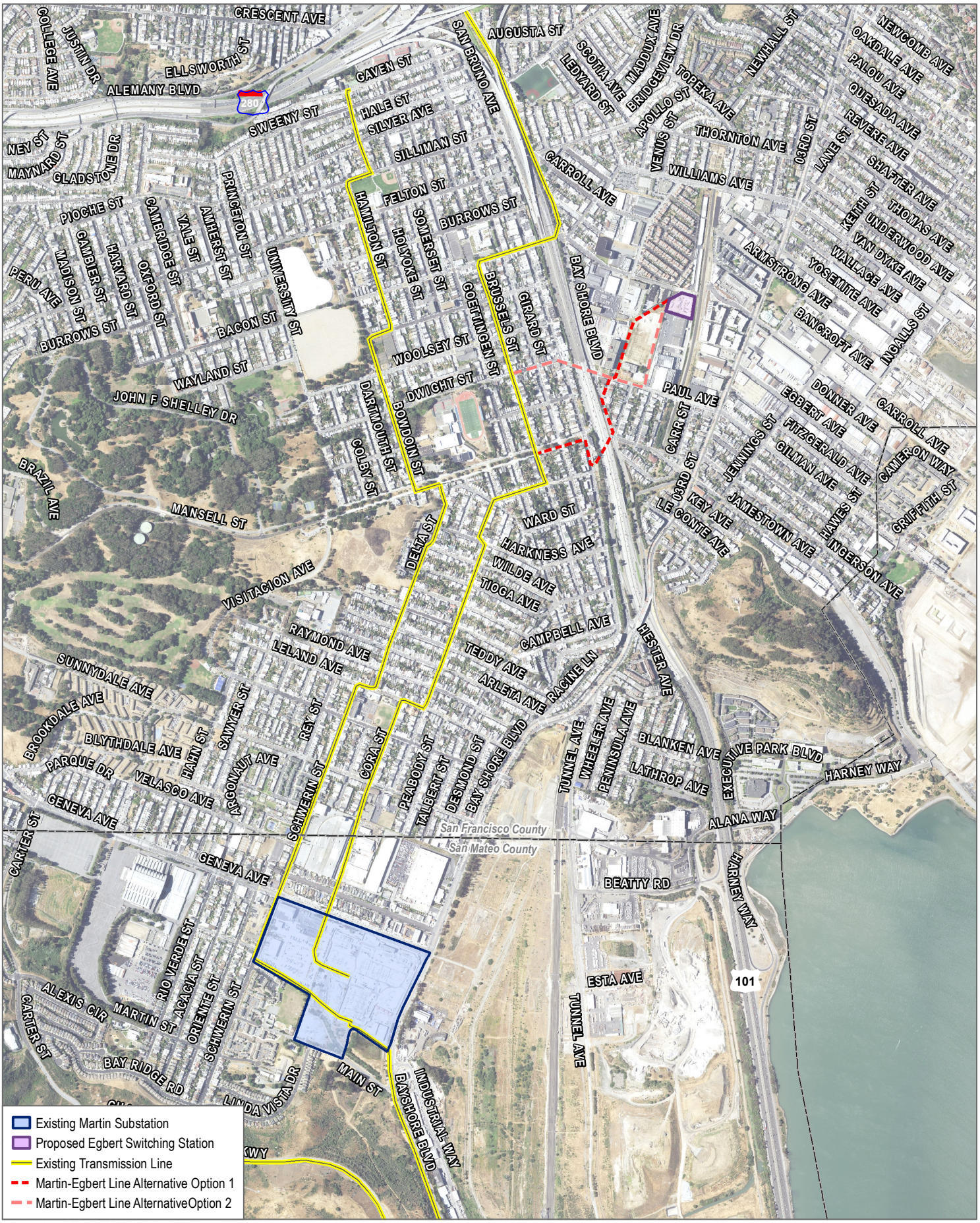
Egbert-Embarcadero Line Alternative Options (*Eliminated*)

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: PG&E 2017; San Francisco County 2018; San Mateo County 2018; USDA 2016

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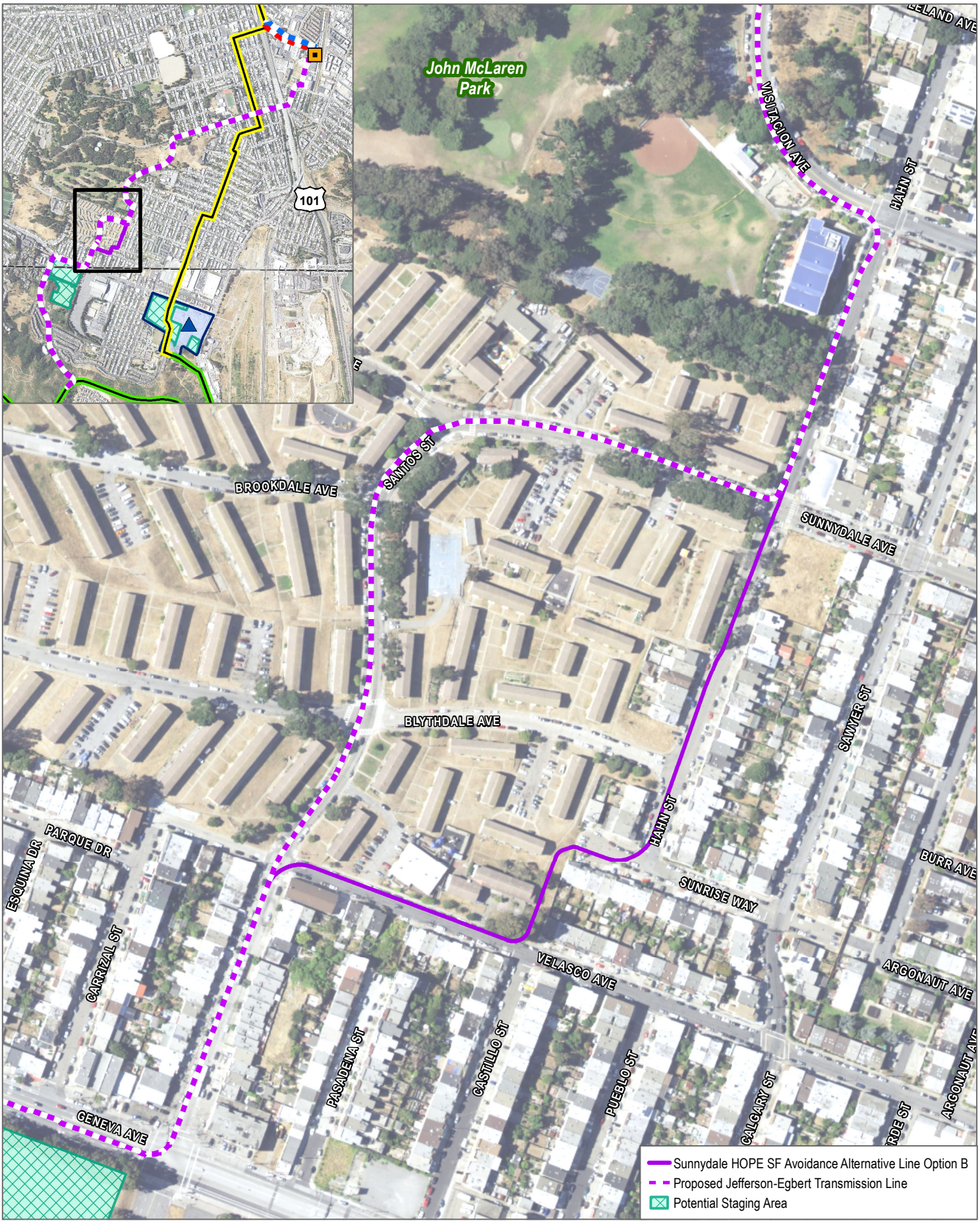
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FIGURE C-6C

Martin-Egbert Line Alternative Options (*Eliminated*)

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: USDA 2016; PG&E 2017, 2019; San Francisco County 2018; San Mateo County 2018

FIGURE C-7

Sunnydale HOPE SF Avoidance Alternative Line Option B (*Eliminated*)

Egbert Switching Station (Martin Substation Extension) Project

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D. ENVIRONMENTAL ANALYSIS

D.1 INTRODUCTION TO ENVIRONMENTAL ANALYSIS

D.1.1 Introduction/Background

Section D of this Environmental Impact Report (EIR) provides discussion and full public disclosure of the significant environmental impacts of the proposed project and alternatives, including the No Project Alternative. Prior to the release of the Notice of Preparation for public review, an Initial Study Checklist (California Environmental Quality Act [CEQA] Guidelines, Appendix G) was prepared to determine which environmental effects have potential to cause significant impacts, requiring further evaluation in the EIR. Based on results of the Initial Study, the California Public Utilities Commission (CPUC) determined that effects found to have minimal or no impact were not warranted for further analysis in the EIR, but they are briefly described in Section F.1, Effects Found not to be Significant. Section D examines the potential environmental impacts associated with the proposed project as they relate to the following 15 areas of environmental analysis:

D.2 Aesthetics
D.3 Air Quality
D.4 Biological Resources
D.5 Cultural Resources
D.6 Energy
D.7 Geology and Soils
D.8 Greenhouse Gas Emissions
D.9 Hazards and Hazardous Materials
D.10 Hydrology and Water Quality
D.11 Land Use and Planning
D.12 Noise
D.13 Transportation
D.14 Tribal Cultural Resources
D.15 Wildfire
D.16 Electromagnetic Fields

Analysis within each issue area includes consideration of the following components of the proposed project:

- Construct the proposed Egbert 230-kilovolt (kV) Switching Station.
- Extend the existing underground Jefferson-Martin 230 kV transmission line to the proposed Egbert Switching Station, creating the proposed Jefferson-Egbert 230 kV transmission line.
- Loop the proposed Egbert Switching Station through the existing underground Martin-Embarcadero 230 kV transmission line, creating the proposed Egbert-Embarcadero 230 kV transmission line and the proposed Martin-Egbert 230 kV transmission line.

Within each of the previously listed environmental areas (EIR Sections D.2 through D.14), the discussion of project impacts is provided in the following format:

- Environmental Setting for the Proposed Project
- Applicable Regulations, Plans, and Standards
- Environmental Impacts and Mitigation Measures
- Project Alternatives
- Mitigation Monitoring, Compliance, and Reporting
- References Cited

D.1.2 Environmental Assessment Methodology

D.1.2.1 Environmental Baseline

Pursuant to CEQA and CEQA Guidelines (14 CCR 15125[a]), the environmental setting used to determine the impacts associated with the proposed project and alternatives is based on the environmental conditions that existed in the project site in November 2018 at the time the Notice of Preparation was published.

D.1.2.2 Environmental Consequences

The EIR evaluates the environmental consequences and potential impacts that the proposed project and the alternatives would create. The impacts identified were compared with predetermined, specific significance criteria, based on CEQA Guidelines, and classified according to the significance criteria listed in each issue area. The same methodology was applied systematically to each alternative. A comparative analysis of the proposed project and the alternatives is provided in Section E of this EIR.

Once a significant impact was identified, diligent effort was taken to identify mitigation measures that would reduce the impact to a less-than-significant level. The mitigation measures recommended by this study are identified in the mitigation monitoring, compliance, and reporting tables at the end of each area of environmental analysis (Sections D.2 through D.15). For a discussion of the mitigation monitoring, compliance, and reporting program, refer to Section G.

D.1.2.3 Applicant Proposed Measures

In the Proponent's Environmental Assessment (PG&E 2017), Pacific Gas & Electric identified a total of 37 applicant proposed measures (APMs) that would be implemented to avoid or reduce potential impacts from the proposed project. During the preparation of this EIR, these

measures were assumed to be part of the proposed project and are not considered as CPUC-recommended mitigation measures. However, Pacific Gas & Electric's APMs would be monitored by the CPUC as they would be compiled with the CPUC-recommended mitigation measures into the final mitigation monitoring, compliance, and reporting program, which would be completed upon adoption of the Final EIR. Table B-6 in Section B, Project Description, provides a complete list of Pacific Gas & Electric Company's APMs.

D.1.2.4 Impact Significance Criteria

While the criteria for determining the significance of an impact are unique to each area of the environmental analysis, the following classifications were uniformly applied to each identified impact:

Class I: Significant; cannot be mitigated to a level that is less than significant

Class II: Significant; can be mitigated to a level that is less than significant

Class III: Less than significant; no mitigation required

Class IV: Beneficial impact

No Impact: No impact identified

D.1.3 References Cited

14 CCR 15000–15387 and Appendix A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

PG&E (Pacific Gas & Electric Company). 2017. *Proponent's Environmental Assessment (PEA) for the Egbert Switching Station Project*. Submitted to the California Public Utilities Commission December 2017. https://www.cpuc.ca.gov/environment/info/dudek/egbert/PEA_EgbertSwitchingStation_December2017.pdf.

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D.2 AESTHETICS

This section evaluates the potential for the Egbert Switching Station (Martin Substation Extension) Project (proposed project) to impact environmental and regulatory aesthetics in the project site. The methods used to analyze visual changes associated with the proposed project consisted of an aerial and photographic inventory of the project site and its surrounding land uses, along with documentation of proposed project components using existing available land use and topographic data, and conceptual plans for the proposed improvements. Sections D.2.1 and D.2.2 describe the regulatory and environmental aesthetics setting for the proposed project, respectively. Section D.2.3 includes analysis and discussion of aesthetics impacts resulting from the proposed project and project alternatives are analyzed in Section D.2.4. Mitigation monitoring, compliance, and reporting are discussed in Section D.2.5 and Section D.2.6 lists the references cited in this section. Cumulative effects are analyzed in Section F.6.1 of this Environmental Impact Report (EIR).

The discussion of aesthetic resources presented in this EIR and the evaluation of potential impacts on these resources as a result of proposed project implementation is based on review of Pacific Gas & Electric Company's (PG&E's) Proponent's Environmental Assessment (PEA) (PG&E 2017) and data responses (PG&E 2018a, 2018b), and a review of relevant state and local plans and policies regarding visual resources. Photographs and visual simulations prepared by PG&E as part of the PEA (and in response to data requests) have been reviewed and incorporated into the visual analysis to document existing visual character and quality, viewing conditions, and anticipated changes to the existing landscape.

The project described in Section B, Project Description, proposes a new 230-kilovolt switching station. The project includes three new underground 230-kilovolt transmission line connections between the new switching station (Egbert Switching Station) and the existing Embarcadero, Jefferson, and Martin Substations; the transmission lines would be located underground, would not be visible to the public, and would not affect existing visual resources. The relay-related work at Embarcadero, Jefferson, and Martin Substations would be within the control room, would not be visible to the public, and would not affect existing visual resources. Because work at these locations would not be visible to the public, Embarcadero and Jefferson Substations are not addressed further in this section. Removal of the Jefferson-Martin transmission line termination equipment at Martin Substation would result in a minor decrease in the amount of equipment located inside the existing perimeter wall. This reduction in the amount of visible equipment would not appreciably affect the appearance of the existing facility or existing visual resources. The proposed transmission lines and potential staging areas would not affect existing visual resources, except during the construction phase. This section focuses on the construction and operation of the new proposed Egbert Switching Station site as described in Section B, Project Description, of this EIR, and visual effects related to construction activities along the lines, at potential staging areas, and at Martin Substation.

D.2.1 Environmental Setting for the Proposed Project

The environmental setting for aesthetic resources encompasses the on-site landscapes directly affected by the project components, as well as the surrounding off-site areas that would be afforded views of the proposed project. More specifically, the environmental setting for aesthetics encompasses existing substations (i.e., Embarcadero and Martin), the proposed Egbert Switching Station site, and transmission line that are located on or traverse portions of the Cities of Brisbane and Daly City in the County of San Mateo and the City and County of San Francisco (Figure B-1, Regional Map).

In addition to developed uses including commercial, residential, and industrial properties, the project vicinity includes a music venue, vacant properties and lands, parks, recreational facilities, undeveloped open space, and the San Francisco Bay. The grid network of streets that traverse the local area, and the location parks and the San Francisco Bay in relation to project components is depicted on Figure B-1.

D.2.1.1 Visual Character

The following discussion describes the existing visual character of the primary project components as it relates to the underlying site or corridor and surrounding area. Viewer groups and viewer exposure are also described as follows.

Egbert Switching Station – On Site

The proposed Egbert Switching Station site encompasses a 1.7-acre property currently used as a lumber and construction materials storage yard. A one-story, modular trailer building is located on site in the northeastern corner of the property. Egbert Avenue borders the site to the north and Union Pacific Railroad right-of-way used by Caltrain regional passenger trains to the east. The unvegetated site gently slopes toward the northeast, with on-site elevations ranging from approximately 29 to 36 feet above mean sea level (amsl). The Egbert Switching Station site currently supports an unpaved lumber and construction materials storage yard that is lined by continuous, single-story, corrugated metal-clad structures and a tarp-covered chain-link fence along its northern and eastern boundaries, and is surrounded by metal chain-link fencing. The southeastern corner of the site contains a small paved vehicle staging area. Dirt mounds, parked vehicles, and assorted debris materials are scattered throughout the site. A rectangular, single-story prefabricated trailer structure with two floodlights installed on the western elevation above the primary entry door is installed in the northeastern corner of the site. Photographs illustrating existing conditions on the proposed switching station site are included on Figure D.2-1, Egbert Switching Station: Existing Conditions.

Egbert Switching Station – Surrounding Area

The site for the proposed switching station is located in a developed neighborhood located east of U.S. Highway 101 and west of 3rd Street. The neighborhood features a mix of residential, industrial, and commercial uses bisected by local and regional transportation corridors. Land use designation applicable to the proposed switching station site and lands in the surrounding area are depicted on Figure D.11-1, Egbert Switching Station Existing Land Use, of this EIR. Figure B-2, Project Location, also provides context to the immediate surrounding area as it consists of aerial imagery of the proposed switching station site and other project components.

Industrial designated lands developed with multistory structures, open-air storage yards, and paved parking lots are located to the site to the south and west of the site. Specifically, a storage yard surrounded by corrugated metal panels and a long, two-story, peach-colored wood structures housing the Art Hive community art studio are adjacent to the western portion of the project site (Figure D.2-2, Egbert Switching Station Site Surrounding Area: Existing Conditions). To the north, the site parallels Egbert Avenue for approximately 200 feet. A self-storage facility is located north of Egbert Avenue and north of the switching station site. A long, two-story structure with unadorned elevations and greyish painted exteriors is located to the immediate south of the switching station site. Paved parking areas are located to the immediate east and west of the structure.

The Portola Place residential development is located to the northwest of the project site, across Egbert Avenue. The development is primarily comprised of two-story townhomes with tan to white stucco exteriors and red-tiled roofs that are accessed by a series of roads constructed of Newhall Street. Landscaping within the boundary of the Portola Place residential development includes a mixture of ornamental shrubs and trees that dot sidewalks. A tan-colored masonry wall borders the development on the east and west. Figure D.2-2 includes a photograph from Bitting Avenue that illustrates the existing visual character of the Portola Place development and apartments in the surrounding area.

The Caltrain corridor is located to the immediate east of the project site and largely consists of dual tracks constructed atop a gravel-covered berm. Sparse to moderately dense vegetation is also present within the fenced extents of the corridor near the proposed switching station site. Photographs of the Caltrain corridor and development in the surrounding area are presented on Figure D.2-3, Egbert Switching Station Site Surrounding Area: Existing Conditions. As illustrated in the photographs, the corridor parallels industrial facilities, a self-storage business, and apartment development in the project vicinity. For example, four- to five-story multifamily residential developments (i.e., the Dr. George W. Davis Senior Center and Waterbend Apartments; see Figure D.11-1) are located on Carroll Avenue to the immediate east of the Caltrain corridor. The grey and multitoned exteriors of the residential developments are visible

in photographs presented on Figure D.2-4, Egbert Switching Station Site Surrounding Area: Existing Conditions. While clearly visible in Figure D.2-4 photographs, a long and rectangular, three-story business training facility housed in a tan and brick-red stucco building and featuring shipping and receiving facilities that are surrounded by chain-link with white slat fencing is located to the north of the senior center and Waterbend Apartments. 3rd Street, a four-lane street with a wide median on which is bordered by multistory residential, commercial, and park uses including Bayview Park and K.C. Jones Playground. San Francisco Municipal (Muni) passenger rail trains operates on tracks installed within the 3rd Street median. Nearby uses along the 3rd Street corridor including the Carroll Avenue Muni station and Bayview Park are depicted in Figure D.2-4.

Transmission Lines

Proposed Jefferson-Egbert Transmission Line

The proposed Jefferson-Egbert transmission line traverses lands within Brisbane, Daly City, and San Francisco between the existing Jefferson-Martin transmission line and the proposed Egbert Switching Station (Figure B-1). The proposed route is located within an urban setting consisting of open space, residential, industrial, and commercial uses. From south to north, the route begins near the intersection of Guadalupe Canyon Parkway and Carter Street in the City of Daly City, where it borders San Bruno Mountain State Park. The intersection of Guadalupe Canyon Parkway and Carter Street marks the eastern edge of the state park, and access to the Old Ranch Road Trail is be located approximately 450 feet south of the intersection. The trail parallels Guadalupe Canyon Road on the east, briefly following the alignment of two high-voltage transmission line, and continues to the south through a small eucalyptus grove. North of the Guadalupe Canyon Parkway and Carter Street intersection, the proposed alignment follows Carter Street, briefly traversing descending, hilly terrain consisting of open space, and residential and self-storage facility development.

The local elevation along the alignment decreases near the intersection of Martin Street and Carter Street, where the streets are bordered by residential areas consisting of neutral-colored, three-story single-family homes that are clustered close together. A row of similar three-story homes is located at a higher elevation along Farrier Place to the west of Carter Street. A large, undeveloped open space area is located east of Carter Street between Martin Street and Reynolds Street. The area is bordered by a walking and biking trail along Carter Street and is vegetated with low-lying shrubs and grasses interspersed with large trees. A gated multifamily residential complex that includes several three-story buildings that are light blue, tan, and white is located to the west. Near the intersection of Carter Street and Geneva Avenue, the proposed alignment is located adjacent to Cow Palace surface parking lots to the east and colorful, three-story residential buildings to the west. From the intersection of Carter Street and Geneva Avenue to the intersection of Hahn Street

and Visitacion Avenue, the proposed alignment borders residential and recreational uses including John McLaren Park. Featuring diverse landscapes including redwood forests, meadows, grasslands, and wetlands (SFRP 2018), the portion of John McLaren Park adjacent to the proposed alignment features tall eucalyptus (*Eucalyptus* sp.) and redwood (*Sequoia sempervirens*) trees, paved pathways, children's playgrounds, and expansive turf lawns.

North of John McLaren Park, the Visitacion Avenue corridor flanks pockets of isolated and hilly grasslands with trees interspersed throughout. At Mansell Street, the proposed alignment turns east, paralleling residential development, including two-story and rectangular residential units located on hilly terrain. Mansell Street, a two-lane road divided by a wide and sloping landscaped median, generally retains a consistent residentially developed character as it approaches U.S. Highway 101; however, taller three-story residential units are located near San Bruno Avenue. After crossing U.S. Highway 101 underground, the proposed alignment extends north along Crane Street, an unmarked two-lane road lined by rectangular and attached two-story homes display an assortment of bright and drab colors and various architectural designs. An existing transmission line is installed along Crane Street and connections to individual homes creates a slightly chaotic collection of horizontal line. The intersection of Crane Street and Paul Avenue represents a transition from predominantly residential uses to industrial uses. The final segment of the proposed alignment crosses Paul Avenue and continues to the north, bordering a vacant dirt lot to the west and two large industrial buildings with a large paved surface parking lot to the east prior to terminating at the proposed Egbert Switching Station site.

Proposed Egbert-Embarcadero and Martin-Egbert Transmission Lines

The proposed Egbert-Embarcadero and Martin-Egbert transmission line alignments extend west from the proposed Egbert Switching Station site and interconnect with the existing Martin-Embarcadero transmission line near Phelps Street (a distance of approximately 0.3 miles). Existing development located west of the Egbert Switching Station site were previously identified (see previous discussion under Egbert Switching Station – Surrounding Area). Between Newhall Street and Phelps Street, development along Egbert Avenue includes industrial and residential uses. For example, a blocky two-story that houses a plumbers and pipefitters training center, a three- to four-story, windowless concrete self-storage building, an industrial business center featuring several long metal siding buildings painted dark blue with rust-colored trim, and attached one- and two-story homes occur along Egbert Avenue. An existing transmission line is installed along Egbert Avenue and numerous mainline connections create a busy collection of lines along the corridor.

Martin Substation

Martin Substation is an approximately 40-acre facility located near the intersection of Geneva Avenue and Bayshore Boulevard in Daly City. The eastern portion of the substation consist of multiple racks, bays, and other typical substation components and the west portion features a large parking and laydown area and several operations buildings. In addition, a two- to three-story brick building with tall, arched windows on all elevations is located in the northwestern corner of the site. A 10-foot high masonry block wall along the north and east and slatted chain-link fencing along the west line the substation boundary. Surrounding land uses in the area including single-family residential to the north (north of Geneva Avenue), the Bayshore School and single-family residences to the west (west of Schwerin Street), residential and park uses to the south, and industrial businesses and vacant lands to the east (east of Bayshore Boulevard).

D.2.1.2 Viewer Groups, Exposure, and Sensitivity

Due to the presence of multistory urban development, the site is not readily visible from higher volume transportation corridors in the project site, including 3rd Street (approximately 0.13 miles to the east) and U.S. Highway 101 (approximately 0.20 miles to the west). With the exception of residential and recreational areas located atop higher elevation terrain to the north and south, available views are general limited to locations within approximately 500 feet of the site due to presence of multistory development in the immediate area. The following discussion identifies groups provided views to the proposed switching station site and other project components.

Caltrain Passenger Rail

The Caltrain passenger rail line runs adjacent to the proposed Egbert Switching Station site and passengers are provided views to the site and nearby segments of the proposed transmission line alignments. Approximately 90 passenger trains pass the site each weekday, most traveling between downtown San Francisco and the southern peninsula (Caltrain 2016). The proposed switching station site (and nearby segments of proposed transmission line alignments) are experienced primarily by riders seated on the western side of trains and appear within the context of local industrial development and existing aboveground utilities. While the maximum speed of Caltrain travel is 79 mph, train speeds near the site are estimated to be closer to 45 mph (PG&E 2017), and mobile views are experienced over a short-term duration, typically lasting a few seconds. As such, viewer sensitivity is considered low to moderate.

Motorists, Pedestrians, and Cyclists

Motorists are provided views of the proposed Egbert Switching Station site from number of nearby streets. Previous Section D.2.1.1 details the numerous streets located nearby the proposed switching station site, along the proposed transmission line alignments, and near the existing

Martin Substation. Depending on proximity to project components and the presence of intervening development, motorists are provided clear to partially obstructed views to project components. For example, at Carrol Avenue, motorists on 3rd Street are provided brief glimpses towards the proposed switching station site and nearby segments of proposed transmission line alignments. Due to proximity and a reduced presence of intervening features, motorists on Egbert Avenue, Newhall Street, and Bitting Avenue are provided longer duration (albeit mobile) views to the same project components. Mobile views to project sites and alignments provided to motorists are generally brief, typically lasting less than 1 minute. Due to the brief duration of views, partial to occasional screening of project sites and alignments by intervening features, and the presence of similar features in the landscape, viewer sensitivity is considered low to moderate.

Residents

The closest residences to the Egbert Switching Station site (i.e., the Portola Place development) are located approximately 50 feet to the north. This group is also provided views to nearby segments of proposed transmission line alignments including those along Egbert Avenue. Residential land uses are also located throughout the proposed Jefferson-Egbert transmission line alignment, and near the existing Martin Substation.

Regarding Portola Place residents, a masonry wall planted with tall juniper shrubs and vines is installed along the southern boundary of the development (i.e., adjacent to Egbert Avenue) and blocks ground-level views to the project site from streets within the development. However, some two- and three-story residences (particularly those located along the southeastern perimeter of the development) have direct private views of the site from second-story windows. Depending on orientation, private views are also available from some apartments within multifamily developments located east of the site, across the Caltrain corridor. For these viewers, the site is seen within the existing visual context of an industrial urban landscape that includes a railroad right-of-way, industrial structures and warehouses, and outdoor storage yards. Residential views are long in duration, and the sensitivity of this viewer group is considered moderate to high.

Park Users

Views toward the proposed Egbert Switching Station site from the nearest public open space, Bayview Park and K.C. Jones Playground, which is approximately 0.2 miles to the northeast on 3rd Street, are largely screened by multistory buildings (Figure D.2-4). From Bayview Park, views of the proposed switching site are available but are experienced within the context of the existing developed landscape setting (Figure D.2-5, Scenic Vistas). The proposed switching station site is not visible in northerly oriented views from San Bruno Mountain State Park, located more than 2.3 miles away (Figure D.2-5). The existing Martin Substation is visible from the state park but is not visually prominent in available expansive views (Figure D.2-5). The presence of open space and other parks

along the proposed transmission line alignments and near the existing Martin Substation was previously identified in Section D.2.1.1. The duration of views provided to park users is typically brief and the sensitivity of this viewer group is considered low.

D.2.1.3 Key Observation Points

Key observation points (KOPs) are representative public viewpoints within the project site that are evaluated in detail to assist in the evaluation of anticipated change to existing views and the visual environment. The KOP locations and view orientations were identified by PG&E and subsequently reviewed in the field by Dudek to verify their suitability for inclusion in the environmental analysis. The selection of KOPs was based on viewer type and volume, and visibility and proximity to the project site. KOPs are public locations from which the visual effects of the project would be clearly visible.

Four KOPs have been selected to represent the range of viewing conditions and visual changes that would result from implementation of the proposed project. As the proposed Egbert Switching Station entails the introduction of a new facility and represents the greatest potential for noticeable visual change relative to all project components, KOPs focus on existing views towards the switching station site. KOPs were primarily sited on public roads in the project site. While the proposed switching station site is visible from multistory residences in the immediate area, the private view of residences are not typically evaluated under the California Environmental Quality Act (CEQA). The proposed switching station site is also visible from parks and other recreation areas; however, as viewed from these more distant locations, the project site is partially to fully screened by intervening development, landforms, and/or vegetation. Therefore, KOPs were not established at private residences, parks, or other recreation areas.

Figure D.2-6, Key Observation Points, shows the location of the identified KOPs in the area of the proposed project. The following discussion also describes the existing setting at each KOP, including visual quality and visual sensitivity.

Key Observation Point 1 – Residential Access Road East of Caltrain Corridor

KOP 1 is situated on the residential access road for the Waterbend Apartments that are located east of the Caltrain corridor and approximately 175 feet east of the Egbert Switching Station site. As illustrated on Figure D.2-7, Key Observation Points 1 and 2, the existing view from KOP 1 looks to the northwest across a narrow landscaped area dotted with juvenile trees, fencing, gravel, and tracks in the Caltrain corridor. Beyond the Caltrain tracks, a vegetated slope extends up to the project site. A long steel container on the project site is visible in the foreground. In addition, an unadorned and greyish industrial building is visible to the south of the proposed switching station site and one- and two-story residences painted with cool exterior colors populate the view to the northwest.

Key Observation Point 2 – Carroll Avenue/Caltrain Corridor

KOP 2 is located approximately 475 feet northeast of the site and adjacent to the established Armstrong Townhomes residential development on the eastern side of the Caltrain corridor. As shown on Figure D.2-7, the existing view from KOP 2 primarily consists of the low metal fencing surrounding the Caltrain corridor and a slightly elevated rail line in the foreground. A single-story, beige, corrugated metal storage building borders the far side of the rail corridor beyond which multistory residences and industrial and commercial structures are visible in the foreground against the backdrop of a densely developed hillside covered with one- and two-story residences. From this location, views to the site are largely obstructed by adjacent structures; however, the eastern perimeter of the site is partially visible south of the storage facility.

Key Observation Point 3 – Williams Avenue Bridge

KOP 3 is located approximately 0.25 miles north of the site at the Williams Avenue Caltrain overcrossing, located between Diana Street and Reddy Street. As shown on Figure D.2-8, Key Observation Points 3 and 4, the existing view looks south along the Caltrain corridor from an elevated point of view toward the Egbert Switching Station site. A metal chain-link fence is visible surrounding both sides of the Caltrain corridor. An expansive paved area is visible in the foreground to the left, with multistory residential complexes visible beyond. One- and two-story metal self-storage units are visible in the foreground to the west of the Caltrain corridor. The terracotta-tiled roof and beige buildings of the Portola Place residential development are visible beyond the self-storage facility to the southwest. Light-colored metal rooftops of the existing structures situated on the switching station site are discernible to the south beyond the storage facility. Large-scale industrial buildings and warehouses dominate the view directly south of the site and hills densely developed with residences are visible in the background to the south and southwest. The undeveloped, seasonally green and tree-marked slopes of Bayview Park can be seen on the south/southeast, and the relatively flat, undeveloped, east–west ridgeline of San Bruno Mountain is visible approximately 3.5 miles to the south.

Key Observation Point 4 – Bitting Avenue (Portola Place Residential Development)

KOP 4 is located approximately 260 feet northwest of the project site within the Portola Place residential development, along Bitting Avenue. The existing view at KOP 4 looks southeast toward the Egbert Switching Station site from Bitting Avenue (Figure D.2-8). Street-level views from this location primary consist of the beige masonry wall that separates Egbert Avenue from the Portola Place residential area, which is covered in green climbing vegetation. Tall juniper trees (*Juniperus* sp.) are planted immediate north of the wall. Street parking is permitted on Bitting Avenue, and as depicted on Figure D.2-8, vehicles of residents and their guests typically line the road. The tall, colorful buildings of the Dr. George W. Davis Senior Center and the Waterbend Apartment complex

are visible in the background. The single-story structure on the project site is entirely screened from view by the beige masonry wall (the exposed beam roofline of a structure on the property to the immediate west of the project site is visible above the wall).

D.2.1.4 Scenic Vistas

For this analysis, a scenic vista is defined as a wide or particularly broad and distant public view through a view corridor or from a scenic transportation corridor that is recognized and valued for its scenic quality.

Bayview Park, an approximately 46-acre park located on Bayview Hill, approximately 0.5 miles southeast of the project site, offers expansive views of the surrounding area. The visual character of this public park is a naturalistic, largely forested landscape with paved hiking trails offering panoramic views of the City and County of San Francisco and the San Francisco Bay. The project site is not prominently visible from the park because of distance and the urban-industrial landscape setting that the site is located within (Figure D.2-5).

Bayview Park, a 46-acre public open space park located on Bayview Hill with limited paved public roads and trails, rises to an elevation of approximately 400 feet amsl. The mounded, hilly form, green grass covered, and tree dotted terrain of Bayview Park (located approximately 0.5 miles to the south of the site) is visible from the south oriented photograph presented on Figure D.2-3. Where not obstructed by trees, views from Bayview Park to the surrounding area are expansive views. The visual character of this public park is a naturalistic, largely forested landscape with paved hiking trails offering panoramic views of the City and County of San Francisco and the San Francisco Bay. Due to the presence of intervening development in the surrounding area, the proposed Egbert Switching Station site is not distinct or prominent as viewed from Bayview Park (Figure D.2-5).

The Resource Management Element of the Daly City General Plan recognizes the Daly City coastline, San Bruno Mountain, and scenic corridors as important visual elements of Daly City (City of Daly City 2013). The proposed Jefferson-Egbert transmission line would be over 1 mile from the coastline at its closest point and would not interfere with views of the coastline due to distance and intervening structures and buildings. The Brisbane General Plan also identifies San Bruno Mountain as contributing to the City of Brisbane's scenic character and quality (City of Brisbane 1994). As previously stated within the Egbert Switching Station discussion, ridgeline and north-facing slope trails within San Bruno Mountain State Park offer wide and long panoramic views that include the project site. These views are expansive and extend to downtown San Francisco, Oakland, San Leandro, the Bay Bridge, Richmond, the Marin Headlands, and distant mountain terrain including Mount Tamalpais and Mount Diablo. As

shown on Figure D.2-5, the existing Martin Substation is visible from the state park but the proposed Egbert Switching Station site is screened from view by intervening development.

D.2.1.5 Scenic Highways

Scenic highways include freeways and state routes that are designated as such by the state legislature (through inclusion in Section 263 of the California Streets and Highways Code) and are included in the California Department of Transportation Scenic Highway System.

While there are no officially designated state scenic highways in San Francisco County, the following are four eligible state scenic highway in the area of the proposed project:

- State Route (SR) 1: from SR-101 near San Luis Obispo to SR-35 near Daly City
- SR-35: from SR-17 to SR-92/I-280/SR-1 in San Francisco
- SR-80: from I-280 near First Street in San Francisco to SR-61 in Oakland
- SR-280: from SR-17 to I-80 near First Street in San Francisco

The nearest project components to the identified segment of SR-1, the proposed Jefferson-Egbert transmission line and the Martin Substation, are located 4 miles and 4.6 miles to the northeast, respectively.

The nearest project components to the identified segment of SR-35, the proposed Jefferson-Egbert transmission line and the Martin Substation, are located 4 miles and 4.6 miles to the east, respectively.

The nearest project component to the identified segment of SR-80, the proposed Egbert Switching Station site, is located approximately 4.3 miles to the south.

The nearest project component to the identified segment of SR-280, the proposed Egbert Switching Station site, is located approximately 0.80 miles to the south.

At the local level, the Daly City General Plan recognizes Guadalupe Canyon Parkway and Mission Street (Highway 84) as scenic corridors because of their views of San Bruno Mountain, the coastline, San Francisco Bay, and panoramic views of the City of Daly City and the City and County of San Francisco (City of Daly City 2013). As previously described, the southern terminus of the proposed Jefferson-Egbert transmission line alignment is located near the intersection of Guadalupe Canyon Parkway and Carter Street in the City of Daly City.

D.2.1.6 Light and Glare

Primary light sources within the project site include streetlights; interior lights from nearby residential, commercial, and industrial buildings; parking lot lighting and security light. Cantilevered metal streetlight fixtures mounted on wood utility poles line the northern side of Egbert Avenue to the north of the proposed Egbert Switching Station site. Similar light fixtures are located within the Portola Place residential development to the north of the site. In addition, several pole-mounted lights are situated immediately northeast of the site within the self-storage facility parking area located along Egbert Avenue. On the eastern side of the Caltrain corridor tracks, street lighting at or near the existing apartment complex (Waterbend Apartments) consists of pairs of light fixtures mounted on steel poles; the lower fixture is smaller and at pedestrian level, whereas the higher one is for vehicular scale and safety. Additional pole-mounted lighting is located within parking and outdoor storage yard areas south of the proposed switching station site, and other sources of nighttime lighting include illumination emanating from the industrial workspace at the adjacent Art Hive building and nearby residences of the Waterbend Apartments and Portola Place developments.

D.2.2 Applicable Regulations, Plans, and Standards

Public agencies and planning policy establish visual resource management objectives to protect and enhance public scenic resources. Goals, objectives, policies, and implementation strategies and guidance are contained in resource management plans, comprehensive plans and elements, and local specific plans. Applicable plans and the proposed project's consistency with them are addressed in Section D.11, Land Use and Planning. Specific federal, state, and local policies and directives pertinent to visual resources are listed as follows.

Federal

There are no federal regulations or policies related to aesthetics, light, or glare that are applicable to the proposed project.

State

California Public Utilities Commission General Order No. 131-D

The California Public Utilities Commission (CPUC) has sole and exclusive jurisdiction over the siting and design of the proposed project and alternatives, because it authorizes the construction, operation, and maintenance of investor-owned public utility facilities. Although such projects are exempt from local land use and zoning regulations and discretionary permitting (i.e., they would not require any land use approval that would involve a discretionary decision to be made by a local agency such as a planning commission, city council, or county board of supervisors), General

Order No. 131-D, Section XIV.B, requires that in locating a project "the public utility shall consult with local agencies regarding land use matter." The public utility is required to obtain any required non-discretionary local permit.

California Department of Transportation Scenic Highway Program

In 1963, the California legislature created the Scenic Highway Program to preserve and protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to the highways. The State Scenic Highway system includes both "designated" scenic highways and "eligible" scenic highways. An "eligible" state highway becomes "designated" after a local jurisdiction adopts a scenic corridor protection program, applies to the California Department of Transportation for scenic highway approval, and receives the designation. The state regulations and guidelines governing the Scenic Highway Program are found in Section 260 et seq. of the Streets and Highways Code.

Local

Pursuant to Article 12, Section 8, of the California Constitution, the CPUC has sole jurisdiction over project siting, design, and construction. Discretionary permits from the County of San Mateo, City and County of San Francisco, City of Daly City, and City of Brisbane would not be required for construction and operation of the proposed project. Further, because these cities and counties do not have land use jurisdiction over the proposed project, the proposed project is not subject to local standards and ordinances. However, state agencies are required to consider local land use policies and regulations when making decisions; therefore, this section includes a summary of applicable local standards or ordinances. This summary is provided for informational purposes and to aid in the CEQA review process.

The proposed underground transmission lines cross portions of San Francisco, Brisbane, and Daly City, and Martin Substation is located in Brisbane and Daly City. Potential staging areas are located in San Francisco, Brisbane, and Daly City as well. No related policies are found in Brisbane or Daly City's General Plans. The proposed switching station site is located in the City and County of San Francisco. This section reviews visual resource-related policies contained in city plans and ordinances.

San Francisco General Plan

The Urban Design Element (San Francisco Planning Department 2010a) includes policies regarding aesthetic considerations of development (e.g., the height of buildings). Map 4-Design Guidelines for Height of Buildings, in the General Plan, shows a 65-foot height limit for structures in the proposed switching station area. Other policies include the following:

- **Policy 1.1:** Recognize and protect major views in the city, with particular attention to those of open space and water.

- **Policy 2.7:** Recognize and protect outstanding and unique areas that contribute in an extraordinary degree to San Francisco's visual form and character.
- **Policy 3.2:** Avoid extreme contrasts in color, shape and other characteristics which will cause new buildings to stand out in excess of their public importance.
- **Policy 4.12:** Install, promote and maintain landscaping in public and private areas.

City and County of San Francisco, Bayview Hunters Point Area Plan

The Bayview Hunters Point Area Plan (San Francisco Planning Department 2010a) encompasses the area south of Cesar Chavez Street and east of U.S. Highway 101 to the San Francisco waterfront. The following policy of the plan is applicable to the project (specifically, the proposed switching station site and underground transmission lines):

- **Policy 5.1:** Preserve and enhance the existing character of residential neighborhoods.

San Francisco Planning Code

The proposed Egbert Switching Station site and portions of the proposed project's transmission lines are located within the Bayview Hunters Point Area Plan, which designates the site as Light Industrial. Consistent with this land use designation, the Egbert Switching Station site is zoned Production, Distribution, and Repair (PDR-2) and is located within one of the City and County of San Francisco's 12 Special Use Districts, the Design and Development Special Use District.

The intent of PDR-2 district is to encourage the introduction, intensification, and protection of a wide range of light and contemporary industrial activities. New housing, large office developments, large-scale retail, and the heaviest of industrial uses (e.g., incinerators) are prohibited in the PDR-2 district. Light industrial uses that may be conducted entirely within an enclosed structure, partly within enclosed structures, or some functions may occur entirely in open areas are permitted within the district. Pursuant to Table 210.3, Zoning Control Table for PDR Districts, public utilities yard and utility installation are permitted uses within the PDR-2 district.

The switching station site is also located in the 65-J Height and Bulk District. Regulations applicable to the designation are established in Section 263.13 of the City and County of San Francisco Planning Code. The regulations are intended to accommodate additional housing opportunities for lower and very low income household and provides for exceptions to the 40-foot base height limit up to 65 feet. Exceptions to the 40-foot base height limits may be approved (up to 65 feet) only if the use of the building for which the additional height is sought is residential. As proposed, the switching station building would be approximately 40 feet high and would not seek an exception to the base height limit.

D.2.3 Environmental Impacts and Mitigation Measures

D.2.3.1 Definition and Use of Significance Criteria

Based on the CEQA Guidelines (Appendix G, Environmental Checklist Form) (14 CCR 15000 et seq.), standard CEQA practice and environmental documents analyzing transmission line and substation projects, the significance criteria presented as follows are used to determine whether the proposed project would result in a significant impact. In accordance with Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on visual resources if the proposed project would:

Impact AES-1 Have a substantial adverse effect on a scenic vista

Impact AES-2 Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway

Impact AES-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 point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Impact AES-4 Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area

D.2.3.2 Applicant Proposed Measures

Table D.2-1 presents the applicant proposed measures (APMs) proposed by PG&E that apply to the proposed project to reduce potential impacts to aesthetics. These measures aim to reduce light spillover, minimize visibility of lighting from off-site locations, and require construction debris cleanup.

Table D.2-1
Applicant Proposed Measures for Aesthetics

APM No.	Description
APM AE-1	Nighttime Lighting to Minimize Potential Visual Impacts. Because much of the switching station equipment will be located within an enclosed structure, the proposed switching station will have less outdoor lighting than at a conventional outdoor switching station. Design and layout for new outdoor lighting at the switching station will incorporate measures such as use of non-glare or hooded fixtures and directional lighting to reduce spillover into areas outside the switching station site and minimize the visibility of lighting from off-site locations.
APM AE-2	Construction Cleanup. Construction activities will be kept as clean and inconspicuous as practical. Construction debris will be picked up regularly from construction areas.

Notes: APM = applicant proposed measure.

D.2.3.3 Methodology and Assumptions

Scenic Vistas and Highways

Impacts to scenic vistas and highways focus on the potential for construction and/or operational activities to interrupt or obstruct existing views to scenic features. For purposes of this analysis, scenic vistas include views from formally designated scenic locations, including parks and overlooks. In addition, consideration of scenic vistas include informal long and broad views that include scenic landforms or water features such as mountains, hills or ocean, lakes, rivers, and waterfalls. Scenic vista locations are identified, and at each location, the visibility of project activities and features is described and potential for view blockage is evaluated. Factors considered in determining view blockage potential include distance, angle of observation, duration of project visibility, scale of existing and proposed features, and presence of intervening features. Scenic highways are those facilities that are formally designated as such by the California legislature. In addition to changes to existing views, potential impacts to scenic highways consider project-related damage to scenic resources, including trees, rock outcroppings, and historic buildings within a state scenic highway.

Visual Character/Scenic Quality

The visual analysis is based on review of technical data, including proposed project maps, renderings, and drawings provided by PG&E and Jensen Architects; aerial and ground-level photographs of the project site; local planning documents; and computer-generated visual simulations. Field observations and photography were conducted in July 2016 and in February and March 2017 to document existing visual conditions in the project site and to identify potentially affected sensitive viewing locations. These initial observations by PG&E and their environmental consultant were supplemented by additional photographs of the site and surrounding area taken by Dudek during a February 2018 site visit.

Illustrative renderings of the proposed Egbert Switching Station were included in the PEA and are presented on Figure D.2-9, Renderings of Egbert Switching Station. In addition, as part of the PEA aesthetics analysis, a set of visual simulations was prepared from key representative public viewpoints (KOPs) to illustrate before and after visual conditions associated with operation of the proposed switching station. These images are presented in this section as Figures D.2-10 through D.2-13. Four vantage points were selected to represent public close-range viewing locations accessible to viewer groups in the immediate area, where the proposed switching station would be most visible. Described briefly as follows, the simulation method employed by PG&E and their environmental consultant employs systematic digital photography, computer modeling, and rendering techniques.

Photographs were taken using a digital single-lens reflex camera with standard 50-millimeter lens equivalent, which represents an approximately 40-degree horizontal view angle.

Photography viewpoint locations were documented systematically using a photo log, GPS recording, and base map annotation. Digital aerial photographs and switching station design information obtained and prepared by PG&E provided the basis for developing a 3D computer model of the new switching station components.

Due to the recent change in CEQA Appendix G significance thresholds pertaining to visual character, Dudek identified applicable zoning development standards and local regulations/policies concerning scenic quality through review of relevant planning documents. The project is located in the urbanized landscape of San Francisco and adjacent localities and therefore, the threshold pertaining to project conflicts with applicable zoning and other regulations governing scenic quality is applicable and evaluated in this EIR. Once identified, the project's consistency with the regulations was determined through evaluation of project characteristics and through illustrative renderings and photo simulations prepared for the Egbert Switching Station.

Light and Glare

Existing sources of light and glare in the project site were identified using aerial imagery and during a site visit conducted by Dudek in February 2018. These sources were previously described in Section D.2.1.6. Section D.2.4 identifies construction and operational sources of lighting and glare and includes a description of the degree of contrast between existing and proposed lighting sources, and potential for short- and long-term lighting and glare to substantially affect day and nighttime views.

D.2.3.4 Impact Discussion

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

Egbert Switching Station

Long scenic views are available from Bayview Park, located approximately 0.75 miles from the switching station site, and from San Bruno Mountain State Park, located more than 2.3 miles from the switching station site.

From Bayview Park trails, features such as the San Francisco skyline, San Francisco Bay, and the East Bay Hills are visible. While the Egbert Switching Station site is partially visible from Bayview Park (Figure D.2-5), the site is not visually prominent nor particularly distinct within the wider context of the urban landscape. Because construction activities would be setback approximately 0.75 miles from the park and located at a lower elevation than park trails, the presence of construction equipment, vehicles, and workers would not substantially effect existing views. Furthermore, neither construction activities nor the permanent presence of a new 11,000-

square-foot, approximately 40-foot-tall building (i.e., the building housing switching station equipment) would block or interrupt views to the San Francisco skyline or other scenic features. As viewed from San Bruno Mountain or San Bruno Mountain State Park, construction activities at the site and the new switching station building would not be distinct. As shown on Figure D.2-5, intervening buildings screen the site from view and overall visibility to the site is decreased by the distance between the site and the park (i.e., approximately 2.3 miles).

Therefore, at Bayview Park and San Bruno Mountain State Park, no impacts to a scenic vista would occur due to construction and operation of the Egbert Switching Station (No Impact).

Transmission Lines

All new transmission lines associated with the project would occur within an urban landscape that includes both electrical distribution and transmission facilities. Construction activities associated with the installation of underground cable would occur over a short-term timeframe. While the estimated construction duration for the project is approximately 22 months, transmission line construction would not occur throughout the entire 22-month duration. Once complete, construction equipment (e.g., trucks, mobile cranes, trenchers, and auger boring machine equipment) would not be present along the alignments. A full list of construction equipment is provided in Table 4-6 of the project description. Because the transmission lines would be installed underground and would not entail the introduction of new vertical features (i.e., poles) to the landscape, existing views from Bayview Park, San Bruno Mountain State Park, and other elevated vantage points in the local area would not be substantially affected.

Therefore, no impacts to a scenic vista would occur due to construction and operation of the new transmission lines (No Impact).

Martin Substation

Construction activities associated with the equipment removal at Martin Substation would be visible from Bayview Park and San Bruno Mountain State Park trails. Visibility to the site from the state park is illustrated in Figure D.2-5, and while not depicted on the figure, the site is visible from the road (i.e., Bayview Park Road) that encircles the highpoint of Bayview Park. While visible, the temporary presence of construction equipment and the removal of existing equipment would not be overly noticeable in the wide and expansive views available from these locations. Further, due to distance between the substation and both parks (approximately 1 mile) and the elevated vantage point available at these locations, construction activities would not command attention or become the focal point of views. Once construction activities are complete, Martin Substation would display a similar visual character as under existing conditions and vertical components substantially taller than existing substation equipment would not be installed on site.

Therefore, no impacts to a scenic vista would occur due to proposed activities at the Martin Substation (No Impact).

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

As documented in Section D.2.1.5, there are no designated state scenic highways within the local area. Segments of eligible state scenic highways are located between 0.8 and 4.6 miles of project components (see Section D.2.1.5); however, intervening terrain, buildings, and vegetation block project component sites and alignments from view of highway motorists. In addition, the project would not damage scenic resources (e.g., trees, rock outcroppings, and historic buildings), as these features are not currently present on the sites or along the alignments.

An approximately 320-foot-long segment of the proposed Jefferson-Egbert transmission line would be installed parallel to Guadalupe Canyon Parkway, a roadway recognized by San Mateo County as having scenic quality (City of Daly City 2013), but it is not designated as an official scenic highway by the state or county. Installation of the proposed transmission within this roadway would not damage prominent scenic resources (the alignment is proposed within road-adjacent shrubs) and would not impact scenic views. While temporary vegetation activities would entail the removal of vegetation, project features would be installed underground and would not include new vertical features capable of blocking existing views.

Therefore, the proposed project would not substantially damage scenic resources within a state (or local) scenic highway corridor. No impacts would occur (No Impact).

Impact AES-3 Would the project, in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Pubic views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

As explained in Section D.2.2, the CPUC has sole and exclusive jurisdiction over the siting and design of the proposed project and alternatives, because it authorizes the construction, operation, and maintenance of investor-owned public utility facilities. Although such projects are exempt from local land use and zoning regulations and discretionary permitting (i.e., they would not require any land use approval that would involve a discretionary decision to be made by a local agency such as a planning commission, city council, or county board of supervisors), the following analysis is provided for informational purposes and to demonstrate consistency with relevant local

regulations governing scenic quality. However, because the regulations are not applicable to the project and cannot be enforced, no impacts associated with regulation conflicts would occur.

As previously described in Section D.2.1.1, the project is located in an urbanized area, and all components of the project are surrounded by existing development. As such, the focus of the following analysis in Table D.2-2 pertains to project consistency with applicable zoning and other regulations governing scenic quality.

Table D.2-2
Consistency with Zoning and Other Regulations Governing Scenic Quality

Regulation	Consistency Analysis
San Francisco Planning Code	
The intent of PDR-2 district is to encourage the introduction, intensification, and protection of a wide range of light and contemporary industrial activities. New housing, large office developments, large-scale retail, and the heaviest of industrial uses, such as incinerators, are prohibited in the PDR-2 district. Light industrial uses that may be conducted entirely within an enclosed structure, partly within enclosed structures, or some functions may occur entirely in open areas are permitted within the district.	Consistent. The project, specifically the proposed Egbert Switching Station, consists of utility installations within the urban San Francisco area. The Egbert Switching Station would consist of transformers, shunt reactors, series reactors, a gravel access yard, and a 40-foot high switchgear building. The majority of the equipment at the site would be housed within the switchgear building, and other components would be visually screened by the installation of expanded architectural metal mesh fencing that would be installed along the perimeter of the site. Renderings of the switching station, including fencing as provided on Figure D.2-9, and accurate 3D photo simulations of the switching station as viewed from the four identified KOPs are provided on Figures D.2-10 through D.2-13. Pursuant to Table 210.3, Zoning Control Table for PDR Districts, public utility yards and utility installations are permitted uses within the PDR-2 district. In addition, switching station operations would be conducted partly within an enclosed structure (i.e., the switchgear building), and other components (see Figure B-4, Egbert Switching Station Site Plan, of this EIR) would be located within the graveled access yard located to the west of the switchgear building. Therefore, as proposed, the project is a permitted use within the PDR-2 district and is consistent with the intent of the PDR-2 district.
65-J Height and Bulk District Regulations applicable to the designation are established in Section 263.13 of the City of San Francisco Planning Code. The regulations are intended to accommodate additional housing opportunities for lower and very low income household and provides for exceptions to the 40-foot base height limit up to 65 feet.	Consistent. The proposed switchgear building and expanded metal mesh fencing would be 40 feet high or less. PG&E does not intend to seek a variance and does not propose to obtain an exception to the 40-foot base height limit for the Egbert Switching Station. Figures D.2-11 through D.2-13 illustrate the proposed scale of perimeter fencing at the site in the context of the surrounding built urban landscape. In addition, an exception to the base height limits is not available to the project as lower and very low income housing is not proposed. Because project structures at the Egbert Switching Station would comply with the applicable 40-foot base height limit associated with the underlying PDR-2 district, the project is consistent with the regulations pertaining to the 65-J Height and Bulk District.
San Francisco General Plan – Urban Design Element	
Policy 1.1: Recognize and protect major views in the city, with particular attention to those of open space and water.	Consistent. Operation of the project, specifically the Egbert Switching Station, would not substantially affect existing views to scenic features in the San Francisco. Photo simulations of the proposed switching station are presented on Figures D.2-10 through D.2-13. As viewed from local streets in the immediate surrounding area include the access road at Waterbend Apartments, Carroll Avenue, and Bitting Avenue, the project would not obstruct or otherwise block existing scenic features (including open space) from view (Figures D.2-10, D.2-11, and D.2-13). It should also be noted that neither the Pacific Ocean nor the San Francisco Bay are visible from KOPs 1, 2, and 4; therefore, the project would not block these major water

Table D.2-2
Consistency with Zoning and Other Regulations Governing Scenic Quality

Regulation	Consistency Analysis
	features from viewers at KOPs 1, 2 and 4. As viewed from elevated vantage points, including Bayside Park and San Bruno Mountain State Park, the proposed switching station and other components would not substantially affect the quality of existing long and expansive views (Figure D.2-5). Therefore, as proposed the project would be consistent with Policy 1.1.
Policy 2.7: Recognize and protect outstanding and unique areas that contribute in an extraordinary degree to San Francisco's visual form and character.	Consistent. The urban landscape surrounding the proposed Egbert Switching Station site is illustrated on Figures D.2-2 through D.2-4. As depicted in the figures, the urban landscape includes developed and undeveloped hillsides that contribute a unique and interesting element to the visual character of the area. As demonstrated in photo simulations prepared for the Egbert Switching Station, the facility and perimeter fencing would not degrade or substantially obstruct existing views to these hillside features (Figures D.2-10 through D.2-12). Rather, the proposed scale of the switchgear building and perimeter fencing would be compatible with the scale of development in the immediate surrounding area and sight line to unique terrain in the landscape would be maintained. During operation, the transmission lines would be underground, and maintenance would occur quarterly and bi-annually at vault locations. Views to the maintenance activities would generally be brief, and the temporary presence of maintenance personnel and equipment within the urban developed setting of the transmission line alignment would not substantially degrade the existing visual character. Minor modifications at the Martin Substation would be visible to viewer groups in the immediate area. However, the substation would remain in operation and substation components would continue to contribute to the industrial visual character of the site. Therefore, as proposed the project would be consistent with Policy 2.7.
Policy 3.2: Avoid extreme contrasts in color, shape and other characteristics which will cause new buildings to stand out in excess of their public importance.	Consistent. Proposed transmission lines would be installed underground and minor modifications at the Martin Substation, including equipment removal and indoor related-work, would not result in extreme visual contrasts. Once construction is complete, the substation would continue to display a similar industrial character as under existing conditions. Additionally, implementation of APM AE-2 would reduce visual impacts during construction activities The proposed switching station would be constructed on a 1.7-acre property currently used as a lumber and construction materials storage yard. Renderings of the proposed Egbert Switching Station are presented on Figure D.2-9 and photo simulations illustrating the form and color of perimeter metal mesh fencing at the site are included as Figures D.2-10 through D.2-13. As stated in Section D.2.1.1, the Egbert Switching Station site is located in a densely developed area features multistory industrial, residential, and commercial structures. Due to the presence of these structures, the lack of high-profile development on the project site, and the regular presence of street trees and private property landscaping in the area, the project site is partially screened from public view from public vantage points in the surrounding area. However, due to the installation of tall (i.e., up to 40 feet high) metal mesh fencing around the perimeter of the site, switching station components would be visible from locations in the surrounding area. When viewed from an immediate foreground distance, proposed perimeter fencing at the site would appear blocky and tall (the fencing would be up to 40-feet tall; Figures D.2-10 and D.2-13). While the fencing would contrast with the color of lightly colored residences in the area, the scale of the fencing would be compatible with the scale of these uses (Figures D.2-10 and D.2-13), and fencing color would be compatible with the industrial building to the immediate south of the site (Figure D.2-10). Regarding the color of fencing as viewed from public locations in the foreground viewing distance, mitigation measure (MM) AE-1

Table D.2-2
Consistency with Zoning and Other Regulations Governing Scenic Quality

Regulation	Consistency Analysis
	would be implemented and would help break up the mass of the fence and attract attention away from the metal mesh fencing when experienced from Egbert Avenue. When viewed from more distant locations, the prominence and color contrast of the fencing would be reduced. For example, at KOP 2, proposed fencing would be visible but would not be a focal point in the view. The diminished prominence of the fencing and its ability to blend visually with existing development in the surrounding area would be heightened with further distance (Figure D.2-12). At KOP 3, the fencing is visible but difficult to detect in south-oriented views. As demonstrated in project renderings and photo simulations, the proposed Egbert Switching Station (more specifically, perimeter metal mesh fencing) would create visible color contrast when viewed from foreground viewing locations (Figures D.2-10 and D.2-13). However, with implementation of MM AE-1, perceived scale and bulk contrasts would be reduced through the installation of landscaping along the site's Egbert Avenue frontage. As viewed from more distant locations, project fencing would display a compatible scale with existing development in the surrounding area and would not be visually prominent. As viewed from identified KOPs, the proposed switching station would not create "extreme" contrasts in color and shape that would needlessly cause the site to stand out in views. Therefore, the project would be consistent with Policy 3.2.
Policy 4.12: Install, promote, and maintain landscaping in public and private areas.	Consistent. Within the City and County of San Francisco, proposed transmission lines would be installed underground primarily within the disturbed right-of-way of local streets. Regarding the Martin Substation, proposed minor modifications would not result in the removal of vegetation from within the fence line of the substation. No landscaping occurs within the footprint of the Egbert Switching Station, and no landscaping would be installed within the fence line of the proposed facility. With implementation of MM AE-1, low-growing landscaping such as shrubs and groundcover that meet safety and security requirements may be installed along the perimeter of the switching station site along Egbert Avenue. While landscaping is not a primary component of the project and electric utility companies routinely trim and remove trees near power lines and other utilities for public safety, fire prevention, and electric reliability, landscaping may be installed along the Egbert Avenue frontage of the Egbert Switching Station site to help break up the mass of the fence. Therefore, to the extent feasible and in accordance with safety requirements, the project would be consistent with Policy 4.12.
City and County of San Francisco, Bayview Hunters Point Area Plan	
Policy 5.1: Preserve and enhance the existing character of residential neighborhoods.	Consistent. Proposed transmission lines would be installed underground, and minor modifications to the Martin Substation would occur within the fence line of the existing substation facility. Neither of these components would substantially affect the existing character of the landscapes in which they are located. Refer to consistency analysis with Policy 3.2, previously outlined, for the Egbert Switching Station. While the project would transform the existing character of the 1.7-acre construction and materials storage yards through construction of a switching station, the existing character of the wider area would be maintained. Under existing conditions, the area includes a mix of industrial, residential, and commercial uses (and a rail corridor), and the operation of a switching station on a site designated for utility infrastructure would not substantially alter the existing mixed character of the area. Further, the industrial character of the switching station would be obscured by placing the majority of infrastructure within the switchgear building and the installation of perimeter metal mesh fencing. Therefore, the project would be consistent with Policy 5.1.

Notes: APM = applicant proposed measure; EIR = environmental impact report; KOP = key observation point; PDR = Production, Distribution, and Repair.

MM AE-1 Pacific Gas & Electric Company (PG&E) shall coordinate with the City and County of San Francisco regarding the installation of landscaping along the perimeter of the switching station site on Egbert Avenue. Landscaping may include low-growing landscaping such as shrubs and groundcover that meet safety and security requirements as determined by the California Public Utilities Commission (CPUC).

As previously demonstrated in Table D.2-2, the project would be consistent with applicable zoning regulations and with identified local policies pertaining to scenic quality. Further, with implementation of Mitigation Measure (MM) AE-1, potential conflicts with Policy 4.12 of the San Francisco General Plan Urban Design Element would be reduced through the installation of landscaping along the switching station's frontage of Egbert Avenue (landscaping installation would be subject to CPUC approval and pursuant to existing public safety, fire prevention, and electric reliability regulations). While the CPUC has sole and exclusive jurisdiction over the siting and design of the proposed project and alternatives because it authorizes the construction, operation, and maintenance of investor-owned public utility facilities, the consistency analysis presented in Table D.2-2 demonstrates that the project would be consistent with applicable zoning and identified local regulations relevant to scenic quality. Therefore, with implementation of MM AE-1, the proposed project would not significantly impact the existing visual character within the project site (Class II).

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

Construction – Lighting

Construction activities would typically occur between 7:00 a.m. and 8:00 p.m. or during times that would be set through coordination with the local jurisdictions in which project components are located. If trenching work would cause traffic congestion, the proposed project may require nighttime work to avoid traffic disruption. Longer workday hours and nighttime work may be required to support specific tasks that may not be interrupted such as splicing activities. Furthermore, potential staging areas may use nighttime lighting to deter illegal trespassing. Because project construction would be temporary and would primarily occur during daylight hours, and because use of lighting beyond daylight hours would be sporadic, infrequent, and focused on the area of active construction, use of nighttime lighting would not adversely affect day or nighttime views. In addition, sources of lighting utilized during nighttime hours would be hooded, directed downward, and directed away from residential uses that may be near active construction areas. The use of hooded lighting during infrequent nighttime construction tasks would also minimize potential for perceptible glare during construction. Therefore, impacts

related to substantial lighting or glare during project construction would be less than significant (Class III).

Operation and Maintenance – Lighting

Egbert Switching Station

Limited lighting currently operates on the switching station site and generally consists of two floodlights installed on the western elevation of the prefabricated trailer located in the northeastern corner of the site. Limited outdoor lighting would be installed near equipment and access gates that would operate during nighttime hours. However, because the majority of the switching station equipment would be located within an enclosed structure (i.e., the switchgear building), the proposed switching station would have less outdoor lighting than a conventional outdoor switching station. Further and in accordance with APM AE-1, the design and layout for new outdoor lighting at the switching station would incorporate measures such as use of non-glare or hooded fixtures and directional lighting to reduce spillover into areas outside the switching station site and minimize the visibility of lighting from off-site locations.

The switching station is located within an urban and primarily industrial and residential setting with existing overhead lighting adjacent to the site and localized lighting sources related to streetlights and residential and industrial facilities. New sources of lighting on the switching station site would increase on-site lighting levels. For example, new lighting is expected to be installed inside the perimeter fence (on average, three to four lights on each side) and would likely include three to four lights per side on the exterior walls of the switchgear building and one light on the exterior of each shunt reactor enclosure. The outdoor lighting at the switching station site would be operated on an as-needed basis to support security technology during unplanned work at night. Motion or timer-controlled lighting would be installed at the switching station to prevent unnecessary illumination of the site and surrounding area during nighttime hours. New switching station lighting would represent a minor incremental change to the existing nighttime lighting environment of the project site and with implementation of APM AE-1, impacts would be less than significant (Class II).

Transmission Lines and Martin Substation

New sources of lighting are not proposed by the project to be installed along the transmission line alignments or the Martin Substation. Therefore, these project components would not adversely affect nighttime views in the area and no impact would occur (No Impact).

Glare

Egbert Switching Station

The switching station would consist of various equipment painted with a neutral, non-reflective gray color housed within a greyish switchgear building (approximately 40 feet high) that would feature a non-reflective finish. Additional switching station components would display a galvanized finish that would weather to a dull, non-reflective patina. Expanded architectural mesh fencing (aluminum) would be installed along the perimeter of the building (Figure D.2-9) that illustrate the look and character of the perimeter metal mesh fencing. The depiction of metal mesh is preliminary and subject to change pending final engineering, CPUC requirements, and other factors. As proposed, the mesh fencing would feature a non-reflective finish to minimize opportunities for project-generated glare and substantial affects to daytime views in the surrounding area. Through incorporation of non-reflective finishes, components at the Egbert Switching Station would not adversely affect daytime views in the area, and impacts would be less than significant (Class III).

Proposed Transmission Lines and Martin Substation

The proposed transmission lines would be located underground, and equipment would be removed from the Martin Substation. As such, neither activity would introduce new building materials or lighting capable of creating glare, and no impact would occur (No Impact).

D.2.4 Project Alternatives

D.2.4.1 Bayshore Switching Station Alternative

Environmental Setting

The Bayshore Switching Station Alternative would be developed on approximately 6.6 acres of private land at 3435 Bayshore Boulevard in the City of Brisbane. Existing zoning at this location within Brisbane is C-1, Commercial Mixed Use. An existing native plant nursery with a greenhouse uses a portion of this parcel. The adjacent and nearby land uses include a fire station, a machinery and equipment business, CalTrain tracks, and a Kinder Morgan tank farm. This alternative switching station site is at approximately 20 feet amsl, which is approximately 20 feet lower than Bayshore Boulevard to the west. The site is primarily visible from industrial development to the south and east, travelers utilizing CalTrain east of the site, and pedestrians on the Old Bayshore Tunnel Trail that runs directly north of the site. Existing vegetation west of the alternative switching station site partially screens views for motorists traveling on Bayshore Boulevard.

The alternative underground transmission lines would traverse lands within Brisbane and Daly City in San Mateo County. The alternative alignments would be located within an urban setting

consisting of open space, residential, industrial and commercial uses. The Martin-Bayshore and Jefferson-Bayshore transmission lines would exit the east side of the switching station site and turn north on either side of the Machinery & Equipment Company Inc. building and run adjacent to the Old Bayshore Tunnel Trail, west of the rail line. The local elevation along the alignments increases from the Bayshore Switching Station site to its highest elevation of approximately 100 feet amsl near the intersection of Bayshore Boulevard and Guadalupe Canyon Parkway where the Jefferson-Bayshore and Martin-Bayshore transmission lines would connect to existing transmission infrastructure. This portion of the alignments is largely surrounded by vegetated open space and industrial uses, passing directly north of Icehouse Hill. The topography of the Bayshore Embarcadero alignment decreases gradually as it continues north along Bayshore Boulevard. This portion of the alternative alignment is primarily bounded by industrial development with open space west of Bayshore Boulevard. Mature trees are present along both sides of Bayshore Boulevard. The alternative Bayshore-Embarcadero alignment would turn west on Main Street. This portion of Main Street is largely undeveloped, with open space to the south and open space drainage features to the north. A chain-link fence runs along both sides of the roadway, restricting access to open space areas. The alternative alignment would continue west along Midway Drive and turn north along Schwerin Street to connect to the Martin Substation. Land uses along this portion of the alternative alignment are largely residential and industrial development. The transmission lines would be installed underground, primarily within the disturbed right-of-way of local streets, and would not be located in the vicinity of any state-designated or eligible scenic highways.

Environmental Impacts and Avoidance Measures

Impact AES-1: Long scenic views are available from the residential development on a hillside northwest of the switching station and Icehouse Hill directly north of the site. Icehouse Hill acts as a visual barrier between the project site and Central Brisbane to the northwest, where the majority of urban development is located. The residential development to the northwest would not have a clear view of the project site due to mature trees along roadways in the development, mature vegetation of the western switching station site boundary, and the visual barrier of Icehouse Hill. Additionally, surrounding topography and existing nearby development would obstruct the view of the switching station from Highway 101 to the east or the Brisbane Lagoon to the south. The switching station's location directly south of Icehouse Hill would be highly visible from Icehouse Hill, but there is currently no public access to Icehouse Hill, so it is not considered a scenic vista.

Installation of underground transmission lines would not result in any long-term visual impacts because disturbed areas would be restored post-construction. Although most of the alignment would be within existing roadways and disturbed areas, construction of the alternative Martin-Bayshore and Jefferson-Bayshore transmission lines north of the switching station would result

in temporary visual impacts to pedestrians on the portion of Old Bayshore Tunnel Trail where equipment staging and trenching would be required. Construction activities would occur over a short-term timeframe, so construction equipment would only be present in specific locations along the alignment for short periods (approximately 40 linear feet would be constructed per day). Additionally, operational activities, including the inspection of lines, would not substantially affect scenic views. The alternative transmission lines would not cause long-term visual impacts to a scenic vista, the alternative switching station site is largely screened due to existing site conditions, and the Alternative Bayshore Switching Station would be consistent with existing industrial development and be exempt from height requirements set forth for public utilities in the City of Brisbane Municipal Code. Therefore, the alternative Brisbane Bayshore Switching Station would result in less-than-significant impacts to scenic vistas (Class III).

Impact AES-2: The Bayshore Switching Station Alternative and associated transmission lines would not be constructed in the vicinity of a state-designated scenic highway. The nearest scenic highway to this alternative is Highway 280, located approximately 2.5 miles to the west. Therefore, this alternative would not substantially damage scenic resources within a state (or local) scenic highway corridor, and no impact would occur (No Impact).

Impact AES-3: Unlike the proposed project, the Bayshore Switching Station would be constructed on a largely vacant parcel covered in nonnative ruderal vegetation. Although there are existing industrial, commercial, and institutional land uses in the vicinity of the switching station site, construction of the switching station would alter the visual character of the vacant lot. The alternative switching station would be most noticeable from the industrial and institutional development adjacent to the site. The site would be screened by Icehouse Hill to the north and west, existing mature trees on the western site boundary, and surrounding topography to the east and south. The Bayshore Switching Station site is designated as Planned Development (PD) Residential Prohibited in the City of Brisbane's General Plan, based on the General Plan Amendment (GP-1-18) approved in 2018. The PD land use designation allows a wide variety of land uses, including industrial land uses, but a minimum of 25% of the surface land of each subarea be designated as open space or open area. The size of the switching station site offers some flexibility for layout options and setbacks, which could provide some open space area, but it is unlikely that 25% of the site (1.65 acres) would be dedicated to open space. Although limited open space opportunities at the switching station site could place a burden on future developers in the subarea to meet the open space requirements, the requirement is not on a parcel-by-parcel basis.

Additionally, the PD designation requires submittal of a landscape and irrigation plan. If this alternative is chosen, mitigation would be incorporated into the Mitigation Monitoring and Reporting Program (MMRP), outlining requirements for a land and irrigation plan consistent with Section 17.28.040 to ensure adequate landscaping along the perimeter of the Bayshore

Switching Station site that also meets safety and security requirements determined by the CPUC. Therefore, the Bayshore Switching Station Alternative would be consistent with applicable land use requirements with implementation of mitigation, and impacts would be less than significant (Class II).

Impact AES-4: Construction activities would typically occur between 7:00 a.m. and 8:00 p.m. or during times that would be set through coordination with the local jurisdictions in which project components are located. If sources of lighting are required during nighttime hours, lighting would be hooded, directed downward, and directed away from residential uses that may be near active construction areas. Therefore, impacts related to substantial lighting or glare during project construction would be less than significant (Class III). Upon construction of the Bayshore Switching Station, new sources of outdoor lighting would be introduced to the vacant, undeveloped site. However, with implementation of APM AE-1, the visibility of lighting from off-site locations would be less than significant (Class III).

Comparison to the Proposed Project

Due to the decreased visibility of the Bayshore Switching Station site, aesthetic impacts resulting from construction and operation of the switching station would be less when compared to the proposed project, but there is potential for permanent visual impacts to Icehouse Hill once proposed trails provide public access. Therefore, overall impacts (Impact AES-1) to scenic vistas would be greater from the Bayshore Switching Station Alternative than from the proposed project. This alternative would not impact a state scenic highway; therefore, impacts would be the same as the proposed project for Impact AES-2. The Bayshore Switching Station would result in greater impacts to the visual character and quality of the site (Impact AES-3) compared to the proposed project, because the site is currently primarily vacant open space and development of the alternative switching station would introduce a new industrial use with limited opportunities for adequate open space areas on site. Impacts associated with adverse effects on day or nighttime views in the area (Impact AES-4), would be slightly greater than impacts from the proposed project, because new light sources would be introduced to the currently undeveloped switching station site.

D.2.4.2 Geneva Switching Station Alternative

Environmental Setting

The Geneva Switching Station Alternative would be developed on approximately 11.1 acres of private land at 2150 Geneva Avenue in Daly City. The alternative switching station site is adjacent to the Cow Palace complex and is designated as a Commercial-Mixed Use area. The site is currently used as a construction station and laydown use area. Mature trees and shrubs line the western and southern site boundary. Commercial land uses are located east of the site, and

residential development is located to the north, west, and south. This alternative switching station site is approximately 140 feet amsl, with elevation increasing from east to west. Residential development to the west of the alternative switching station site may have views toward the site due to increased elevation. However, existing trees lining the western site boundary provide a natural landscaped screening of the alternative switching station site. The alternative switching station site may be visible to motorists or pedestrians from Guadalupe Canyon Parkway and the Saddle Loop Trail on San Bruno Mountain to the south.

The alternative transmission lines would exit the west side of the switching station site. The Geneva-Embarcadero and Martin-Geneva transmission lines would run north along Carter Street and turn east along Geneva Avenue to connect to existing transmission infrastructure near Bayshore Drive. The Cow Palace complex and associated parking lots are located south of Geneva Avenue, and the remainder of land uses surrounding the alignments, include commercial and residential development. The alternative Jefferson-Martin transmission line would follow the same alignment as the portion of the proposed project Jefferson-Egbert transmission line along Carter Street, and terminating at existing electrical infrastructure on Guadalupe Canyon Parkway (see the environmental setting discussion in Section D.2.1). The transmission lines would be installed underground, primarily within the disturbed right-of-way of local streets, and would not be located in the vicinity of any state-designated or eligible scenic highways. An approximately 320-foot-long segment of the Jefferson-Geneva transmission line would be installed along Guadalupe Parkway, a roadway recognized by San Mateo County as having scenic quality (City of Daly City 2013), but it is not designated as an official scenic highway by the state or county.

Environmental Impacts and Avoidance Measures

Impact AES-1: Long scenic views are available from the Saddle Loop Trail, with an elevation of more than 800 feet amsl, approximately 0.5 miles west of the switching station site. The switching station would be partially visible from the trail, but the mature trees and shrubs along the western border of the site would provide natural landscaped screening for the alternative switching station. There is potential for brief visibility of the alternative switching station from Guadalupe Canyon Parkway, a roadway recognized as having scenic quality (City of Daly City 2013), but existing development, vegetation, and topography would limit visibility of the alternative switching station site from the roadway; therefore, visual impacts would be less than significant. Installation of underground transmission lines would not result in any long-term visual impacts because disturbed areas would be restored post-construction and the lines would be constructed within the disturbed right-of-way of local streets. Therefore, impacts to scenic vistas would be less than significant (Class III).

Impact AES-2: The Geneva Switching Station Alternative and associated transmission lines would not be constructed in the vicinity of a state-designated scenic highway. The nearest scenic

highway to this alternative is Highway 280, located approximately 1.5 miles to the west. An approximately 320-foot-long segment of the alternative Jefferson-Geneva transmission line would be installed along Guadalupe Parkway, a roadway recognized by San Mateo County as having scenic quality (City of Daly City 2013), but it is not designated as an official scenic highway by the state or county. Installation of the Jefferson-Geneva transmission line within this roadway would not damage prominent scenic resources and would not impact scenic views. While temporary construction would alter the scenic quality from Guadalupe Canyon Parkway, project features would be installed underground and would not include new vertical features capable of blocking existing views. Therefore, this alternative would not substantially damage scenic resources within a state (or local) scenic highway corridor, and no impact would occur (No Impact).

Impact AES-3: Public utility facilities are permitted within the majority of zoning designations within the City of Daly City, including Commercial. No specific requirements are set for site development of public utilities within the city. Therefore, the Geneva Switching Station Alternative would be consistent with applicable land use requirements, and impacts would be less than significant (Class III).

Impact AES-4: The existing parking lot where the alternative switching station would be located does not have existing lighting. Construction activities would typically occur between 7:00 a.m. and 8:00 p.m. or during times that would be set through coordination with the local jurisdictions in which project components are located. If sources of lighting are required during nighttime hours, lighting would be hooded, directed downward, and directed away from residential uses that may be near active construction areas. Therefore, impacts related to substantial lighting or glare during project construction would be less than significant (Class III). Upon construction of the alternative Geneva Switching Station, new sources of outdoor lighting would be introduced to the existing parking lot area. However, with implementation of APM AE-1, visibility of lighting from off-site locations would be less than significant (Class III).

Comparison to the Proposed Project

Potential limited visibility at scenic vistas near the Geneva Switching Station Alternative site would result in slightly greater visual impacts to a scenic vista (Impact AES-1) than impacts from the proposed project. This alternative would not impact a state scenic highway; therefore, impacts would be the same as those from the proposed project for Impact AES-2. The alternative switching station site would not conflict with applicable visual regulations or land use requirements, resulting in reduced impacts compared to the proposed project for Impact AES-3. Impacts from the adverse effects on day or nighttime views with the Geneva Switching Station placed in the area (Impact AES-4) would be similar to the proposed project.

D.2.4.3 Sunnydale HOPE SF Avoidance Line Alternative Option A

Environmental Setting

The Sunnydale HOPE SF Avoidance Line Alternative Option A (Sunnydale Option A Alternative) provides an alternate alignment for a portion of the proposed Jefferson-Egbert transmission line, which would avoid the proposed Sunnydale HOPE SF Public Housing Development project. The approximately 0.6-mile alternative alignment would be redirected east of the proposed housing development and reconnect to the proposed Jefferson-Egbert transmission line on Geneva Avenue. This Sunnydale Option A Alternative line would be primarily surrounded by existing residential development with some commercial development along Geneva Avenue. The surrounding residential development includes attached single-family units. Numerous overhead power lines are present along the west side of Sawyer Street, crossing the street regularly to connect to residential units and other electrical lines. The transmission lines would be installed underground, primarily within the disturbed right-of-way of local streets and would not be located in the vicinity of any state-designated or eligible scenic highways.

Section D.2.1 describes the existing visual characteristics of the Egbert Switching Station, Martin-Egbert transmission line, Egbert-Embarcadero transmission line, and the existing Martin Substation, which would remain unchanged under this alternative. Therefore, because the existing setting for the remainder of the proposed project would remain unchanged, additional information pertaining to the visual setting for these unchanged areas of the alignment is not provided.

Environmental Impacts

Aesthetic impacts associated with the Egbert Switching Station, Martin-Egbert transmission line, Egbert-Embarcadero transmission line, and improvements to the Martin Substation would be identical to the proposed project; therefore, the environmental analysis in this section is limited to the Sunnydale Option A Alternative Jefferson-Egbert transmission line segment.

Impact AES-1: Construction activities associated with installation of the underground transmission lines for the Sunnydale Option A Alternative would occur over a short timeframe of approximately 2–3 months (estimated 40 linear feet per day). Once complete, all construction equipment would be removed from the alignment. Because the transmission lines would be installed underground and would not entail the introduction of new vertical features (i.e., poles) to the landscape, views from surrounding elevated vantage points would not be affected. Therefore, the Sunnydale Option A Alternative would not impact scenic vistas (No Impact).

Impact AES-2: The Sunnydale Option A Alternative would not be constructed in the vicinity of a state-designated scenic highway. The nearest scenic highway to this alternative is Highway 280, located approximately 1.5 miles to the north. Therefore, the Sunnydale Option A Alternative

would not substantially damage scenic resources within a state (or local) scenic highway corridor, and no impact would occur (No Impact).

Impact AES-3: The Sunnydale Option A Alternative is within the same vicinity as the proposed project for which the consistency analysis is presented in Table D.2-2. Table D.2-2 demonstrates that the proposed project would be consistent with applicable zoning and identified local regulations relevant to scenic quality. Therefore, this alternative in the same vicinity of the proposed project, would be consistent with applicable scenic quality requirements, and impacts would be less than significant (Class III).

Impact AES-4: Construction activities would typically occur between 7:00 a.m. and 8:00 p.m. or during times that would be set through coordination with the local jurisdictions in which project components are located. If sources of lighting are required during nighttime hours, lighting would be hooded, directed downward, and directed away from residential uses that may be near active construction areas. Therefore, impacts related to substantial lighting or glare during project construction would be less than significant (Class III).

Comparison to the Proposed Project

The Sunnydale Option A Alternative would be constructed underground, and would not include any vertical elements that would be visible from surrounding scenic vistas. The Sunnydale Option A Alternative would have similar impacts to a scenic vista (Impact AES-1) as the portion of the proposed project's Jefferson-Egbert transmission line it would replace. This alternative would not impact a state scenic highway; therefore, impacts would be the same as the proposed project for Impact AES-2. The Sunnydale Option A Alternative would not conflict with applicable visual regulations or land use requirements, consistent with the complementary portion of the proposed project for Impact AES-3. Impacts associated with adverse effects on day or nighttime views in the area (Impact AES-4), would be equal to the complementary portion of the proposed project.

D.2.4.4 No Project Alternative

Under the No Project Alternative, none of the facilities associated with the proposed project or alternatives evaluated would be constructed, and therefore, none of the impacts in this section would occur.

D.2.5 Mitigation Monitoring, Compliance, and Reporting

Table D.2-3 shows the mitigation monitoring, compliance, and reporting program (MMCRP) for aesthetic resources. The CPUC is responsible for ensuring compliance with provisions of the monitoring program. The APMs that are incorporated as part of the proposed project, as well as mitigation measures developed as part of the EIR analysis, are listed in the following table.

Table D.2-3
Mitigation Monitoring, Compliance, and Reporting Program for Aesthetic Resources

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
Impact AES-3 Development of the project could impact the existing visual character of the site	MM AE-1	—	Pacific Gas & Electric Company (PG&E) shall coordinate with the City and County of San Francisco regarding the installation of landscaping along the perimeter of the switching station site on Egbert Avenue. Landscaping may include low-growing landscaping such as shrubs and groundcover that meet safety and security requirements as determined by the California Public Utilities Commission (CPUC).	PG&E to implement measure as described	CPUC to verify City and County of San Francisco participation in the review process through meeting notes	Prior to construction. Measure applies to switching station perimeter wall.
Impact AES-4 Switching station would create new source of light in the area	—	APM AE-1	Nighttime Lighting to Minimize Potential Visual Impacts. Because much of the switching station equipment will be located within an enclosed structure, the proposed switching station will have less outdoor lighting than at a conventional outdoor switching station. Design and layout for new outdoor lighting at the switching station will incorporate measures such as use of non-glare or hooded fixtures and directional lighting to reduce spillover into areas outside the switching station site and minimize the visibility of lighting from off-site locations.	PG&E to implement measure as described	CPUC to review lighting design to verify compliance CPUC to verify improvements in the field	Prior to and following construction.
Impact AES-2 Construction activities would temporarily change existing visual character	—	APM AE-2	Construction Cleanup. Construction activities will be kept as clean and inconspicuous as practical. Construction debris will be picked up regularly from construction areas.	PG&E to implement measure as described	CPUC to perform regular monitoring to verify compliance	During construction.

Notes: MM = mitigation measure; APM = applicant proposed measure; PG&E = Pacific Gas & Electric Company.

D.2.6 References Cited

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Egbert Avenue looking southeast toward project site



Egbert Switching Station site

SOURCE: PG&E 2017

FIGURE D.2-1

Egbert Switching Station Site: Existing Conditions

Egbert Switching Station (Martin Substation Extension) Project

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View east from Egbert Avenue at Newhall Street toward peach-colored structure, project site, and multistory apartments



View west from Bitting Avenue (Portola Place residential development) towards project site and multistory apartments

SOURCE: PG&E 2017

FIGURE D.2-2

Egbert Switching Station Site Surrounding Area: Existing Conditions

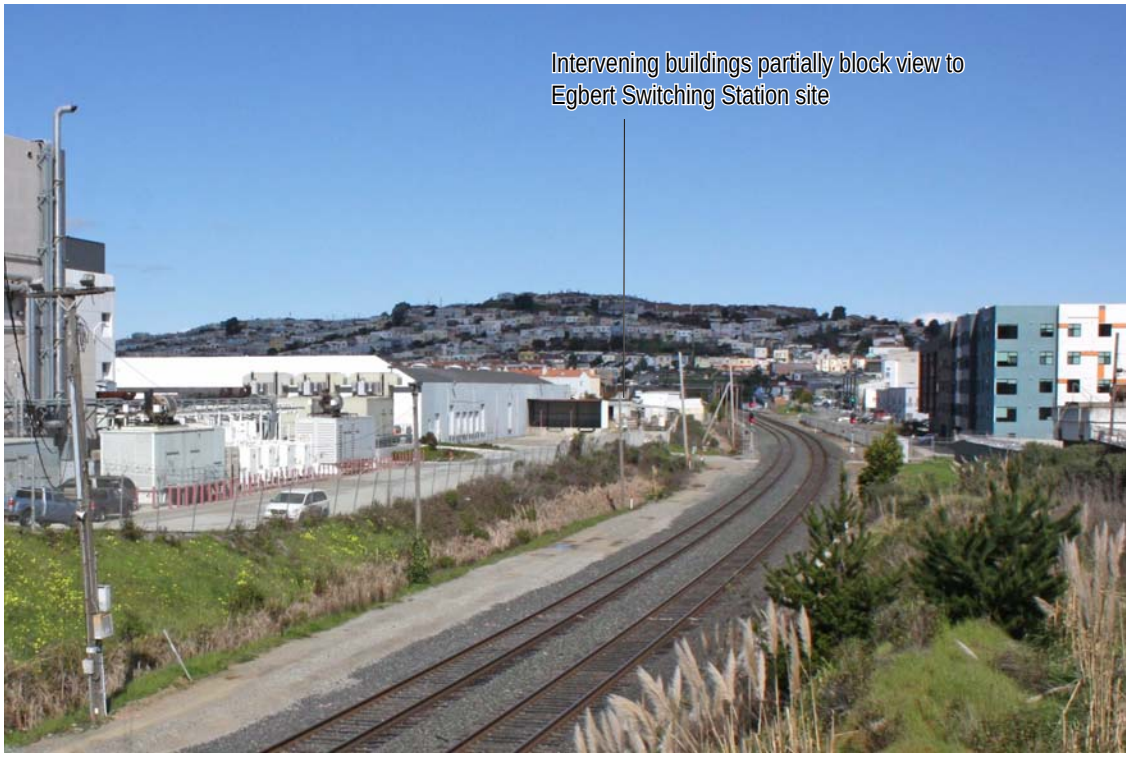
Egbert Switching Station (Martin Substation Extension) Project

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View south from Williams Avenue bridge toward Caltrain corridor, self-storage and residential development, and project site



View north from Paul Avenue bridge toward Caltrain corridor, industrial and residential development, and project site (partially obscured)

SOURCE: PG&E 2017

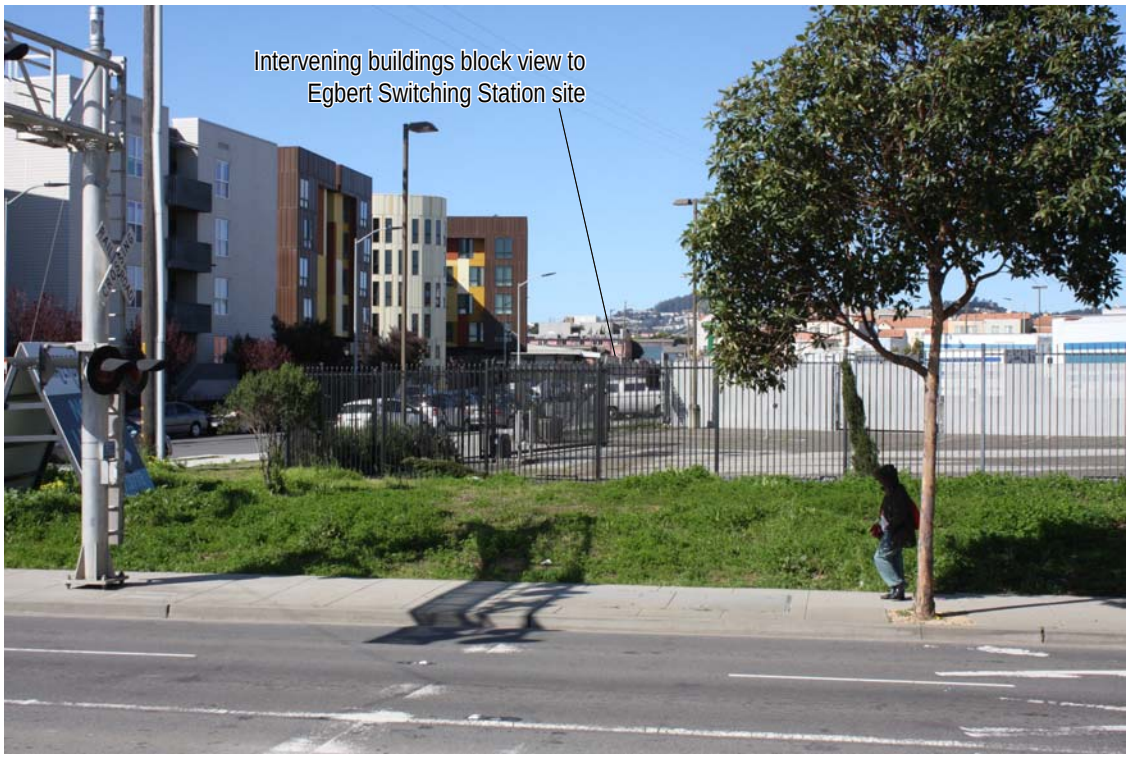
FIGURE D.2-3

Egbert Switching Station Site Surrounding Area: Existing Conditions

Egbert Switching Station (Martin Substation Extension) Project

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View west from 3rd Street toward Carroll Avenue, residential developments, and project site



View west from Bay View Park and K.C. Jones Playground
toward 3rd Street, residential developments, and project site

SOURCE: PG&E 2017

FIGURE D.2-4

Egbert Switching Station Site Surrounding Area: Existing Conditions

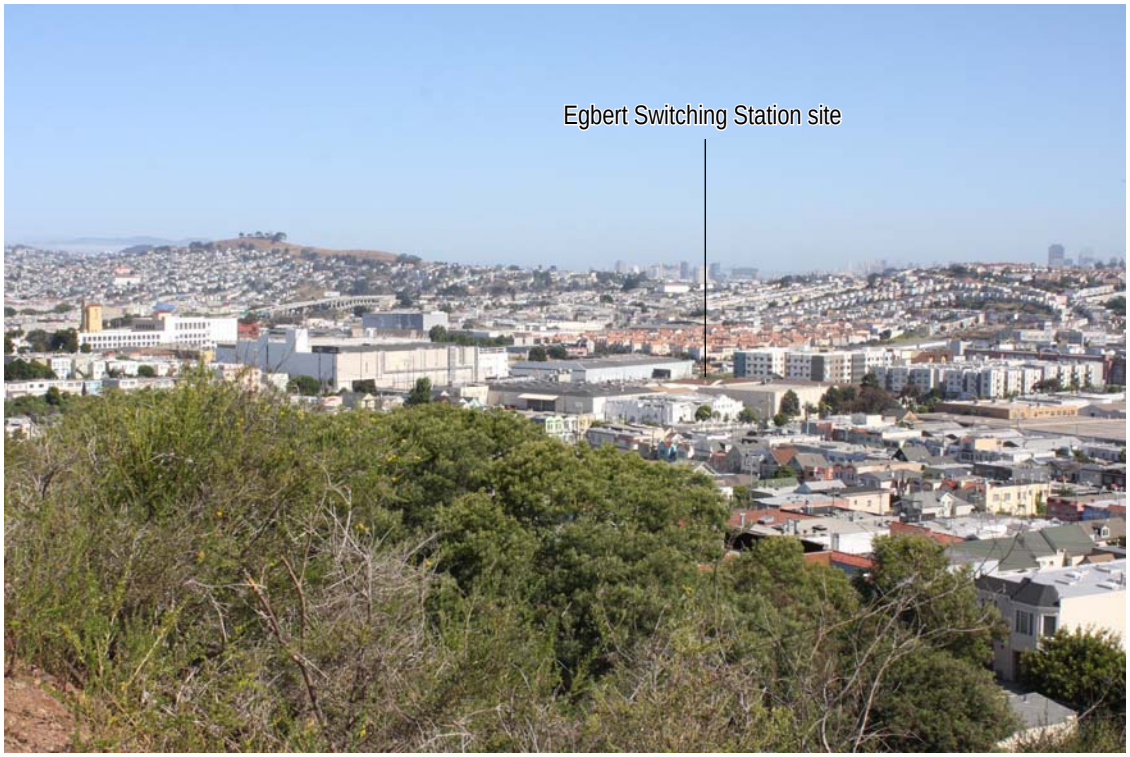
Egbert Switching Station (Martin Substation Extension) Project

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View north from elevated trail in San Bruno Mountain State Park



View northwest from Bayview Park

SOURCE: PG&E 2017

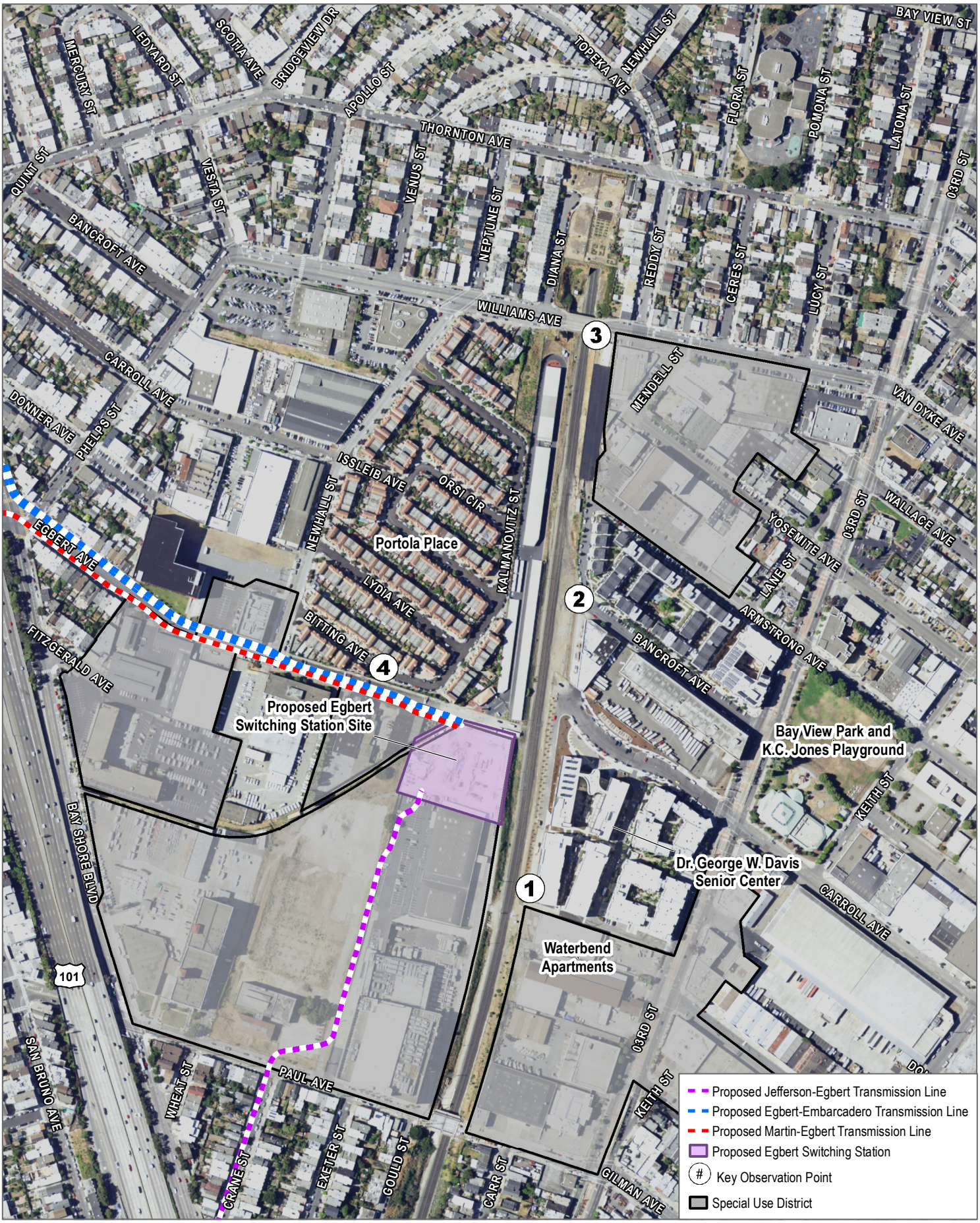
FIGURE D.2-5

Scenic Vistas

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: USDA 2016; PG&E 2017; San Francisco County 2018

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0 250 500 Feet

FIGURE D.2-6

Key Observation Points

Egbert Switching Station (Martin Substation Extension) Project

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Existing view northwest from residential access road location east of Caltrain corridor and south of Carroll Avenue toward project site



Existing view southwest from western terminus at Carroll Avenue toward project site

SOURCE: PG&E 2017

FIGURE D.2-7

Key Observation Points 1 and 2

Egbert Switching Station (Martin Substation Extension) Project

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Existing view south from Williams Avenue bridge toward existing industrial and residential development and project site



Existing view southeast toward shrubs, vine-covered masonry wall, project site, and multifamily residential development

SOURCE: PG&E 2017

FIGURE D.2-8

Key Observation Points 3 and 4

Egbert Switching Station (Martin Substation Extension) Project

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Rendering of Egbert Switching Station as viewed from Egbert Avenue (looking east)



Rendering of Egbert Switching Station as viewed from Caltrain corridor (looking south)

SOURCE: PG&E 2017

FIGURE D.2-9

Renderings of Egbert Switching Station

Egbert Switching Station (Martin Substation Extension) Project

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Existing view northwest from residential access road location east of Caltrain corridor and south of Carroll Avenue toward project site



Visual simulation of Proposed Project

SOURCE: PG&E 2017

FIGURE D.2-10

Key Observation Point 1

Egbert Switching Station (Martin Substation Extension) Project

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Existing view southwest from western terminus at Carroll Avenue toward project site



Visual simulation of Proposed Project

SOURCE: PG&E 2017

FIGURE D.2-11

Key Observation Point 2

Egbert Switching Station (Martin Substation Extension) Project

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Existing view south from Williams Avenue bridge toward existing industrial and residential development and project site



Visual simulation of Proposed Project

SOURCE: PG&E 2017

FIGURE D.2-12

Key Observation Point 3

Egbert Switching Station (Martin Substation Extension) Project

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Existing view southeast toward shrubs, vine-covered masonry wall, project site, and multifamily residential development



Visual simulation of Proposed Project

SOURCE: PG&E 2017

FIGURE D.2-13

Key Observation Point 4

Egbert Switching Station (Martin Substation Extension) Project

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D.3 AIR QUALITY

This section addresses the Egbert Switching Station (Martin Substation Extension) Project (proposed project) and alternatives as they would affect air quality. Section D.3.1 provides a description of the environmental setting, including existing air quality. Applicable air quality management plans, regulations, and requirements are discussed in Section D.3.2. An analysis of potential impacts as a result of the proposed project is provided in Section D.3.3, and the project alternatives are described in Section D.3.4. Mitigation monitoring, compliance, and reporting are discussed in Section D.3.5. Cumulative effects are analyzed in Section F.5.2.2 of this Environmental Impact Report (EIR).

The discussion of air quality emissions presented in this draft EIR and the evaluation of potential impacts associated with these emissions as a result of proposed project implementation is based on the following technical reports and incorporated herein:

- Construction Emissions Summary, Egbert Switching Station Project, PG&E, March 2018 (Appendix D.3-1)
- Health Risk Assessment for PG&E's Egbert Switching Station Project, Jacobs, July 2018 (Appendix D.3-2)
- Memorandum of Health Effect from Criteria Air Pollutants Associated with the Egbert Switching Station (Martin Substation Expansion) Project, Dudek, July 2019 (Appendix D.3-3)

D.3.1 Environmental Setting for the Proposed Project

D.3.1.1 Air Pollution Climatology

The proposed project is located within the San Francisco Bay Area Air Basin (SFBAAB) and is located within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The SFBAAB is one of 15 air basins that geographically divide the state of California. The SFBAAB is currently classified as a federal nonattainment area for ozone (O_3) and a state nonattainment area for particulate matter less than or equal to 10 microns (PM_{10}), particulate matter less than or equal to 2.5 microns ($PM_{2.5}$), and O_3.

BAAQMD is the local agency charged with preparing, adopting, and implementing emission control measures and standards for stationary sources of air pollution. The proposed project would not involve construction of new stationary sources of criteria pollutants or Toxic Air Contaminants (TACs); therefore, the proposed project is not subject to BAAQMD permitting regulations. The SFBAAB is characterized by complex terrain consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind flow patterns. The greatest distortion

occurs when low-level inversions are present and the air beneath the inversion flows independently of air above the inversion.

The climate is dominated by the strength and location of a semi-permanent, sub-tropical 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. The high-pressure cell leads to low precipitation levels in summer months. In terms of wind patterns, during summer months, the wind flows from the northwest inland through the Golden Gate and over the lower portions of the San Francisco Peninsula.

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 low air-pollution potential.

The SFBAAB is characterized by moderately wet winters and dry summers. The SFBAAB frequently experiences stormy conditions with moderate to strong winds, as well as periods of stagnation with very light winds. Winter rains during these times account for about 75% 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 2017a).

The climatological subregion in which the project is located extends from northwest of San Jose to the Golden Gate Bridge. The Santa Cruz Mountains run up the center of the peninsula, with elevations exceeding 2,000 feet at the southern end and decreasing to 500 feet in South San Francisco. Coastal towns experience a high incidence of cool, foggy weather in the summer, whereas cities in the southeastern peninsula experience warmer temperatures and fewer foggy days because the marine layer is blocked by the ridgeline to the west. San Francisco lies at the northern end of the peninsula. Because most of San Francisco's topography is below 200 feet, marine air is able to flow easily across most of the city, making its climate cool and windy (BAAQMD 2017a).

The blocking effect of the Santa Cruz Mountains results in variations in summertime maximum temperatures in different parts of the peninsula. The mean maximum summer temperatures in coastal areas and San Francisco are in the mid-60s degrees Fahrenheit (°F), whereas the mean maximum summer temperatures in Redwood City are in the low 80s°F. Mean minimum

temperatures during the winter months are in the high 30s°F to low 40s°F on the eastern side of the peninsula and in the low 40s°F on the coast (BAAQMD 2017a).

Annual average wind speeds range from 5 to 10 mph throughout the peninsula, with higher wind speeds usually found along the coast. The peninsula's prevailing winds are from the west, although wind patterns are often influenced greatly by local topographic features (BAAQMD 2017a).

The air-pollution potential is highest along the southeastern portion of the peninsula, which is most protected from the high winds and fog of the marine layer. Air-pollutant emissions are relatively high in this region as a result of motor vehicle traffic and stationary sources.

Pollutant emissions are high at the northern end of the peninsula in San Francisco, especially from motor vehicle congestion. Winds in this region, however, are generally fast enough to carry the pollutants away before they can accumulate (BAAQMD 2017a).

D.3.1.2 Background Air Quality

Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Air quality problems arise when the rate of pollutant emissions exceeds the rate of dispersion. Reduced visibility, eye irritation, and adverse health impacts upon those persons termed "sensitive receptors" are the most serious hazards of existing air quality conditions in the area. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution, as identified by the California Air Resources Board (CARB), include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.

Pollutants and Effects

Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$, and lead. In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing

particles are also regulated as criteria air pollutants.[1] These pollutants, as well as TACs, are discussed in the following paragraphs. A more detailed discussion of health effects of criteria air pollutants is provided in Appendix D.3-3.

Ozone

O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors. These precursors are mainly oxides of nitrogen (NO_x) and reactive organic gases (ROG; also referred to as volatile organic compounds). The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during late spring, summer, and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere ozone layer as well as at the Earth's surface in the troposphere.[2] The O_3 that the U.S. Environmental Protection Agency (EPA) and the CARB regulate as a criteria air pollutant is produced close to ground level, where people live, exercise, and breathe. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effects and is thus considered "bad" O_3. Stratospheric, or "good," O_3 occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth's atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2013).

Inhalation of O_3 causes inflammation and irritation of the tissues lining human airways, causing and worsening a variety of symptoms. Exposure to O_3 can reduce the volume of air that the lungs breathe in, thereby causing shortness of breath. O_3 in sufficient doses increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. The occurrence and severity of health effects from O_3 exposure vary widely among individuals, even when the dose and the duration of exposure are the same. Research shows adults and children who spend more time outdoors participating in vigorous physical activities are at greater risk from the harmful health effects of O_3 exposure. While there are relatively few studies on the effects of O_3 on children, the available studies show that children are no more or even less likely

[1] The descriptions of the criteria air pollutants and associated health effects are based on the U.S. Environmental Protection Agency's (EPA's) Criteria Air Pollutants (EPA 2018a) and the CARB's Glossary of Air Pollutant Terms (CARB 2019a).

[2] The troposphere is the layer of the Earth's atmosphere nearest to the surface of the Earth. The troposphere extends outward about 5 miles at the poles and about 10 miles at the equator.

to suffer harmful effects than adults. However, there are a number of reasons why children may be more susceptible to O_3 and other pollutants. Children and teens spend nearly twice as much time outdoors and engaged in vigorous activities as adults. Children breathe more rapidly than adults and inhale more pollution per pound of their body weight than adults. Also, children are less likely than adults to notice their own symptoms and avoid harmful exposures. Further research may be able to better distinguish between health effects in children and adults. Children, adolescents, and adults who exercise or work outdoors, where O_3 concentrations are the highest, are at the greatest risk of harm from this pollutant (CARB 2019b).

Nitrogen Dioxide[3]

NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide, which is a colorless, odorless gas. NO_x plays a major role, together with ROG, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers. NO_2 can irritate the lungs and may potentially lower resistance to respiratory infections (EPA 2016).

A large body of health science literature indicates that exposure to NO_2 can induce adverse health effects. The strongest health evidence, and the health basis for the ambient air quality standards for NO_2, results from controlled human exposure studies that show that NO_2 exposure can intensify responses to allergens in allergic asthmatics. In addition, a number of epidemiological studies have demonstrated associations between NO_2 exposure and premature death, cardiopulmonary effects, decreased lung function growth in children, respiratory symptoms, emergency room visits for asthma, and intensified allergic responses. Infants and children are particularly at risk because they have disproportionately higher exposure to NO_2 than adults due to their greater breathing rate for their body weight and their typically greater outdoor exposure duration. Several studies have shown that long-term NO_2 exposure during childhood, the period of rapid lung growth, can lead to smaller lungs at maturity in children with higher levels of exposure compared to children with lower exposure levels. In addition, children with asthma have a greater degree of airway responsiveness compared with adult asthmatics. In adults, the greatest risk is to people who have chronic respiratory diseases such as asthma and chronic obstructive pulmonary disease (CARB 2019c).

[3] In this section, the term NO_2 will be used with respect to the presence of nitrogen dioxide in the atmosphere. The term NO_x will be used to refer to the *emissions* of oxides of nitrogen from stationary and mobile sources, which are primarily in the form of nitric oxide (NO) and, to a lesser extent, NO_2.

Carbon Monoxide

CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions, primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

CO is harmful because it binds to hemoglobin in the blood, reducing the ability of blood to carry oxygen. This interferes with oxygen delivery to the body's organs. The most common effects of CO exposure are fatigue, headaches, confusion and reduced mental alertness, light-headedness, and dizziness due to inadequate oxygen delivery to the brain. For people with cardiovascular disease, short-term CO exposure can further reduce their body's already compromised ability to respond to the increased oxygen demands of exercise, exertion, or stress. Inadequate oxygen delivery to the heart muscle leads to chest pain and decreased exercise tolerance. Unborn babies whose mothers experience high levels of CO exposure during pregnancy are at risk of adverse developmental effects. Unborn babies, infants, elderly people, and people with anemia or with a history of heart or respiratory disease are most likely to experience health effects with exposure to elevated levels of CO (CARB 2019d).

Sulfur Dioxide

SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

Controlled human exposure and epidemiological studies show that children and adults with asthma are more likely to experience adverse responses with SO_2 exposure, compared with the non-asthmatic population. Effects at levels near the 1-hour standard are those of asthma exacerbation, including bronchoconstriction accompanied by symptoms of respiratory irritation such as wheezing, shortness of breath, and chest tightness, especially during exercise or physical activity. Also, exposure at elevated levels of SO_2 (above 1 parts per million [ppm]) results in

increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality. The elderly and people with cardiovascular disease or chronic lung disease (e.g., bronchitis or emphysema) are most likely to experience these adverse effects (CARB 2019e).

SO_2 is of concern both because it is a direct respiratory irritant and also because it contributes to the formation of sulfate and sulfuric acid in particulate matter (NRC 2005). People with asthma are of particular concern, because they have increased baseline airflow resistance and because their SO_2-induced increase in airflow resistance is greater than in healthy people, and it increases with the severity of their asthma (NRC 2005). SO_2 is thought to induce airway constriction via neural reflexes involving irritant receptors in the airways (NRC 2005).

Particulate Matter

Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Coarse particulate matter (PM_{10}) consists of particulate matter that is 10 microns or less in diameter and is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) consists of particulate matter that is 2.5 microns or less in diameter and is roughly 1/20 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles, power generation, and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides, NO_x, and ROG.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the blood stream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle, produce haze, and reduce regional visibility.

A number of adverse health effects have been associated with exposure to both $PM_{2.5}$ and PM_{10}. For $PM_{2.5}$, short-term exposures (up to 24-hour duration) have been associated with premature mortality, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, restricted activity days, and increased hospital admissions for heart or lung causes. These adverse health effects have been reported primarily in older adults with preexisting heart or lung conditions, children, and infants. In addition, of all of the common air pollutants, $PM_{2.5}$ is associated with the greatest proportion of adverse health effects related to air pollution, both in the United States and worldwide, based on the World Health Organization's Global Burden of Disease Project. Short-term exposures to PM_{10} have been associated primarily with worsening of respiratory diseases, including asthma and chronic obstructive pulmonary disease, leading to hospitalization and emergency department visits (CARB 2017a).

Long-term exposure (months or longer to $PM_{2.5}$ has been linked to premature death, particularly in people who have chronic heart or lung diseases, and reduced lung function development in children. The effects of long-term exposure to PM_{10} are less clear, although several studies suggest a link between long-term PM_{10} exposure and respiratory mortality. The International Agency for Research on Cancer published a review in 2015 that concluded that particulate matter in outdoor air pollution causes lung cancer (CARB 2017a).

Lead

Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Before 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

Sulfates

Sulfates are the fully oxidized form of sulfur, which typically occur in combination with metals or hydrogen ions. Sulfates are produced from reactions of SO_2 in the atmosphere and can result in respiratory impairment, as well as reduced visibility.

Vinyl Chloride

Vinyl chloride is a colorless gas with a mild, sweet odor, which has been detected near landfills, sewage plants, and hazardous waste sites, due to the microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air can cause nervous system effects such as dizziness, drowsiness, and headaches. Long-term exposure through inhalation can cause liver damage, including liver cancer.

Hydrogen Sulfide

Hydrogen sulfide is a colorless and flammable gas that has an odor characteristic of rotten eggs. Sources of hydrogen sulfide include geothermal power plants, petroleum refineries, sewers, and sewage treatment plants. Exposure to hydrogen sulfide can result in nuisance odors, as well as headaches and breathing difficulties at higher concentrations.

Visibility-Reducing Particles

Visibility-reducing particles are any particles in the air that obstruct the range of visibility. Effects of reduced visibility can include obscuring the viewshed of natural scenery, reducing airport safety, and discouraging tourism. Sources of visibility-reducing particles are the same as for $PM_{2.5}$, previously described.

Reactive Organic Gases

Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as ROGs (also referred to as volatile organic compounds). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

The primary health effects of ROGs result from the formation of O_3 and its related health effects. High levels of ROGs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate health standards for ROGs as a group.

Non-Criteria Air Pollutants

Toxic Air Contaminants

A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic noncancer health effects. In California, specific air toxics are designated as TACs through a two-step process that

was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. Federal laws use the term hazardous air pollutants (HAPs) to refer to the same types of compounds that are referred to as TACs under state law.

Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

Diesel Particulate Matter

Diesel particulate matter (DPM) is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. More than 90% of DPM is less than 1 micrometer in diameter (about 1/70 the diameter of a human hair), and thus is a subset of $PM_{2.5}$ (CARB 2016a). DPM is typically composed of carbon particles ("soot," also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB 2016a). The CARB classified "particulate emissions from diesel-fueled engines" (i.e., DPM; 17 CCR 93000) as a TAC in August 1998.

DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, and cars and off-road diesel engines, including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same noncancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies (CARB 2016a). Those most vulnerable to noncancer health effects are children whose lungs are still developing and the elderly who often have chronic health problems.

Odorous Compounds

Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to

physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. Known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

Naturally Occurring Asbestos

Serpentinite bedrock may be encountered in the local area. BAAQMD does not monitor ambient air for naturally occurring asbestos (NOA), but does implement the state-mandated Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations. The Asbestos ATCM requires regulated operations engaged in road construction and maintenance activities, construction and grading operations, and quarrying and surface mining operations in areas where NOA is likely to be found to employ the best available dust mitigation measures in order to reduce and control dust emissions (CARB 2017b).

Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Facilities and structures where these air pollution-sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses where air pollution–sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses) (CARB 2005). Sensitive receptors are groups of individuals, including children, the elderly, the acutely ill, and the chronically ill, that may be more susceptible to health risks due to chemical exposure, and sensitive-receptor population groups are likely to be located at hospitals, medical clinics, schools, playgrounds, childcare centers, residences, and retirement homes (BAAQMD 2017a).

The closest sensitive receptors to the switching station are located within the Portola Place residential community, approximately 50 feet away, across Egbert Avenue to the northwest on Kalmanovitz Street. The nearest residence to the property line of the existing Martin Substation is located within 150 feet on Geneva Avenue. Construction activities associated with the proposed transmission lines would occur in both highly industrialized areas and residential areas, with the nearest residential areas being approximately 50 feet away from the work area.

In addition, the proposed Martin-Egbert transmission line is adjacent to the Dr. Martin Luther King Jr. Academic Middle School, and two other schools are located within 1,000 feet of the freeze pit (E. R. Taylor Elementary School and Alta Vista School). There are four schools present within 1,000 feet of the proposed Jefferson-Egbert transmission line (El Dorado Elementary School, Wu Yee New Generation Child Development Center, Philip and Sala Burton Academic High School, and Visitacion Valley Middle School). Bayshore Elementary School is across the street from the existing Martin Substation, and two other schools are located within 1,000 feet of the existing Martin Substation (Garnet J. Robertson Intermediate School and Mount Vernon Christian School).

SFBAAB Attainment Designation

An area is designated in attainment when it is in compliance with the National Ambient Air Quality Standards (NAAQS) and/or California Ambient Air Quality Standards (CAAQS). These standards are set by the EPA or CARB for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or the public welfare.

The primary pollutants of concern in SFBAAB are ozone, PM_{10}, and $PM_{2.5}$ because SFBAAB is designated nonattainment for these pollutants by EPA and CARB. The SFBAAB is designated as nonattainment for both the 1-hour and 8-hour NAAQS for O_3. The SFBAAB was designated as attainment for all other criteria pollutants under the NAAQS. The SFBAAB is currently designated as nonattainment for O_3, both 1-hour and 8-hour, and PM_{10} and $PM_{2.5}$ under the CAAQS. Table D.3-1 shows the attainment designations for the SFBAAB by pollutant.

Table D.3-1
SFBAAB Attainment Classification

Pollutant	Federal Designation	State Designation
O_3 (1-hour)	Nonattainment (Moderate)	Nonattainment
O_3 (8-hour – 2008)	Nonattainment (Marginal)	Nonattainment
CO	Unclassifiable/Attainment	Attainment
PM_{10}	Unclassifiable/Attainment	Nonattainment
$PM_{2.5}$	Unclassifiable/Attainment	Nonattainment
NO_2	Unclassifiable/Attainment	Attainment
SO_2	Unclassifiable/Attainment	Attainment
Lead	Unclassifiable/Attainment	Attainment
Hydrogen Sulfide	No federal standard	Unclassified
Sulfates	No federal standard	Attainment
Visibility-Reducing Particles	No federal standard	Unclassified
Vinyl Chloride	No federal standard	No designation

Sources: CARB 2018a (state); BAAQMD 2017b; EPA 2018b (federal).
Notes:
SFBAAB = San Francisco Bay Area Air Basin; O_3 = ozone; Nonattainment = does not meet the standards; CO = carbon monoxide; Unclassifiable/Attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data; Attainment = meets

the standards; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; NO_2 = nitrogen dioxide; SO_2 = sulfur dioxide; Unclassified or Unclassifiable = insufficient data to classify.

Air Quality Monitoring Data

CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality–monitoring stations across the state. Local ambient air quality is monitored by the BAAQMD, which operates a network of ambient air–monitoring stations throughout San Francisco that measure concentrations of ozone, CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$. To determine the existing ambient air quality for the proposed project, the nearest monitoring station was identified. The nearest monitoring station is located at 10 Arkansas Street in San Francisco, California. The most recent background ambient air quality data and number of days exceeding the ambient air quality standards from 2015 to 2017 are presented in Table D.3-2.

Table D.3-2
Local Ambient Air Quality Data

Averaging Time	Unit	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
				2015	*2016*	*2017*	*2015*	*2016*	*2017*
Ozone (O_3) – Arkansas Street									
Maximum 1-hour concentration	ppm	State	0.09	0.085	0.070	0.087	0	0	0
Maximum 8-hour concentration	ppm	State	0.070	0.067	0.057	0.054	0	0	0
		Federal	0.070	0.067	0.057	0.054	0	0	0
Nitrogen Dioxide (NO_2) – Arkansas Street									
Maximum 1-hour concentration	ppm	State	0.18	0.070	0.058	0.073	0	0	0
		Federal	0.100	0.071	0.058	0.073	0	0	0
Annual concentration	ppm	State	0.030	0.012	0.010	0.011	—	—	—
		Federal	0.053	—	—	—	—	—	—
Carbon Monoxide (CO) – Arkansas Street									
Maximum 1-hour concentration	ppm	State	20	—	—	—	—	—	—
		Federal	35	1.8	1.7	2.5	0	0	0
Maximum 8-hour concentration	ppm	State	9	—	—	—	—	—	—
		Federal	9	1.3	1.1	1.4	0	0	0
Coarse Particulate Matter (PM_{10})[a] – Arkansas Street									
Maximum 24-hour concentration	µg/m³	State	50	47.0	29.0	77.0	0.0 (0)	0.0 (0)	24.6 (2)
		Federal	150	44.7	35.7	75.9	0.0 (0)	0.0 (0)	0.0 (0)
Annual concentration	µg/m³	State	20	—	—	22.1	—	—	—

Table D.3-2
Local Ambient Air Quality Data

Averaging Time	Unit	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
				2015	*2016*	*2017*	*2015*	*2016*	*2017*
Fine Particulate Matter ($PM_{2.5}$)[a] – Arkansas Street									
Maximum 24-hour concentration	µg/m³	Federal	35	35.4	19.6	49.9	0.0 (0)	0.0 (0)	7.3 (7)
Annual concentration	µg/m³	State	12	7.6	—	9.7	—	—	—
		Federal	12	7.5	7.5	9.7	—	—	—

Sources: CARB 2018b; EPA 2018c.
Notes: — = not available; µg/m³ = micrograms per cubic meter; ppm = parts per million; CARB = California Air Resources Board; EPA = U.S. Environmental Protection Agency; PM_{10} particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; O_3 = ozone; SO_2 = sulfur dioxide.
Data taken from CARB iADAM (http://www.arb.ca.gov/adam) and EPA AirData (http://www.epa.gov/airdata/) represent the highest concentrations experienced over a given year.
Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed federal or state standards during the years shown. There is no federal standard for 1-hour O_3, annual PM_{10}, or 24-hour SO_2, nor is there a state 24-hour standard for $PM_{2.5}$.
Arkansas Street monitoring station is located at 10 Arkansas Street, San Francisco, California 94107.
[a] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

D.3.2 Applicable Regulations, Plans, and Standards

Federal Regulations, Plans, and Standards

Criteria Air Pollutants

The federal Clean Air Act (CAA), passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the CAA, including setting NAAQS for major air pollutants; setting HAP standards; approving state attainment plans; setting motor vehicle emission standards; issuing stationary source emission standards and permits; and establishing acid rain control measures, stratospheric O_3 protection measures, and enforcement provisions. Under the CAA, NAAQS are established for the following criteria pollutants: O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The CAA requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS

must prepare a state implementation plan that demonstrates how those areas will attain the standards within mandated time frames. A more detailed discussion of the NAAQS, as well as the CAAQS (discussed below), is provided in Appendix D.3-3.

Hazardous Air Pollutants

The 1977 federal CAA amendments required the EPA to identify National Emission Standards for HAPs to protect public health and welfare. HAPs include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 CAA amendments, which expanded the control program for HAPs, 187 substances and chemical families were identified as HAPs.

State Regulations, Plans, and Standards

Criteria Air Pollutants

The federal CAA delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal CAA, and regulating emissions from motor vehicles and consumer products.

CARB has established the CAAQS, which are more restrictive than the NAAQS, consistent with the CAA, which requires state regulations to be at least as restrictive as the federal requirements. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, $PM_{2.5}$, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. The NAAQS and CAAQS are presented in Table D.3-3.

Table D.3-3
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary*[c,d]	*Secondary*[c,e]
O_3	1 hour	0.09 ppm (180 μg/m³)	—	Same as Primary Standard[f]
	8 hours	0.070 ppm (137 μg/m³)	0.070 ppm (137 μg/m³)[f]	
NO_2[g]	1 hour	0.18 ppm (339 μg/m³)	0.100 ppm (188 μg/m³)	Same as Primary Standard
	Annual Arithmetic Mean	0.030 ppm (57 μg/m³)	0.053 ppm (100 μg/m³)	
CO	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	None

Table D.3-3
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary[c,d]*	*Secondary[c,e]*
	8 hours	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	
SO_2[h]	1 hour	0.25 ppm (655 μg/m^3)	0.075 ppm (196 μg/m^3)	—
	3 hours	—	—	0.5 ppm (1,300 μg/m^3)
	24 hours	0.04 ppm (105 μg/m^3)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[i]	24 hours	50 μg/m^3	150 μg/m^3	Same as Primary Standard
	Annual Arithmetic Mean	20 μg/m^3	—	
$PM_{2.5}$[i]	24 hours	—	35 μg/m^3	Same as Primary Standard
	Annual Arithmetic Mean	12 μg/m^3	12.0 μg/m^3	15.0 μg/m^3
Lead[j,k]	30-day Average	1.5 μg/m^3	—	—
	Calendar Quarter	—	1.5 μg/m^3 (for certain areas)[k]	Same as Primary Standard
	Rolling 3-Month Average	—	0.15 μg/m^3	
Hydrogen sulfide	1 hour	0.03 ppm (42 μg/m^3)	—	—
Vinyl chloride[j]	24 hours	0.01 ppm (26 μg/m^3)	—	—
Sulfates	24 hours	25 μg/m^3	—	—
Visibility reducing particles	8 hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to the number of particles when the relative humidity is less than 70%	—	—

Source: CARB 2016.

Notes: O_3 = ozone; ppm = parts per million by volume; μg/m^3 = micrograms per cubic meter; NO_2 = nitrogen dioxide; CO = carbon monoxide; mg/m^3= milligrams per cubic meter; SO_2 = sulfur dioxide; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; CAAQS = California Ambient Air Quality Standards; EPA = U.S. Environmental Protection Agency.

a California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, suspended particulate matter (PM_{10}, $PM_{2.5}$), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

b National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site 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 above 150 μg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

c Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[e] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[f] On October 1, 2015, the EPA Administrator signed the notice for the final rule to revise the primary and secondary NAAQS for O_3. The EPA is revising the levels of both standards from 0.075 ppm to 0.070 ppm and retaining their indicators (O_3), forms (fourth-highest daily maximum, averaged across 3 consecutive years) and averaging times (8 hours). The EPA is in the process of submitting the rule for publication in the Federal Register. The final rule will be effective 60 days after the date of publication in the Federal Register. The lowered national 8-hour standards are reflected in the table.

[g] To attain the national 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[h] On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the national 1-hour standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[i] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM_{10} standards (primary and secondary) of 150 $\mu g/m^3$ were also retained. The form of the annual primary and secondary standards is the annual mean averaged over 3 years.

[j] The California Air Resources Board has identified lead and vinyl chloride as Toxic Air Contaminants with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[k] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

Toxic Air Contaminants

The state Air Toxics Program was established in 1983 under Assembly Bill (AB) 1807 (Tanner). The California TAC list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) HAPs. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment, and if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. The regulation is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000 (CARB 2000). Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment program. All of these regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel powered equipment. Several ATCMs that reduce diesel emissions include

In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

California Health and Safety Code Section 41700

Section 41700 of the Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any of those persons or the public; or that cause, or have a natural tendency to cause, injury, or damage to business or property. This section also applies to sources of objectionable odors.

Asbestos Airborne Toxic Control Measure 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 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 NOA, serpentine, or ultramafic rocks are determined to be present. In addition, if NOA, serpentine, or ultramafic rock is discovered during earth-disturbance activities, the project also will be subject to the Asbestos ATCM. The Asbestos ATCM establishes notification, management practice, mitigation plan, transport and disposal, and administrative (e.g., recordkeeping and reporting) requirements for projects in order to reduce the generation of asbestos from all aspects of construction, grading, quarrying, and mining operations. A possibility of encountering NOA would exist during project construction; if NOA is encountered during construction, the proposed project will comply with the requirements of the Asbestos ATCM (Bonilla 1998; USGS 2011).

Local Regulations, Plans and Standards

Bay Area Air Quality Management District

The BAAQMD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the SFBAAB, where the project site is located. The clean air strategy of the BAAQMD includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, issuance of permits for stationary sources of air pollution, inspection of stationary sources of air pollution and response to citizen complaints, monitoring of ambient air quality and meteorological conditions, and implementation of programs and regulations required by the federal and California CAAs.

On April 19, 2017, the BAAQMD adopted the Spare the Air: Cool the Climate Final 2017 Clean Air Plan (BAAQMD 2017c). The 2017 Clean Air Plan provides a regional strategy to protect public health and protect the climate. To protect public health, the 2017 Clean Air Plan includes all feasible measures to reduce emissions of O_3 precursors (ROG and NO_x) and reduce O_3 transport to neighboring air basins. In addition, the 2017 Clean Air Plan builds on BAAQMD efforts to reduce $PM_{2.5}$ and TACs. To protect the climate, the Clean Air Plan defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious greenhouse gas (GHG) reduction targets for 2030 and 2050 and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieving those GHG reduction targets.

BAAQMD establishes and administers a program of rules and regulations to attain and maintain state and national air quality standards and regulations related to TACs. The rules and regulations that may apply to the proposed project include the following:

- **Regulation 2, Rule 1 – Permits.** This rule specifies the requirements for authorities to construct and permits.
- **Regulation 6, Rule 1 – Particulate Matter.** This rule limits the quantity of particulate matter in the atmosphere through the establishment of limitations on emission rates, concentration, visible emissions, and opacity.
- **Regulation 8, Rule 1 – General Provisions.** This rule limits the emission of organic compounds into the atmosphere.
- **Regulation 9, Rule 8 – Nitrogen Oxides And Carbon Monoxide from Stationary Internal Combustion Engines.** This rule limits the emissions of NO_x and CO from stationary internal combustion engines with an output rated by the manufacturer at more than 50 brake horsepower.

San Francisco Health Code – Article 22B

Article 22B outlines the requirements for dust control during construction activities. Project applicants are required to prepare a site specific dust control plan for projects 1) greater than half-acre in size and 2) with sensitive receptors within 1,000 feet of the project site. The Department of Public Health is responsible for reviewing the site specific dust control plan and provide notification of approval to the Department of Building Inspection. Dust control is enforced by the Department of Building Inspection and Department of Public Works. Due to the size and location of the proposed project, a site specific dust control plan must be approved prior to construction activities.

San Francisco General Plan

The Air Quality Element of the San Francisco General Plan includes the following:

- **Objective 4:** Improve air quality by increasing public awareness regarding the negative health effects of pollutants generated by stationary and mobile sources.
  - **Policy 4.3:** Minimize exposure of San Francisco's population, especially children and the elderly, to air pollutants.
- **Objective 5:** Minimize particulate matter emissions from road and construction sites.
  - **Policy 5.1:** Continue policies to minimize particulate matter emissions during road and building construction and demolition.
  - **Policy 5.2:** Encourage the use of building and other construction materials and methods that generate minimum amounts of particulate matter during construction as well as demolition.

D.3.3 Environmental Impacts and Mitigation Measures

D.3.3.1 Definition and Use of Significance Criteria

Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.) provides guidance for evaluating whether a project may result in significant impacts. In accordance with Appendix G, the proposed project would have a significant impact on air quality if the proposed project would:

Impact AQ-1	Conflict with or obstruct implementation of the applicable air quality plan.
Impact AQ-2	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard.
Impact AQ-3	Expose sensitive receptors to substantial pollutant concentrations.
Impact AQ-4	Result in other emissions (such as those leading to odors) affecting a substantial number of people.

Appendix G advises lead agencies to rely on the CEQA significance criteria established by the local air pollution control agency (for the Bay Area, BAAQMD) to determine the significance of a project's air emissions under the Appendix G thresholds.

BAAQMD Thresholds

The BAAQMD adopted updated CEQA Air Quality Guidelines, including new thresholds of significance, in June 2010 (BAAQMD 2010), and revised them in May 2011. The CEQA Air Quality Guidelines advise lead agencies on how to evaluate potential air quality impacts, including establishing quantitative and qualitative thresholds of significance. The BAAQMD resolutions adopting and revising the significance thresholds in 2011 were set aside by a judicial writ of mandate on March 5, 2012. In May 2012, the BAAQMD updated its CEQA Air Quality Guidelines to continue to provide direction on recommended analysis methodologies, but without recommended quantitative significance thresholds (BAAQMD 2012). On August 13, 2013, the First District Court of Appeal ordered the trial court to reverse the judgment and upheld the BAAQMD's CEQA thresholds. The BAAQMD CEQA Air Quality Guidelines were recently re-released in May 2017 and include the same thresholds as in the 2010 and 2011 Guidelines for criteria air pollutants, TACs, and GHGs (BAAQMD 2017a). The guidelines also address the December 2015 Supreme Court opinion (*California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal. 4th 369). BAAQMD significance thresholds are summarized in Table D.3-4.

In general, the BAAQMD significance thresholds for ROG, NO_x, PM_{10}, $PM_{2.5}$, and CO address the first three air quality significance criteria. The BAAQMD maintains that these thresholds are intended to maintain ambient air quality concentrations of these criteria air pollutants below state and federal standards and to prevent a cumulatively considerable contribution to regional nonattainment with ambient air quality standards. The TAC thresholds (cancer and noncancer risks) and local CO thresholds address the third significance criterion, and the BAAQMD odors threshold addresses the fourth significance criterion.

Table D.3-4
Thresholds of Significance

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs/day)	*Average Daily Emissions (lbs/day)*	*Maximum Annual Emissions (tpy)*
ROG	54	54	10
NO_x	54	54	10
PM_{10} (exhaust)	82	82	15
$PM_{2.5}$ (exhaust)	54	54	10
$PM_{10}/PM_{2.5}$ (fugitive dust)	Best Management Practices	None	
Local CO	None	9.0 ppm (8-hour average, 20.0 ppm (1-hour average)	
Risks and Hazards (Individual Project)	Compliance with Qualified Community Risk Reduction Plan or Increased cancer risk of >10.0 in a million Increased noncancer risk of >1.0 Hazard Index (Chronic or Acute) Ambient $PM_{2.5}$ increase >0.3 µg/m3 annual average		

Table D.3-4
Thresholds of Significance

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs/day)	*Average Daily Emissions (lbs/day)*	*Maximum Annual Emissions (tpy)*
	Zone of Influence: 1,000-foot radius from property line of source or receptor		
Risks and Hazards (Cumulative)	Compliance with Qualified Community Risk Reduction Plan or Cancer risk of >100 in a million (from all local sources) Noncancer risk of >10.0 Hazard Index (chronic, from all local sources) Ambient $PM_{2.5}$ >0.8 µg/m3 annual average (from all local sources) Zone of Influence: 1,000-foot radius from property line of source or receptor		
Accidental Release of Acutely Hazardous Air Pollutants	None	Storage or use of acutely hazardous material located near receptors or new receptors located near stored or used acutely hazardous materials considered significant	
Odors	None	Five confirmed complaints per year averaged over 3 years	

Source: BAAQMD 2017a.
Notes: lbs/day = pounds per day; tpy = tons per year; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; CO = carbon monoxide; ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.

D.3.3.2 Applicant Proposed Measures

Table D.3-5 shows the applicant proposed measures (APMs) proposed by Pacific Gas & Electric Company (PG&E) to reduce air quality impacts associated with construction.

Table D.3-5
Applicant Proposed Measures for Air Quality

APM No.	Description
APM AQ-1	**Minimize Fugitive Dust.** Consistent with Table 8-2 of the CEQA Guidelines (BAAQMD, 2017c), PG&E will minimize dust emissions during construction by implementing the following measures: • Water all exposed soil surfaces (e.g., unpaved parking areas, unpaved staging areas, soil piles, graded areas, and unpaved access roads) at least twice daily, except when rains are occurring; or apply non-toxic soil stabilizers such as soil binders, crushed rock, or gravel. • Cover all trucks hauling soil, sand, and other loose materials. • Limit all vehicle speeds on unpaved roads to 15 miles per hour. • All roadways, driveways, and sidewalks to be paved will be completed as soon as possible after grading unless seeding, soil binders, or gravel are used. • Sweep streets daily (with water sprayers and brooms or mechanical sweeps, if necessary) if visible soil material is carried onto adjacent public roads. • Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person will respond and take corrective action within 48 hours. BAAQMD's phone number will also be visible to ensure compliance with applicable regulations. As shown in Table 3.3-6 [Table D.3-4 of this EIR], there are no numeric thresholds of significance for fugitive dust. Rather, it is BAAQMD's opinion that "projects implementing construction best management practices will reduce fugitive dust emissions to a less than significant level" (BAAQMD,

Table D.3-5
Applicant Proposed Measures for Air Quality

APM No.	Description
	2017c) [Correction to APM submitted by applicant – should be 2017a]. Because the measures included in APM AQ-1 are consistent with Table 8-2 of the CEQA Guidelines (BAAQMD, 2017c) [Correction to APM submitted by applicant – should be 2017a], construction emissions resulting from fugitive dust are expected to be less than significant. Furthermore, the project is not expected to require implementation of the additional measures from Table 8-3 of the CEQA Guidelines because PM_{10} and $PM_{2.5}$ exhaust emissions are below the significance thresholds, as described below.
APM AQ-2	**Minimize Construction Exhaust Emissions.** The following measures will be implemented during construction to further minimize the less-than-significant construction exhaust emissions: • Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time is dependent upon 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 such that idling is reduced as far as possible below the maximum of five consecutive minutes required by regulation (13 CCR 2449 and 2485). If a vehicle is not required for use immediately or continuously for construction activities or for other safety-related reasons, its engine will be shut off. • Maintain all construction equipment in accordance with manufacturer's specifications. Check all equipment using a certified mechanic, and confirm that equipment is in proper condition prior to operation.
APM AQ-3	**Minimize Potential Naturally Occurring Asbestos Emissions.** The following measures will be implemented prior to and during construction to minimize the potential for NOA emissions: • Prior to commencement of construction, samples of the proposed Jefferson-Egbert Transmission Line construction areas within the serpentine (Sp) stratigraphic unit will be analyzed for presence of asbestos, serpentinite, or ultramafic rock. • If asbestos, serpentinite, or ultramafic rock is determined to be present at the specific project location, implement all applicable provisions of the Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations (17 CCR 93105), including the following: For disturbed areas of 1 acre or less: • Construction vehicle speed at the work site will be limited to 15 miles per hour or less. • Prior to any ground disturbance, sufficient water will be applied to the area to be disturbed to prevent visible emissions from crossing the property line. • Areas to be graded or excavated will be kept adequately wetted to prevent visible emissions from crossing the property line. • Storage piles will be kept adequately wetted, treated with a chemical dust suppressant, or covered when material is not being added to or removed from the pile. • Equipment will be washed down before moving from the property onto a paved public road. • Visible track-out on the paved public road will be cleaned within 24 hours using wet sweeping or a High Efficiency Particulate Air filter-equipped vacuum device. • For disturbed areas of more than 1 acre: • Submit an Asbestos Dust Mitigation Plan to BAAQMD, and obtain approval prior to commencement of construction. • Implement and maintain the provisions of the approved Asbestos Dust Mitigation Plan from the beginning of construction through the duration of the construction activity.

D.3.3.3 Impact Discussion

Impact AQ-1 Would the project conflict with or obstruct implementation of the applicable air quality plan?

Construction and Operation and Maintenance

As discussed in Section D.3.2, BAAQMD has developed plans to achieve and/or maintain compliance with the federal and state air quality standards. On April 19, 2017, the BAAQMD's Board of Directors adopted the Spare the Air: Cool The Climate Final 2017 Clean Air Plan (BAAQMD 2017c). The 2017 Clean Air Plan provides a regional strategy to protect public health and protect the climate. To this end, the 2017 Clean Air Plan provides an integrated, multi-pollutant control strategy to reduce emissions of ozone precursors (NO_x and ROG), particulates, TACs, and GHGs, and to reduce O_3 transport to neighboring air basins. Specifically, the 2017 Clean Air Plan contains control measures for the following sectors: stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, water, and super-GHG pollutants. In order to protect the climate, the plan defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious GHG reduction targets for 2030 and 2050 and provides a regional climate protection strategy that puts the Bay Area on a pathway to achieve those GHG reduction targets.

The proposed project would be consistent with the 2017 Clean Air Plan in that APM AQ-1 contains measures encouraging the reduction of fugitive dust; APM AQ-2 contains measures encouraging the reduction of construction tailpipe criteria pollutant and TAC emissions through reduced idling time of off-road vehicles; and APM AQ-3 contains measures encouraging the reduction of asbestos, which is considered a TAC. Furthermore, as discussed within Section D.9, the project would implement MM HM-1 which requires the submission of a Dust Control Plan, consistent with Article 22B of the San Francisco Health Code. Control measures for many of the other sectors, like stationary sources, are not applicable to the proposed project, given that the proposed project would not include any new stationary sources of criteria pollutants or TACs. Operation of the proposed project, including the switching station, would not require the installation of new stationary emission sources subject to BAAQMD permitting or subject to provisions of AB 2588 and, as a result, the proposed project is not expected to emit TACs (including DPM) and is not considered a stationary source of toxic emissions.

During project construction, only two pieces of equipment are expected to be subject to CARB's ATCM for DPM from Portable Engines: two portable generators rated at 350 kilowatts, or approximately 469 brake horsepower. To demonstrate compliance, PG&E would require its contractor use engines that have been registered through the Statewide Portable Equipment Registration Program or engines that have been certified to meet the most stringent California

emissions standards available for non-road engines. Although one other portable generator is intended for use, it is rated below 50 brake horsepower. The remaining pieces of diesel-fueled construction equipment are also expected to be exempt from the ATCM for DPM from Portable Engines because the engines propel mobile equipment. Additionally, PG&E would implement APM AQ-2 to reduce tailpipe emissions of criteria pollutants and TACs from construction vehicles and equipment to the extent feasible, in accordance with the requirements of 13 CCR 2449 and 2485. Although off-road diesel-fueled equipment would be used during construction, each piece of equipment is not expected to be used for more than 1 year in duration. Therefore, PG&E is not expected to be considered the owner of the vehicle fleet and responsibility for complying with the performance requirements of the Regulation for In-Use Off-Road Diesel Fueled Fleets (13 CCR 2449), apart from the requirement to limit idling time captured in APM AQ-2, would lie with the rental or leasing company, not PG&E.

Notably, the air quality impacts of the proposed project would be primarily construction-related emissions that are temporary and short term in nature and would not result in increased long-term operational emissions or population growth. Since construction of the proposed project would not substantially increase air pollutant emissions within the SFBAAB, as explained in further detail under Impact AQ-2, the proposed project would not interfere with the BAAQMD plans to achieve or maintain attainment for any criteria air pollutant.

Based on the above considerations, the proposed project would not conflict with or obstruct implementation of the applicable air quality plan during construction, operation, or maintenance; therefore, impacts would be less than significant (Class III).

Impact AQ-2 Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard?

Construction

According to the BAAQMD guidance for CEQA documents, a project could result in adverse air quality effects if temporary, short-term construction-related emissions of criteria air pollutants or precursors would exceed the thresholds of significance established by the air district (see Table D.3-4). Fugitive dust emissions are primarily associated with site preparation during construction and vary as a function of such parameters as soil silt content, soil moisture, wind speed, acreage of disturbance area, and miles traveled by construction vehicles on and off site. ROG and NO_x are primarily associated with off-road equipment and on-road vehicle exhaust. Short-term construction criteria air pollutant emissions were estimated using a spreadsheet model, which incorporated emission factors from the California Emissions Estimator Model (CalEEMod) and

from EMFAC2014. Complete assumptions and calculations are presented in Appendix D.3-1, Construction Emissions Summary.

The proposed project's estimated construction emissions, summarized in Table D.3-6, would be temporary and would only occur during limited portions of the 22-month construction period. As shown in Table D.3-6, average daily emissions are less than the significance thresholds without implementation of APMs. Therefore, construction emissions would have a less-than-significant impact on air quality and would not violate any air quality standard (Class III).

Table D.3-6
Comparison of Construction Emissions to Significance Thresholds

Construction Activity	Average Daily Emissions (lbs/day)[a]					
	ROG	*CO*	*NO_x*	*SO_x*	*PM_{10}[b]*	*$PM_{2.5}$[b]*
Maximum Average Daily Emissions[c,d]	3.09	33.42	35.37	0.09	3.79	1.98
BAAQMD Significance Thresholds	54	N/A	54	N/A	82	54
Significance Threshold Exceeded?	No	N/A	No	N/A	No	No

Notes: lbs/day = pounds per day; ROG = reactive organic gas; CO = carbon monoxide; NO_x = oxides of nitrogen; SO_x = sulfur oxides; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; BAAQMD = Bay Area Air Quality Management District; N/A = not applicable (i.e., a significance threshold does not exist for this pollutant); SFBAAB = San Francisco Bay Area Air Basin; NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; O_3 = ozone.

[a] The SFBAAB is designated as nonattainment for both the 1-hour and 8-hour NAAQS and CAAQS for O_3 and is nonattainment for the PM_{10} and $PM_{2.5}$ CAAQS. As such, the BAAQMD has established mass daily thresholds for ROG, NO_x, PM_{10}, and $PM_{2.5}$. Emissions of CO and SO_x are provided for informational purposed only, since the BAAQMD has not established mass daily thresholds for these criteria pollutants.

[b] PM_{10} and $PM_{2.5}$ emissions represent both exhaust and fugitive dust emissions, even though BAAQMD's numeric significance thresholds are specific to exhaust.

[c] Emissions presented do not account for implementation of applicant proposed measures or mitigation measures. Even absent applicant proposed measures, construction emissions are still below BAAQMD's significance thresholds.

[d] To facilitate comparison to BAAQMD's significance thresholds, the proposed project's annual construction emissions were divided by the maximum number of days construction activity would occur during the year, as determined using the preliminary construction schedule.

Construction emissions would be further reduced below BAAQMD's significance thresholds with implementation of APMs AQ-1 through AQ-3. Specifically, it is BAAQMD's opinion that construction-related fugitive dust emissions would be less than significant if best management practices, such as those proposed in PG&E's APM AQ-1, are implemented (BAAQMD 2017a).

Operation and Maintenance

Operation and maintenance of the proposed project would be incorporated into existing PG&E activities such that emissions from project-related operation and maintenance activities would be negligible and, therefore, far less than the thresholds of significance shown in Table D.3-4. As such, operation and maintenance emissions would have a less-than-significant impact on air quality and would not violate any air quality standard (Class III).

In regards to localized CO concentrations, according to the BAAQMD thresholds, a project would result in a less-than-significant impacts if the following screening criteria are met:

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

The proposed project would generate minimal new traffic trips and would comply with the BAAQMD screening criteria. Accordingly, project-related traffic would not exceed CO standards and therefore, no further analysis was conducted for CO impacts. This CO emissions impact would be considered less than significant on a project-level and cumulative basis (Class III).

Past, present, and future development projects may contribute to the region's adverse air quality impacts on a cumulative basis. Per BAAQMD's CEQA Guidelines, by its nature, air pollution is largely a cumulative impact; no single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be considered cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Therefore, if the proposed project's emissions are below the BAAQMD thresholds or screening criteria, then the proposed project's cumulative impact would be less than significant.

As previously discussed, construction and operations of the proposed project would not exceed the BAAQMD significance thresholds for ROG, NO_x, PM_{10}, or $PM_{2.5}$. In addition, the emission-based thresholds used in this analysis were established to provide proposed project-level estimates of criteria air pollutant quantities that the SFBAAB can accommodate without affecting the attainment dates for the ambient air quality standards, and since the EPA and CARB have established the ambient air quality standards at levels above which concentrations could be harmful to human health and welfare, with an adequate margin of safety, criteria air pollutant emissions below the adopted thresholds as a result of the proposed project's construction and operation would not cause significant health effects associated with these pollutants. (The effects typically associated with unhealthy levels of criteria air pollutant

exposure are previously described in Section D.3.1 for the proposed project.) However, as detailed in the Appendix D.3-3, there are numerous scientific and technological complexities associated with correlating criteria air pollutant emissions from an individual project to specific health effects or potential additional nonattainment days, and there are currently no modeling tools that could provide reliable and meaningful additional information regarding health effects from criteria air pollutants generated by individual projects.

As discussed previously, criteria pollutant emissions generated by short-term construction and long-term operations of the proposed project would not exceed the BAAQMD significance thresholds. Thus, the proposed project would have a less-than-significant cumulative impact in relation to regional emissions (Class III). In addition, project-related traffic would not exceed the BAAQMD CO screening criteria and would result in a less than significant cumulative impact in relation to localized CO (Class III).

Impact AQ-3 Would the project expose sensitive receptors to substantial pollutant concentrations?

Health Impacts of Toxic Air Contaminants

Construction

Sensitive receptors are defined as facilities or land uses that include people who are particularly susceptible to the effects of air pollution (e.g., children, the elderly, and people with illnesses). Schools, hospitals, and residential areas are examples of sensitive receptors (BAAQMD 2017a). Land uses within 1,000 feet of the proposed project, including identification of sensitive receptors, are summarized below. A distance of 1,000 feet was used based on the "zone of influence" cited in Table 2-1 of the CEQA Guidelines (BAAQMD 2017a).

Hospitals. There are no hospitals located within 1,000 feet of Egbert Switching Station, the existing Martin Substation, or any of the proposed transmission lines.

Schools. The freeze pit for the proposed Martin-Egbert transmission line is adjacent to the Dr. Martin Luther King Jr. Academic Middle School, and two other schools are located within 1,000 feet of the freeze pit (E. R. Taylor Elementary School and Alta Vista School). There are four schools present within 1,000 feet of the proposed Jefferson-Egbert transmission line (El Dorado Elementary School, Wu Yee New Generation Child Development Center, Philip and Sala Burton Academic High School, and Visitacion Valley Middle School). Bayshore Elementary School is across the street from the existing Martin Substation, and two other schools are located within 1,000 feet of the existing Martin Substation (Garnet J. Robertson Intermediate School and Mount Vernon Christian School).

Residences. To the northwest of the Egbert Switching Station site is the Portola Place residential community. The closest residence to the switching station within this community is approximately 50 feet away, across Egbert Avenue to the northwest on Kalmanovitz Street. The nearest residence to the property line of the existing Martin Substation is located within 150 feet on Geneva Avenue. Construction activities associated with the proposed transmission lines would occur in both highly industrialized areas and residential areas, with the nearest residential areas being approximately 50 feet away from the work area.

In order to evaluate the health risk impacts associated with short-term construction of the project, the Health Risk Assessment for PG&E's Egbert Switching Station Project (Jacobs 2018) was prepared. The Health Risk Assessment for PG&E's Egbert Switching Station Project includes a screening health risk assessment and is provided as Appendix D.3-2 and summarized herein. DPM would be the primary TAC emitted during construction, which would be generated by combustion of diesel fuel in construction equipment and trucks. However, only on-site diesel exhaust emissions are included in the assessment since off-site emissions would not contribute significantly to localized DPM. The air dispersion of DPM (represented by PM_{10} exhaust in Appendix D.3-1) was conducted using the American Meteorological Society/Environmental Protection Agency Regulatory Model. Cancer and chronic health risk was then estimated using the maximum ground-level concentrations from the American Meteorological Society/Environmental Protection Agency Regulatory Model and equations included in the Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments for residential receptors (OEHHA 2015). No short-term, acute relative exposure values have been established for DPM and they are therefore not addressed in this assessment. According to the Office of Environmental Health Hazard Assessment, health risk assessments should be based on a 30-year exposure duration based on typical residency period; however, such assessments should be limited to the period/duration of activities associated with the project (OEHHA 2015). Thus, the duration of proposed construction activities (approximately 2 years for the proposed project) would only constitute a small percentage of the total long-term exposure period, after which project-related TAC emissions would cease.

In summary, the results of the screening health risk assessment for construction activities show that the estimated cancer risk and chronic health hazard index at the maximally exposed individual resident would be 8.52 in 1 million and 0.0059, respectively. These potential health risk values would not exceed the BAAQMD thresholds (depicted in Table D.3-4) of 10 in 1 million for cancer risk or a hazard index of 1.0 for chronic health risk. As such, the temporary exposure of the maximally impacted sensitive receptors to DPM from project construction would result in less-than-significant cancer and chronic health risk impacts (Class III).

In regards to long-term operations, the proposed project could result in TAC emissions from on-site generators; however, the specifics from such sources are unknown at the time of this

analysis; however, stationary sources, such as generators, would be required to comply with the BAAQMD permitting process, which would ensure that potential health risk would be less than significant before issuing a permit to operate. Therefore, the proposed project would not result in exposure of sensitive receptors to substantial TAC concentrations during long-term operations, and impacts would be less-than-significant (Class III).

Sensitive receptor exposure to elevated levels of NOA during project construction would be minimized through implementation of APM AQ-3, as appropriate. PG&E would also submit any required notification forms to BAAQMD.

Operation and Maintenance

Because the proposed project would not include any new stationary sources of criteria pollutants or TACs, no significant impacts would occur for the nearby sensitive receptors during operation or maintenance. Furthermore, because operation of the proposed project would not emit TACs from which cancer and noncancer (chronic and acute) risks can be estimated, comparison to BAAQMD's significance thresholds is not warranted (No Impact).

Health Impacts of Carbon Monoxide

Mobile source impacts occur on two scales of motion. Regionally, project-related travel would add to regional trip generation and increase the vehicle miles traveled within the local airshed and the SFBAAB. Locally, project-generated traffic would be added to the City and County of San Francisco's roadway system near the project site. If such traffic occurs during periods of poor atmospheric ventilation, is composed of a large number of vehicles "cold-started" and operating at pollution-inefficient speeds, and operates on roadways already crowded with non-project traffic, there is a potential for the formation of microscale CO hotspots in the area immediately around points of congested traffic. Because of continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SFBAAB has steadily declined.

Projects contributing to adverse traffic impacts may result in the formation of CO hotspots. Given that operation and maintenance of the proposed project would be incorporated into existing PG&E activities, additional vehicle trips and associated emissions from project-related operation and maintenance activities would be negligible such that the proposed project would not generate a substantial amount of traffic that would contribute to potential adverse traffic impacts that may result in the formation of CO hotspots. Maximum background CO levels in San Francisco, as shown in Table D.3-2, are approximately 7% of the 1-hour and 16% of the 8-hour NAAQS and CAAQS and would be expected to improve further due to reductions in motor vehicle emissions. Therefore, further analysis is not required and impacts would be less than significant (Class III).

Health Impacts of Other Criteria Air Pollutants

Construction and operation of the proposed project would result in emissions that would not exceed the BAAQMD thresholds for any criteria air pollutant including ROG, NO_x, PM_{10}, and $PM_{2.5}$. Furthermore, the proposed project would not result in operational emissions that would exceed the BAAQMD operational thresholds.

ROG would be associated with motor vehicles, construction equipment, and architectural coatings; however, project-generated ROG emissions would not result in the exceedances of the BAAQMD thresholds. Generally, the ROG (i.e., volatile organic compounds) in architectural coatings are of relatively low toxicity. Additionally, BAAQMD Regulation 8, Rule 3, restricts the volatile-organic-compound content of coatings for both construction and operational applications.

ROG and NO_x are precursors to O_3, for which the SFBAAB is designated as nonattainment with respect to the NAAQS and CAAQS. The health effects associated with O_3 are generally associated with reduced lung function. The contribution of ROG and NO_x to regional ambient O_3 concentrations is the result of complex photochemistry. The increases in O_3 concentrations in the SFBAAB due to O_3 precursor emissions tend to be found downwind from the source location to allow time for the photochemical reactions to occur. However, the potential for exacerbating excessive O_3 concentrations would also depend on the time of year that the ROG emissions would occur because exceedances of the O_3 NAAQS and CAAQS tend to occur between May and October, when solar radiation is highest. The holistic effect of a single project's emissions of O_3 precursors is speculative due to the lack of quantitative methods to assess this impact. Since the proposed project would not result in significant NO_x emissions, it would not substantially contribute to regional O_3 concentrations or the associated health impacts. As such, this impact would be less than significant (Class III).

Construction and operation of the proposed project would not exceed thresholds for PM_{10} or $PM_{2.5}$ and would not contribute to exceedances of the CAAQS for particulate matter or obstruct the SFBAAB from coming into attainment for these pollutants. The proposed project would also not result in substantial DPM emissions during construction and operation, and therefore would not result in significant health effects related to DPM exposure as discussed previously. Article 22A of the Health Code, also known as the Maher Ordinance, includes properties throughout the City where there is potential to encounter hazardous materials and soil contamination. Accordingly, as discussed in Section D.9, the project would implement MM HM-1 and would submit a Dust Control Plan prior to the start of construction consistent with Article 22B. Dust control is enforced under Article 22B of the Health Code specifies that a Dust Control Plan be submitted to the Department of Public Health if a project meets these two conditions: the project is greater than ½ acre in size and is within 1,000 feet of sensitive receptors. Additionally, the proposed project would implement APM AQ-1, which includes

dust control strategies that would help limit the amount of fugitive dust generated during construction. Due to the minimal contribution of particulate matter during construction and operation, health impacts would be considered less than significant (Class III).

Health impacts that result from NO_2 and NO_x include respiratory irritation, which could be experienced by nearby receptors during the periods of heaviest use of off-road construction equipment. However, proposed project construction would be relatively short term, and off-road construction equipment would be operating at various portions of the site and would not be concentrated in one portion of the site at any one time. In addition, existing NO_2 concentrations in the area are well below the NAAQS and CAAQS standards. Construction of the proposed project would not contribute to exceedances of the NAAQS and CAAQS for NO_2. Therefore, potential health impacts associated with NO_2 and NO_x would be considered less than significant (Class III).

CO tends to be a localized impact associated with congested intersections. The associated potential for CO hotspots were discussed previously and are determined to be a less-than-significant impact (Class III). Thus, the proposed project's CO emissions would not contribute to significant health effects associated with this pollutant.

In summary, because construction and operation of the proposed project would not exceed the BAAQMD significance thresholds for ROG, NO_x, PM_{10}, and $PM_{2.5}$, the potential health effects associated with criteria air pollutants are considered less than significant (Class III). In addition, there are numerous scientific and technological complexities associated with correlating criteria air pollutant emissions from an individual project to specific health effects or potential additional nonattainment days, and there are currently no modeling tools that could provide reliable and meaningful additional information regarding health effects from criteria air pollutants generated by individual projects. These subjects are discussed further in Appendix D.3-3.

Impact AQ-4 Would the project result in other emissions (such those leading to odors) affecting a substantial number of people?

BAAQMD has identified typical sources of odor in the CEQA Air Quality Guidelines, a few examples of which include manufacturing plants, rendering plants, coffee roasters, wastewater treatment plants, sanitary landfills, and solid waste transfer stations. Typical odor nuisances are associated with hydrogen sulfide, ammonia, chlorine, and other sulfide-related emissions. The proposed project would not include uses that have been identified by BAAQMD as potential sources of objectionable odors. An additional potential source of project-related odor is diesel engine emissions. As previously described, residences are located adjacent to most of the project routes. However, because few sources of odor would exist and activities would be short term, typically lasting a few days during construction and less than 1 day during operation and

maintenance, there would be less-than-significant impacts attributable to odor during construction, operation, or maintenance (Class III).

D.3.4 Project Alternatives

D.3.4.1 Bayshore Switching Station Alternative

Environmental Setting

Section D.3.1 describes the air quality characteristics of the region. Because the Bayshore Switching Station Alternative would be developed in the same air basin as the proposed project, the existing air quality conditions would be the same as those described in Section D.3.1.

Environmental Impacts and Avoidance Measures

Impact AQ-1: Because this alternative site is located in the same air basin, and similar construction and operational activities would take place as the proposed project, air quality impacts associated with this alternative would be similar to the impacts associated with the proposed project. Given that construction of this alternative is not anticipated to substantially increase air pollutant emissions within the SFBAAB, and with implementation of APM AQ-1 through APM AQ-3, it would not interfere with the BAAQMD plans to achieve or maintain attainment for any criteria air pollutant. Therefore, impacts would be less than significant (Class III).

Impact AQ-2: As described in Section C.5.1, Bayshore Switching Station Alternative, the alternative transmission lines (approximately 2.6 linear miles) would be shorter than the proposed project transmission lines, resulting in a shorter construction schedule. However, the alternative switching station site is larger than the proposed project (approximately 6.6 acres), and based on conclusions described in Section D.7.4.1, construction within the alternative switching station site is anticipated to require over-excavation and replacement of an unknown amount of artificial fill to avoid potential geologic hazards. Truck trips required for over-excavation and replacement of soils within the alternative switching station site would result in an increase in average daily emissions, even when factoring in the shorter construction schedule for the alternative transmission lines. In regards to long-term operations, similar to the proposed project, the primary source of operational emissions would be attributed to routine maintenance vehicles (automobiles and light-duty trucks) traveling to and from the project site. As discussed in Impact AQ-2 in Section D.3.3, if a project exceeds the identified significance thresholds, its emissions would be considered cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Although average daily construction emission are anticipated to increase when compared to the proposed project, implementation of APM AQ-1 through APM AQ-3 are expected to reduce potential construction

impacts below BAAQMD's significance thresholds for construction and operation. Therefore, cumulatively considerable impacts to criteria pollutants would be less than significant (Class III).

Impact AQ-3: The Bayshore Switching Station Alternative could result in a larger area of disturbance required for construction of the switching station; however, installation of the transmission lines would occur over a shorter distance. Notably, the closest sensitive receptor (Brisbane Community Park) to the alternative switching station site is located approximately 870 feet to the south. While this alternative could expose sensitive receptors to TAC concentrations during construction, such emissions would likely be less than the proposed project due to the alternative's location in relation to those sensitive receptors. In regards to long-term operations, similar to the proposed project, this alternative would not result in any unpermitted sources of TACs during operations. Therefore, impacts to sensitive receptors would be less than significant (Class III).

Impact AQ-4: Similar to the proposed project, the Bayshore Switching Station Alternative would not include uses that have been identified by BAAQMD as potential sources of objectionable odors. An additional potential source of project-related odor is diesel engine emissions. Because few sources of odors would exist, and activities would be short term, impacts attributable to odors would be less than significant (Class III).

Comparison to the Proposed Project

Implementation of the Bayshore Switching Station Alternative would increase average daily construction emissions when compared to the proposed project due to increased haul trips required for over-excavation and replacement of artificial fill within the alternative switching station site, even when factoring in the shorter construction schedule for the alternative transmission lines. Similar to the proposed project, the main source of operational criteria air pollutant emissions would be generated by periodic maintenance vehicle trips, which would be negligible. In regards to health risks, the closest sensitive receptors to the alternative would be the Brisbane Community Park located south of the proposed alternative switching station site. Although, the alternative could expose sensitive receptors located at the park to TAC concentrations, the distance is greater (approximately 870 feet) than what was analyzed for the proposed project (50 feet), and therefore, it would be reasonable to assume that such emissions would likely be less than the proposed project due to the alternative's location in relation to the closest existing sensitive receptor. Overall, the Bayshore Switching Station Alternative would result in greater construction air quality impacts and similar operational air quality impacts when compared to the proposed project.

D.3.4.2 Geneva Switching Station Alternative

Environmental Setting

Section D.3.1 describes the air quality characteristics of the region. Because the Geneva Switching Station Alternative would be developed in the same air basin as the proposed project, the existing air quality conditions would be the same as those described in Section D.3.1.

Environmental Impacts and Avoidance Measures

Impact AQ-1: Because this alternative site is located in the same air basin, and similar construction and operational activities would take place as the proposed project, air quality impacts associated with this alternative would be similar to the proposed project. Because construction of this alternative is not anticipated to substantially increase air pollutant emissions within the SFBAAB, and with implementation of APM AQ-1 through APM AQ-3, it would not interfere with the BAAQMD plans to achieve or maintain attainment for any criteria air pollutant. Therefore, impacts would be less than significant (Class III).

Impact AQ-2: As described in Section C.5.2, the alternative switching station site would be larger than the proposed project (approximately 11.1 acres), therefore, construction of the alternative switching station could result in a larger disturbance area required for grading than the proposed project and could result in a slight increase in criteria air pollutant emissions associated with the alternative switching station. However, the alternative transmission lines (approximately 2.3 linear miles) would be shorter than the proposed project transmission lines, resulting in a shorter construction schedule and reduction in overall construction emissions associated with installation. In regards to long-term operations, similar to the proposed project, the primary source of operational emissions would be attributed to routine maintenance vehicles (automobiles and light-duty trucks) traveling to and from the project site. As previously discussed in Impact AQ-2, the BAAQMD considers a cumulatively considerable impact if a project exceeds the identified significance thresholds, its emissions would be considered cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Because construction and operational activities would not substantially differ compared with the proposed project, it would be reasonable to conclude that this alternative would also not exceed the BAAQMD significance thresholds for construction and operations. Therefore, cumulatively considerable impacts to criteria pollutants would be less than significant (Class III).

Impact AQ-3: Air quality impacts resulting from construction and operational emissions for this alternative would not significantly differ compared with the impacts described in Section D.3.3, which were determined to be less than significant. As previously discussed, this alternative could result in a larger area of disturbance required for construction of the switching station; however,

installation of the transmission lines would occur over a shorter distance. Therefore, exposure of nearby sensitive receptors to TAC concentrations during construction would be similar compared to what was estimated for the proposed project because this alternative is proposed in an area largely developed with residential land uses. In regards to long-term operations, similar to the proposed project, this alternative would not result in any unpermitted sources of TACs during operations. Therefore, similar to the proposed project, impacts to sensitive receptors would be less than significant (Class III).

Impact AQ-4: Similar to the proposed project, the Geneva Switching Station Alternative would not include uses that have been identified by BAAQMD as potential sources of objectionable odors. An additional potential source of project-related odor is diesel engine emissions. Because few sources of odor would exist and activities would be short term, impacts attributable to odor would be less than significant (Class III).

Comparison to the Proposed Project

Overall, implementation of the Geneva Switching Station Alternative would result in similar average daily construction emissions compared to the proposed project provided that construction of the alternative switching station could result in a larger area of disturbance; however, the alternative transmission line would be shorter than the proposed project. Furthermore, similar to the proposed project, the main source of operational criteria air pollutant emissions would be generated by periodic maintenance vehicle trips, which would be negligible. In regards to health risks, the closest sensitive receptors to the alternative would be residential land uses adjacent to the alternative transmission line alignment. Therefore, health effects from TACs emitted during construction would be similar to the proposed project since the health risk assessment assumes the closest sensitive receptors to be 50 feet from proposed construction activity locations. Thus, the alternative would result in similar construction and operational air quality impacts compared to the proposed project.

D.3.4.3 Sunnydale HOPE SF Avoidance Line Alternative Option A

Environmental Setting

Section D.3.1 describes the air quality characteristics of the region. Because the Sunnydale HOPE SF Avoidance Line Alternative Option A (Sunnydale Option A Alternative) would be developed in the same air basin as the proposed project, the existing air quality conditions would be the same as those described in Section D.3.1.

Environmental Impacts and Avoidance Measures

Because this alternative site is located in the same air basin, and similar construction and operational activities would occur similar to the proposed portion of the Jefferson-Egbert transmission line being replaced, air quality impacts associated with the Sunnydale Option A Alternative would be similar to the proposed project. Under this alternative, the 0.6-mile line would bypass approximately 0.4 miles of the proposed Jefferson-Egbert transmission line. The Sunnydale Option A Alternative would require approximately 27 additional days of construction than the proposed project, resulting in greater criteria air pollutants associated with construction equipment emissions. The Sunnydale Option A Alternative would be developed adjacent to residential land uses, consistent with the proposed project; therefore, impacts to sensitive receptors would be similar to the proposed project. Overall, air quality impacts resulting from construction and operation emissions (Impacts AQ-1 through AQ-4) of the Sunnydale Option A Alternative would be greater than those described in Section D.3.3 for the proposed project but would remain less than significant with implementation of APM AQ-1 and APM AQ-2.

Comparison to the Proposed Project

Air quality impacts resulting from construction and operation of the Sunnydale Option A Alternative would generate greater emissions of criteria air pollutants than the proposed project due to a longer anticipated construction schedule (approximately 27 days). Localized short-term construction emissions adjacent to existing residential land uses would be similar because the alternative route would be similar in length to the proposed route.

D.3.4.3 No Project Alternative

Under the No Project Alternative, none of the facilities associated with the proposed project or alternatives would be constructed, and therefore, none of the impacts described in this section would occur.

D.3.5 Mitigation Monitoring, Compliance, and Reporting

Table D.3-7 shows the mitigation monitoring, compliance, and reporting program (MMCRP) for air quality. The California Public Utilities Commission (CPUC) is responsible for ensuring compliance with the provisions of the monitoring program. The APMs incorporated as part of the proposed project are listed in the following table.

Table D.3-7
Mitigation, Monitoring, Compliance and Reporting Program for Air Quality

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
Impact AIR-2 Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants Impact AIR-3 Construction and operational activities would not expose sensitive receptors to substantial pollutant concentrations	—	APM AQ-1	APM Air Quality (AQ)-1: Minimize Fugitive Dust. Consistent with Table 8-2 of the CEQA Guidelines (BAAQMD 2017c), PG&E will minimize dust emissions during construction by implementing the following measures: • Water all exposed soil surfaces (e.g., unpaved parking areas, unpaved staging areas, soil piles, graded areas, and unpaved access roads) at least twice daily, except when rains are occurring; or apply non-toxic soil stabilizers such as soil binders, crushed rock, or gravel. • Cover all trucks hauling soil, sand, and other loose materials. • Limit all vehicle speeds on unpaved roads to 15 miles per hour. • All roadways, driveways, and sidewalks to be paved will be completed as soon as possible after grading unless seeding, soil binders, or gravel are used. • Sweep streets daily (with water sprayers and brooms or mechanical sweeps, if necessary) if visible soil material is carried onto adjacent public roads. • Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person will respond and take corrective action within 48 hours. BAAQMD's phone number will also be visible to ensure compliance with applicable regulations. As shown in [PEA] Table 3.3-6 [Table D.3-4 of this EIR], there are no numeric thresholds of significance for fugitive dust. Rather, it is BAAQMD's opinion that	PG&E to implement measure as defined and incorporate commitments into construction contracts.	CPUC to inspect periodically for dust control within and outside of the work area in order to ensure that fugitive dust has been controlled outside the work area.	During construction at all active construction areas, unpaved access roads, parking area, and staging areas.

Table D.3-7
Mitigation, Monitoring, Compliance and Reporting Program for Air Quality

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
			"projects implementing construction best management practices will reduce fugitive dust emissions to a less than significant level" (BAAQMD 2017a). Because the measures included in APM AQ-1 are consistent with Table 8-2 of the CEQA Guidelines (BAAQMD 2017a), construction emissions resulting from fugitive dust are expected to be less than significant. Furthermore, the project is not expected to require implementation of the additional measures from Table 8-3 of the CEQA Guidelines because PM_{10} and $PM_{2.5}$ exhaust emissions are below the significance thresholds, as described below.			
Impact AIR-2 Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants Impact AIR-3 Construction and operational activities would not expose sensitive receptors to substantial pollutant concentrations	—	APM AQ-2	Minimize Construction Exhaust Emissions. The following measures will be implemented during construction to further minimize the less-than-significant construction exhaust emissions: • Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time is dependent upon 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 such that idling is reduced as far as possible below the maximum of five consecutive	PG&E to implement measure as defined and incorporate commitment into construction contracts.	CPUC to periodically inspect traffic speeds within the work area in order to ensure that fugitive dust has been controlled outside the work area.	During construction on all unpaved access roads and along the ROW.

Table D.3-7
Mitigation, Monitoring, Compliance and Reporting Program for Air Quality

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
			minutes required by regulation (13 CCR 2449 and 2485). If a vehicle is not required for use immediately or continuously for construction activities or for other safety-related reasons, its engine will be shut off. • Maintain all construction equipment in accordance with manufacturer's specifications. Check all equipment using a certified mechanic, and confirm that equipment is in proper condition prior to operation.			
Impact AIR-2 Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants Impact AIR-3 Construction and operational activities would not expose sensitive receptors to substantial pollutant concentrations	—	APM AQ-3	APM AQ-3: Minimize Potential Naturally Occurring Asbestos Emissions. The following measures will be implemented prior to and during construction to minimize the potential for NOA emissions: • Prior to commencement of construction, samples of the proposed Jefferson-Egbert Transmission Line construction areas within the serpentine (Sp) stratigraphic unit will be analyzed for presence of asbestos, serpentinite, or ultramafic rock. • If asbestos, serpentinite, or ultramafic rock is determined to be present at the specific project location, implement all applicable provisions of the Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations (17 CCR 93105), including the following: For disturbed areas of 1 acre or less: – Construction vehicle speed at the work site will be limited to 15 miles per hour or less. – Prior to any ground disturbance, sufficient water will be	PG&E to implement measure as defined and incorporate commitment into construction contracts.	CPUC to verify in the field. Effectiveness criteria – actively graded areas do not exceed a cumulative total of eight acres per day.	During construction at actively graded areas.

Table D.3-7
Mitigation, Monitoring, Compliance and Reporting Program for Air Quality

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
			applied to the area to be disturbed to prevent visible emissions from crossing the property line. – Areas to be graded or excavated will be kept adequately wetted to prevent visible emissions from crossing the property line. – Storage piles will be kept adequately wetted, treated with a chemical dust suppressant, or covered when material is not being added to or removed from the pile. – Equipment will be washed down before moving from the property onto a paved public road. – Visible track-out on the paved public road will be cleaned within 24 hours using wet sweeping or a High Efficiency Particulate Air filter-equipped vacuum device. – For disturbed areas of more than 1 acre: – Submit an Asbestos Dust Mitigation Plan to BAAQMD, and obtain approval prior to commencement of construction. – Implement and maintain the provisions of the approved Asbestos Dust Mitigation Plan from the beginning of construction through the duration of the construction activity			

Notes: MM = mitigation measure; APM = Applicant Proposed Measure; CEQA = California Environmental Quality Act; PG&E = Pacific Gas & Electric Company; BAAQMD = Bay Area Air Quality Management District; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; CPUC = California Public Utilities Commission; ROW = right-of-way; NOA = naturally occurring asbestos; ATCM = Airborne Toxic Control Measure.

D.3.6 References Cited

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D.4 BIOLOGICAL RESOURCES

This section describes the biological resources associated with the Egbert Switching Station (Martin Substation Extension) Project (proposed project) and evaluates the potential impacts of the proposed project on these resources. Specifically, Section D.4.1 provides a summary of the environmental setting within and in the vicinity of the project footprint. Applicable resource-related regulations, plans, and standards are listed in Section D.4.2. Potential project impacts on biological resources and measures to mitigate any impacts determined to be potentially significant under California Environmental Quality Act (CEQA) are presented in Section D.4.3, and project alternatives are described and discussed in Section D.4.4. Mitigation monitoring, compliance, and reporting are discussed in Section D.4.5 and Section D.4.6 lists the references cited in this section. Cumulative effects are analyzed in Section F.5.2.3 of this Environmental Impact Report (EIR).

The discussion of biological resources presented in this draft EIR and the evaluation of potential impacts on these resources as a result of proposed project implementation is based on the following technical reports and incorporated herein:

- Biological Resources Technical Report for the Pacific Gas & Electric Company Egbert Switching Station Project, San Mateo and San Francisco Counties, California, CH2M Hill 2017 (Appendix D.4-1)
- PG&E Egbert Switching Station Project – Bat Habitat Assessment, H.T. Harvey & Associates 2018 (Appendix D.4-2)

D.4.1 Environmental Setting for the Proposed Project

This section summarizes the regional setting and the existing biological resources associated with the primary project components as well as the setting and resources occurring in the immediate project vicinity. In particular, any naturally occurring vegetation communities are identified and described as well as those resources considered to hold special-status by local, state, and/or federal resource agencies, including special-status plant and wildlife species, wetlands and aquatic resources, and wildlife movement corridors. The methodology used to identify and describe special-status resources is also summarized.

D.4.1.1 Regional Setting

The project is generally located in an urban area with industrial, commercial, and residential land uses surrounding most of the project alignment. Specifically, the project and transmission lines are located in the developed northeastern portion of the San Francisco Peninsula, extending from the northern flank of San Bruno Mountain roughly 3 miles to the proposed

Egbert Switching Station. San Francisco Bay and its associated shoreline and marshes lie to the east. San Bruno Mountain, at the southern end of the project site, harbors rare plants and butterflies associated with its serpentine soils. The San Bruno Mountain Habitat Conservation Plan (SBM HCP) controls management of this area. One transmission line, the Jefferson-Egbert transmission line, would run underground from Carter Street to Guadalupe Canyon Parkway at the northern base of the mountain.

D.4.1.2 Local Setting

As stated above, the proposed project is within a largely urbanized area. The project components are located in city streets or highly disturbed areas within the City and County of San Francisco, City of Daly City, and City of Brisbane. As such, no natural vegetation community types occur within the areas that would be impacted by the proposed project.

The limited vegetative resources and overall land covers associated with each of the proposed project features, as well as adjacent land uses, are discussed in more detail below.

Egbert Switching Station

The site for the proposed Egbert Switching Station is located at 1755 Egbert Avenue in San Francisco. It is located in a highly urbanized and disturbed area. The surrounding areas are developed with a blend of industrial, commercial, and residential land uses. A lumber staging yard currently occupies the site, which is covered in gravel and devoid of any vegetation. It is bounded by railroad tracks to the east, residential development to the north, and industrial and commercial buildings to the west and south.

Vegetation in the parcel immediately south of the proposed Egbert Switching Station site is limited to ruderal vegetation, landscaping, and street trees including sycamores (*Platanus* sp.), Tasmanian bluegum eucalyptus (*Eucalyptus globulus*), acacia (*Acacia* sp.), Chinese elm (*Ulmus parvifolia*), privet (*Ligustrum* sp.), pine (*Pinus* sp.), magnolia (*Magnolia* sp.), and myoporum (*Myoporum laetum*).

Egbert-Embarcadero, Martin-Egbert, and Jefferson-Egbert Transmission Lines

The proposed routes for the Martin-Egbert and Egbert-Embarcadero transmission lines are located entirely within developed surfaces within the City and County of San Francisco. No natural vegetation communities occur within or immediately adjacent to these alignments.

The proposed Jefferson-Egbert transmission line is largely located within existing paved surfaces and passes through the City and County of San Francisco, City of Daly City, and City of Brisbane. A portion of the route passes through John McLaren Park and near San Bruno Mountain,

undergrounded in paved streets and/or sidewalks. Areas in San Bruno Mountain State Park and John McLaren Park to either side of the proposed route support a mixture of non-native annual grassland, scrub/chaparral habitats, non-native woodland, closed-cone conifer/coast live oak (*Quercus agrifolia*) woodland, and landscaped areas associated with the Gleneagles Golf Course. Portions of the area adjacent to the route have large stands of Tasmanian bluegum eucalyptus and Monterey cypress (*Hesperocyparis macrocarpa*), as well as smaller coast live oak and pine trees. Critical habitat for Franciscan manzanita (*Arctostaphylos franciscana*) is also located within John McLaren Park in proximity to the route.

Martin Substation

Martin Substation is an existing substation located at 3150 Geneva Avenue in Daly City. This existing substation is developed and currently covered in pavement or gravel. No native vegetation is present within the site. The surrounding areas to the north and west are developed with a blend of industrial and commercial land uses. Areas to the south and east are relatively undeveloped, and habitats in these areas are mixtures of developed, ruderal, non-native annual grassland, coastal scrub, and non-native trees.

Staging Areas

Approximately one to three staging areas totaling up to approximately 15 acres would be identified for use once a construction contractor is selected. While staging areas would be determined based on availability at the time of construction, potential staging areas have been preliminarily identified (Figure B-3, Potential Staging Areas, in Section B.6, Construction Activities, in Section B, Description of Proposed Project). Two potential staging areas are adjacent to the proposed Jefferson-Egbert transmission line along Carter Street (potential Carter Street staging area) and at the intersection with Geneva Avenue (potential Cow Palace staging area). Another two potential staging areas are within the existing Martin Substation. Two more potential staging areas in San Francisco are in the Port of San Francisco's Southern Waterfront off Amador Street, a heavily industrialized area.

The two proposed staging areas at Martin Substation are within the fenced boundary of the existing substation. The potential Cow Palace staging area is in an existing paved parking lot associated with Cow Palace. All three proposed staging areas are heavily disturbed, are either covered in gravel or paved, and have multiple buildings on site. No native vegetation communities occur within any of these proposed staging areas. Vegetation along urbanized areas adjacent to these proposed staging areas is limited to ruderal vegetation, including ripgut brome (*Bromus diandrus*), telegraphweed (*Heterotheca grandiflora*), field mustard (*Brassica rapa*), fennel (*Foeniculum vulgare*), dove weed (*Croton setiger*), English plantain (*Plantago lanceolata*), and wild radish (*Raphanus raphanistrum*). Street trees in the adjacent urbanized areas include sycamores, Tasmanian bluegum eucalyptus, acacia, Chinese elm, privet, pine, magnolia, and myoporum.

The proposed Carter Street staging area was previously used as a drive-in movie theater but is no longer in operation. This area is currently covered in gravel and in use as a laydown and staging area for nearby construction. It is bounded by parking lots to the north and east, and by a narrow vegetated area to the south and west. This vegetated area is dominated by blue gum eucalyptus and a blend of invasive scrub and coastal scrub species, and it ranges in width from 200 to 600 feet. On the far side of this vegetated area, paved roads, residential developments, and golf courses separate this area from the nearest native plant communities on San Bruno Mountain.

The potential staging areas off of Amador Street are located in a heavy industrial area associated with the Port of San Francisco. The largest, southerly staging area (South Container Terminal) is within the Pier 94/96 area of the Port of San Francisco's South Container Terminal, and the northern, smaller one, referred to herein as the Amador Yard, is an area used by Pacific Gas & Electric Company (PG&E) and approved by the Port of San Francisco and California Public Utilities Commission (CPUC) for the previous Embarcadero-Potrero project. These areas are heavily disturbed and covered with gravel and have only sparse vegetation. The Amador Yard is completely outside of the jurisdiction of the San Francisco Bay Conservation and Development Commission (BCDC). A portion of the edge of the southern yard is within the BCDC 100-foot shoreline band, but using this yard as a staging area would be keeping with its current use. At both South Container Terminal and Amador Yard, the surrounding areas to the east are associated with the San Francisco Bay, and areas to the north, west, and south are associated with industrial uses. Sparse vegetation is scattered throughout these areas. This vegetation includes ripgut brome, telegraphweed, mustard, fennel, dove weed, English plantain, and wild radish. Outside of the fenced boundary to the east of the potential Amador Yard is coastal scrub habitat that is dominated by annual grasses, coyote brush (*Baccharis pilularis*), acacia, and California coffee berry (*Frangula californica*).

D.4.1.3 Special-Status Resources

The potential for special-status resources to occur within and adjacent to the proposed project, or the known or observed presence of such resources, is discussed below. The methodology to determine presence or absence is summarized, followed by the results of the methods employed.

Methodology

The potential for special-status species and other sensitive resources to occur within and be adversely affected by the proposed project was initially determined by reviewing existing information and databases regarding biological resources within the vicinity of the project. Based on this information, rreconnaissance-level field surveys of the areas to be affected by the proposed project and immediately surrounding areas were conducted. The methods associated with the literature review and field reconnaissance are summarized below.

Literature/Database Review

As part of the literature review, the following biological databases were queried for records of special-status plants, natural communities, and wildlife that have potential to occur in the project site:

- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CDFW 2017)
- U.S. Fish and Wildlife Service (USFWS) Information, Planning, and Conservation System (USFWS 2017a)
- USFWS Critical Habitat Mapper (USFWS 2017b)
- California Native Plant Society online version of the Inventory of Rare and Endangered Plants of California (CNPS 2017); species designated as Lists 3 and 4 were not considered
- National Wetlands Inventory (USFWS 2017c)
- U.S. Geological Survey National Hydrography Dataset (USGS 2017)

The CNDDB search for special-status species typically includes nine U.S. Geological Survey 7.5-minute quadrangle maps for a project located within a single quadrangle: the quadrangle that covers the project site and the eight quadrangles that surround the project quadrangle. However, to better reflect the appropriate range of species, geography, and unique location of the project alignment (i.e., the proposed project is within 1 mile of San Francisco Bay, and bay-related species and habitat are not found within the project site), the CNDDB search was conducted for a 5-mile radius around the project site.

Other information sources consulted to determine the potential for special-status species to occur in the project footprint (i.e., areas disturbed by the proposed project including temporary workspace) included the following:

- Brisbane Baylands Final EIR (City of Brisbane 2015)
- SBM HCP (County of San Mateo 1982)
- Soil maps (USDA 2017a)
- CDFW's List of Vegetation Alliances and Associations
- Aerial photographs

In addition, the City and County of San Francisco General Plan, City of Daly City General Plan, and City of Brisbane General Plan were also reviewed to ensure that the proposed project would not conflict with relevant regulations and objectives of these plans.

Field Surveys

Reconnaissance-level surveys were conducted by CH2M Hill biologists in May and June 2017. A reconnaissance-level survey of potential bat habitat within and adjacent to the project site was conducted on April 20, 2018 (Appendix D.4-2). The purpose of these surveys was to identify and characterize habitat within and adjacent to the project footprint to determine the suitability for special-status species and to field-verify the vegetation types and wetland features that were identified in online database searches.

The areas surveyed included all natural habitat within a 300-foot-wide corridor centered on the proposed Jefferson-Egbert, Egbert-Embarcadero, and Martin-Egbert transmission lines. Proposed project work located outside of this corridor would occur in potential staging areas and temporary line immobilization pit-work locations. Surveys of these areas included a survey radius of at least 50 feet to allow flexibility for minor adjustments during construction.

Within developed areas, windshield surveys were conducted primarily focusing on trees and other urban habitat areas potentially supporting special-status resources. All other non-developed areas were surveyed on foot. The Amador, Geneva, and Martin yards are fenced, and surrounding areas were not surveyed because adjustments would not be anticipated to exceed those boundaries; surrounding areas for the potential Carter Street staging area were not accessible for surveys. The proposed Egbert Switching Station and the potential Carter Street, Martin Substation, and Amador Street staging areas were not accessible; visual surveys of these sites were conducted from the nearest publicly accessible viewpoints.

Results

The CNDDB, USFWS, and California Native Plant Society database searches identified 64 special-status species within the project region. This section describes any special-status plant and wildlife species observed during the project reconnaissance-level field surveys, as well as any species considered to be likely to occur, to have potential to occur, or to be expected to occur based on the database and literature review discussed above and on the assessment of on-site/adjacent habitats conducted during the project site surveys. Special-status species that are unlikely to be found within or adjacent to the project site are not discussed in this section.

The potential of other special-status resources including native birds protected by state and federal statutes, designated critical habitat for any federally listed threatened or endangered species, wildlife movement corridors, and wetland/aquatic or other sensitive habitats are also discussed.

Special-Status Plant Species

Special-status plant species are typically those species that are federally and/or state-listed as endangered or threatened or are proposed for listing as endangered or threatened, are candidate species for state or federal listing, or are listed as List 1 or List 2 plants in the Inventory of Rare and Endangered Vascular Plants of California (CNPS 2001). Table 1, Special-Status Plant Species Identified in the Records Searches, of Appendix D.4-1, Biological Resources Technical Report, lists the special-status plants with potential to occur within the project site.

As shown in Table 1 of Appendix D.4-1, 49 special-status plant species were identified as occurring within the project region. The majority of these records are rare plant species that occur on San Bruno Mountain, around Lake Merced and Twin Peaks, and in the San Francisco Presidio, primarily in serpentine soils. These species were determined to be either absent or not expected to occur within the project site because of a lack of suitable habitat primarily due to the highly disturbed and urbanized nature of the proposed project location. Specifically, there is no suitable habitat for special-status plant species within the proposed Egbert Switching Station, the proposed transmission line routes, or the potential Martin Substation, Cow Palace, and Amador Street staging areas. At the potential Carter Street staging area, the degraded coastal sage scrub there provides marginally suitable habitat for several special-status species, including San Bruno Mountain manzanita (*Arctostaphylos imbricata*), Montara manzanita (*Arctostaphylos montaraensis*), San Francisco lessingia (*Lessingia germanorum*), and compact cobwebby thistle (*Cirsium occidentale* var. *compactum*). However, these species are considered highly unlikely to occur given that the site was observed to be covered with gravel and in use as a laydown and staging area during site surveys. Furthermore, due to its historical use as a drive-in movie theater, the highly disturbed site was determined to have little to no potential to support a native seed bank for these special-status plants.

Special-Status Wildlife Species

Special-status wildlife species were defined in accordance with the CEQA Guidelines, Section 15380, and included species that meet the following criteria:

- Listed, proposed for listing, or candidates for listing as threatened or endangered under the federal Endangered Species Act (ESA)
- Listed or candidates for listing as threatened or endangered under the California ESA
- Designated as Species of Special Concern by the CDFW
- Listed on the CDFW “Special Animals” list
- Meet the definition of rare, threatened, or endangered as described in the CEQA Guidelines, Section 15380

Table 2, Special-Status Wildlife Species Identified in the Records Searches, of Appendix D.4-1 lists the special-status wildlife species with potential to occur within the project site. As shown in Table 2 of Appendix D.4-1, 25 special-status wildlife species were identified as occurring within the region of the proposed project (PG&E 2017). Based on the initial assessment of the proposed project location conducted during the reconnaissance field survey, it was determined that the project site does not provide suitable habitat for 20 of the 25 special-status wildlife species, and another 2 species are unlikely to occur because of the developed and urban nature of the project site. The remaining 3 special-status wildlife species with at least some potential to occur within or adjacent to the project site include the following: white-tailed kite (*Elanus leucurus*), American peregrine falcon (*Falco peregrinus anatum*), and American badger (*Taxidea taxus*). These species are discussed in more detail below.

White-Tailed Kite

The white-tailed kite (California Fully Protected; California Species of Special Concern) inhabits open lowland valleys and low, rolling foothills, but is also known to occur in urban areas. It forages in grasslands, marshes, riparian edges, and cultivated fields where prey species (mainly small mammals) are relatively abundant (Kaufman 1996). Kites typically nest on the tops of trees in close proximity to good foraging locations. No CNDDB records of this species are found within 5 miles of the project site; however, white-tailed kites are known to occur in the San Francisco Bay region, and may occasionally pass through the project site. There is suitable foraging habitat within John McLaren Park and on San Bruno Mountain, and there is low-quality nesting habitat in several large dense-topped trees within 500 feet of the project site.

American Peregrine Falcon

While typically preferring natural cliff habitat near water for nest sites, the American peregrine falcon (California Fully Protected) will also use ledges on buildings, towers, and bridges within urban and developed areas, especially near aquatic habitats, as nest sites (Wheeler 2003; White et al. 2002). Peregrine falcons are known to nest in the San Francisco region at various locations, including 77 Beale Street and the former Potrero Power Plant. While not expected to nest within the areas likely to be impacted by the proposed project features, this species may forage in the vicinity of the project site.

American badger

American badger (California Species of Special Concern) is a stout bodied, primarily solitary species that hunts for ground squirrels and other small mammal prey in open grassland, cropland, deserts, savanna, and shrubland communities. This species is most abundant in drier open stages of shrub, forest, and herbaceous habitats with friable soils but is occasionally known to occur in

more urban areas (Ahlborn 2008). The nearest documented record in the CNDDB is within Golden Gate Park approximately 5 miles to the northwest but separated from the proposed project by dense urban development. There is potentially suitable habitat for this species on San Bruno Mountain, and American badger is listed as a species that is expected to occur in the San Bruno Mountain area (County of San Mateo 1982). If this species occurs on San Bruno Mountain, individuals may forage in the vicinity of the project site, but individuals are not expected to occur within the proposed project footprint.

Migratory Birds and Nesting Raptors

Various non-listed migratory bird species or raptors protected by the California Fish and Game Code and the federal Migratory Bird Treaty Act (MBTA) could establish nests in landscaping and tree habitat within and adjacent to the project site. The nesting season for migratory birds and raptors in this region generally occurs between February 15 and August 31. Because of the street trees, landscaping, and other nesting substrate present near the project site, there is potential for common passerine and raptors to nest near the proposed project.

Critical Habitat

To the extent prudent and determinable (as dictated by the federal ESA), the USFWS is required to designate critical habitat for endangered and threatened species (16 USC 1533 (a)(3)). Defined as areas of land, water, and air space containing the physical and biological features essential for the survival and recovery of endangered and threatened species, designated critical habitat includes sites for breeding and rearing, movement or migration, feeding, roosting, cover, and shelter. Designated critical habitat for Franciscan manzanita occurs in John McLaren Park near the proposed Jefferson-Egbert transmission line. Furthermore, designated critical habitat for the Bay checkerspot butterfly (*Euphydryas editha bayensis*) is located to the southeast of the project site within San Bruno Mountain State Park (see Figure D.4-1, USFWS Critical Habitats). However, no segments or components of the proposed project occur within any of these designated critical habitat areas.

Wildlife Corridors

Generally defined as narrow areas of habitat that connect larger intact habitat areas in regions otherwise fragmented by rugged terrain, changes in vegetation, or human development, wildlife movement corridors (which can include canyon drainages, ridgelines, riparian areas, and narrow strips of vegetative cover) are important because they provide access to potential mates, food, shelter, and water. In addition, corridors also allow the dispersal of wildlife away from high-population areas, facilitate genetic diversity among populations, and can serve as migration routes for a number of terrestrial migratory species. For these reasons, wildlife corridors are considered sensitive resources by state and federal resource agencies. No known wildlife

movement corridors occur within or adjacent to the proposed project features due to the highly urbanized and disturbed nature of the area in which the proposed project would occur.

Wetlands and Aquatic Resources

There are no wetland features mapped in the USFWS National Wetlands Inventory or U.S. Geological Survey's National Hydrography Dataset within the project site (USFWS 2017c; USGS 2017). Two drainage features, both identified as riverine intermittent streambeds, and a wetland feature were identified within the biological resources survey area during the reconnaissance surveys (see Figure D.4-2, National Wetlands Inventory Mapping for the Project Site). One of the riverine intermittent streambeds has two branches. The western branch originates approximately 500 feet upslope of Guadalupe Canyon Parkway in a steep valley near the interconnection of the existing Jefferson-Martin transmission line and the proposed Jefferson-Egbert transmission line. This western branch flows downslope, passes under Guadalupe Canyon Parkway in a culvert and upon daylighting, flows approximately 300 feet downslope, and connects with a concrete-lined ditch. The eastern branch of this streambed feature originates at a point south of the intersection of Carter Street and Guadalupe Canyon Parkway and flows downslope to the concrete-lined ditch.

A second riverine intermittent streambed is found within the southern extent of the existing Martin Substation, outside the fenced area where work would occur. The single wetland feature, identified as a seasonally flooded palustrine emergent persistent wetland, is located immediately north of this second riverine intermittent streambed and is outside of the fenced area where work would occur.

Two other National Wetlands Inventory and National Hydrography Dataset features are within 600 feet of the project site, outside of the biological resources survey area. These are both riverine intermittent streambeds; one is located within the Gleneagles Golf Course in John McLaren Park and the other is on the east side of John F. Shelley Drive, originating near where this road intersects with Mansell Street. This feature terminates at John McLaren Park Reservoir.

Habitat Conservation Plans

A portion of the proposed Jefferson-Egbert transmission line is located in Carter Street and Guadalupe Canyon Parkway in areas that are bordered by four management units for the SBM HCP. These roads are not included in the SBM HCP Guadalupe Hills Planning Area management units. The proposed project is not seeking coverage under the SBM HCP.

D.4.2 Applicable Regulations, Plans, and Standards

D.4.2.1 Federal Regulations, Plans, and Standards

Federal Endangered Species Act

The federal ESA prohibits the taking, possession, sale, or transport of species that are listed as threatened or endangered by the USFWS or the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA). In general, NOAA is responsible for protection of federally listed marine species and anadromous fishes, while other listed species are under USFWS jurisdiction. Section 9 of the federal ESA 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" including conduct that would result in loss of habitat of listed species that would result in "harm" (16 USC 1531 et seq.). *Harm* is defined as "any act that kills or injures the species, including significant habitat modification."

The federal ESA allows for issuance of incidental take permits to private parties either in conjunction with a habitat conservation plan or as part of a Section 7 consultation (which is discussed in the following paragraph). Under Section 10 of the federal ESA, a private party may obtain incidental take coverage by preparing a habitat conservation plan to cover target species within the project site, identifying impacts to the covered species and presenting the measures that will be undertaken to avoid, minimize, and mitigate such impacts.

Under Section 7 of the federal ESA, federal agencies are required to consult with USFWS and/or NOAA Fisheries, 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 will initiate formal consultation with the USFWS and/or NOAA Fisheries and issue a biological opinion as to whether a proposed agency action(s) is likely to jeopardize the continued existence of a listed species or adversely modify critical habitat. 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 lawful activity.

Migratory Bird Treaty Act

The MBTA (16 USC 703 et seq.) is a federal statute that implements treaties with several countries on the conservation and protection of migratory birds. The number of bird species covered by the MBTA is extensive and is listed in 50 Code of Federal Regulations 10.13. The regulatory definition of *migratory bird* is broad and includes any mutation or hybrid of a listed species and includes any part, egg, or nest of such bird (50 CFR 10.12). Migratory birds are not necessarily federally listed endangered or threatened birds under the federal ESA. The MBTA, which is enforced by USFWS, makes it unlawful "by any means or in any manner, to pursue,

hunt, take, capture, [or] kill" any migratory bird or attempt such actions, except as permitted by regulation. The applicable regulations prohibit the take, possession, import, export, transport, sale, purchase, barter, or offering of these activities, except under a valid permit or as permitted in the implementing regulations (50 CFR 21.11). Recent guidance issued by the USFWS in April 2018 clarifies and reiterates that activities lacking the express purpose of killing or injuring migratory birds do not constitute prohibited takings under the MBTA (USFWS 2018).

Clean Water Act

The Clean Water Act (CWA) (33 USC 1251 et seq.) establishes the basic structure for regulating discharges of pollutants (including dredged or fill material) into "waters of the United States." These are classified as wetlands, navigable water, or other waters and include marine waters, tidal areas, stream channels, and associated wetlands. The CWA provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters.

The U.S. Army Corps of Engineers (ACOE) issues permits for work in wetlands and other waters of the United States based on guidelines established under Section 404 of the CWA. Section 404 of the CWA prohibits the discharge of dredged or fill material into waters of the United States, including wetlands, without a permit from ACOE. The U.S. Environmental Protection Agency also has authority over wetlands and may, under Section 404(c), veto an ACOE permit.

Section 401 of the CWA requires all Section 404 permit actions to obtain a state Water Quality Certification or waiver, as described in more detail in Section D.10, Hydrology and Water Quality.

In 2015, ACOE and U.S. Environmental Protection Agency issued the Clean Water Rule, intended to clarify areas under the jurisdiction of the CWA. The Clean Water Rule was stayed in court rulings soon afterwards. On February 17, 2017, an Executive Order was issued regarding the Clean Water Rule. The Executive Order and the subsequent U.S. Environmental Protection Agency and ACOE Proposed Rule calls for the Clean Water Rule to be reviewed and rescinded or revised (EPA 2017).

D.4.2.2 State Regulations, Plans, and Standards

California Endangered Species Act

The California ESA provides legal protection for plants or wildlife species listed as rare, threatened, or endangered. The act prohibits the take of endangered and threatened species; however, habitat destruction is not included in the state's definition of take. Under the California ESA, *take* is defined as an activity that would directly or indirectly kill an individual of a species, but the definition does not include harm or harassment. California ESA Section 2090 requires state agencies to comply with endangered species protection and recovery and to promote

conservation of these species. CDFW administers the act and authorizes take through Section 2081 agreements, except for species designated as fully protected.

Animal species considered endangered or threatened by the state are listed in 14 California Code of Regulations 670.5, and the CDFW maintains lists of plant and animal species designated endangered, threatened, and rare. The CDFW also maintains a list of "species of special concern" based on limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value. The CDFW is empowered by state law to review projects for their potential to impact state-listed species and species of special concern, as well as their habitats.

California Fish and Game Code

The California Fish and Game Code governs state-designated wetlands, including riparian and stream habitat, and mandates that mitigation be implemented to replace wetland extent and value lost to development. Sections 1600–1607 of the California Fish and Game Code regulate activities that would affect rivers, streams, or lakes by altering the flow; substantially changing or using any materials from the bed, channel, or bank of any river, stream, or lake; or disposing of debris. Activities that affect these areas, as well as associated riparian habitats, would require a Streambed Alteration Permit from the California Fish and Game Code. Section 3503 of the California Fish and Game Code prohibits impacts to actively nesting birds, their nests, or their eggs. Section 3503.5 prohibits killing of raptor species and destruction of raptor nests.

Prior to creation of the California ESA and the federal ESA, the State of California first began to designate species as "fully protected" and typically applied this designation to those animals that were rare or faced possible extinction. California Fish and Game Code Section 4700(a)(1) affirms the state's protection of fully protected species by regulating that such species "may not be taken or possessed at any time."

California Species of Special Concern

Species of Special Concern is a category conferred by CDFW to fish and wildlife species that are considered at risk of qualifying for threatened or endangered status in the future based on known threats. Species of Special Concern 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 and Section 401 of the Clean Water Act

California's Regional Water Quality Control Board administers both the Porter–Cologne Water Quality Control Act and Section 401 of the CWA. The Porter–Cologne Water Quality Control Act, California Water Code Section 13260, requires "any person discharging waste, or proposing

to discharge waste, within any region that could affect the 'waters of the State' to file a report of discharge" with the Regional Water Quality Control Board. *Waters of the state* are defined in the Porter–Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code, Section 13050 (e)).

According to the Regional Water Quality Control Board, waters of the state include but are not limited to rivers, streams, lakes, bays, marshes, mudflats, unvegetated seasonally ponded areas, drainage swales, sloughs, wet meadows, natural ponds, vernal pools, diked bay lands, seasonal wetlands, and riparian woodlands pursuant to Section 401 of the CWA. The Regional Water Quality Control Board has also claimed jurisdiction and exercised discretionary authority over "isolated waters."

McAteer–Petris Act of 1965 (California Government Code, Section 66650–66661)

The McAteer–Petris Act created the BCDC, which is a state agency with permit authority over the Bay and its shoreline. The BCDC regulates filling, dredging, and changes in use in San Francisco Bay and development within 100 feet of the Bay. The San Francisco Bay Plan specifies goals, objectives, and policies for existing and proposed waterfront land use and other areas under the jurisdiction of the BCDC (BCDC 2011).

D.4.2.3 Local Regulations, Plans, and Standards

A summary of local or regional plans, policies, or regulations that identify sensitive or special-status resources on the project site, as well as local polices or ordinances that protect biological resources, are addressed below. Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the proposed project, the proposed project would not be subject to local discretionary regulations related to biological resources. Therefore, the following summary is provided for informational purposes and to assist with CEQA review.

City and County of San Francisco General Plan

The City and County of San Francisco are currently operating under a General Plan that was adopted in June 1996. The General Plan includes goals, objectives, and policies that pertain to the comprehensive and long-range management, preservation, and conservation of open-space lands. The measures related to wildlife, vegetation, and wetland resources include the following (San Francisco Planning Department 1996):

- **Objective 1: Environmental Protection:** The goal of this objective is to achieve proper balance of conservation, utilization, and development of natural resources
- **Objective 8: Flora and Fauna:** The goal of this objective is to ensure the protection of plant and animal life through cooperating with CDFW's animal protection programs,

protecting habitats of plant and animal species that require a relatively natural environment, and protecting rare and endangered species

San Francisco's Urban Forestry Ordinance

The San Francisco's Urban Forestry Ordinance (San Francisco Public Works Code, Article 16) protects street trees, significant trees, and landmark trees under San Francisco Public Works jurisdiction, regardless of species. Ministerial permits are required for planting or removing street trees and significant trees, and protection measures are required for these trees for work that would occur within the trees' drip lines.

City of Daly City General Plan

The City of Daly City 2030 General Plan was adopted in 2013 and contains a Resource Management Element that provides the framework for management and protection of vegetation and wildlife. The following policies from the General Plan are relevant to the protection of vegetation and wildlife (City of Daly City 2013):

- Policy RME-16: Continue to recognize the importance of the San Bruno Mountain Habitat Conservation Plan (SBM HCP), uphold the integrity of the concepts behind the plan, and respect the agreements that serve to implement it
- Policy RME-17: Preserve environmentally sensitive habitat by imposing strict regulations on development in areas that have been identified as environmentally sensitive habitat
- Policy RME-18: Preserve trees that do not pose a threat to the public safety

City of Brisbane General Plan

The Open Space and Conservation Elements in the City of Brisbane General Plan present a number of policies and programs relating to the protection of the City of Brisbane's natural resources. The General Plan includes policies preserving areas containing rare and endangered species habitat; cooperating with local, state, and federal agencies in conservation efforts; working with the SBM HCP and other agencies regarding plans or programs that may affect biological resources; and encouraging the use of plants in landscaped areas that are compatible with the natural flora (City of Brisbane 1994).

City of Brisbane Tree Ordinance

Under Title 12, Chapter 12.12, of the City of Brisbane's Municipal Code, the City of Brisbane requires a permit for removal of protected trees or any other tree having a trunk that is greater than 30 inches in diameter at a height of 24 inches above grade (City of Brisbane 2018). The Municipal Code defines protected trees in Section 12.12.020. Pursuant to Exemption 3 of Section

12.12.040 of the Municipal Code, PG&E, as a public utility subject to the jurisdiction of the CPUC, "may without a permit take such action as may be necessary to comply with the safety regulations of the commission and as may be necessary to remove a direct and immediate hazard to their facilities within the public utility lands or easement areas in which the same may be located" (City of Brisbane 2018).

San Bruno Mountain Habitat Conservation Plan

The SBM HCP was adopted in 1983 to protect and improve habitat for several endangered species (County of San Mateo 1982). The SBM HCP is an effort to address the problem of potential extinction of these endangered species while enabling private landowners to develop their land. While the proposed project is not within the SBM HCP planning area, portions of the proposed Jefferson-Egbert underground transmission line route pass immediately adjacent to several of the SBM HCP management units. These are the Saddle, Dairy & Wax Myrtle Ravines, Northeast Ridge, and Carter/Martin Management Units of the Guadalupe Hills Planning Area; Carter Street and Guadalupe Canyon Parkway are the dividing lines between these management units.

D.4.3 Environmental Impacts and Mitigation Measures

D.4.3.1 Definition and Use of Significance Criteria

In accordance with Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.), the proposed project would have a significant impact on biological resources if the proposed project would:

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

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

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

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

The significance of impacts to biological resources was assessed by comparing the potential changes resulting from the proposed project to the significance thresholds. An evaluation of whether or not an effect on biological resources would be substantial with respect to the significance thresholds generally considers the following:

- Amount and/or extent of the resource (numbers, acres, etc.) to be affected versus preserved
- The relative biological value (rarity, functions and values) and/or sensitivity status of the resource and its relevance within a specified geographical area
- The type and severity of impact (i.e., would the project adversely affect wildlife through mortality, injury, displacement, or habitat loss or adversely impact vegetation through destruction of a sensitive plant population?)
- Timing of the impact (i.e., would the impact occur at a critical time in the life cycle of a special-status plant or animal, such as breeding, nesting, or flowering periods?)
- Duration of the impact (i.e., whether the impact is temporary or permanent)

D.4.3.2 Applicant Proposed Measures

Table D.4-1 presents the applicant proposed measures (APMs) proposed by PG&E to avoid project impacts related to biological resources.

Table D.4-1
Applicant Proposed Measures for Biological Resources

APM No	Description
APM BIO-01	General Measures A worker environmental awareness program biological resources module will be conducted for on-site construction personnel prior to the start of construction activities. The module will explain the APMs and any other measures developed to prevent impacts on special-status species, including nesting birds. The module will also include a description of special-status species and their habitat needs, as well as an explanation of the status of these species and their protection under the federal and California ESAs, and other statutes. A brochure will be provided with color photos of sensitive species, as well as a discussion of any permit measures. A copy of the program and brochure will be provided to CPUC at least 30 days prior to the start of construction for project files. This APM also includes the following measures: • Environmental Inspector: A qualified environmental inspector will verify implementation and compliance with all APMs. The environmental inspector will have the authority to stop work or determine alternative work practices where safe to do so, as appropriate, if construction activities are likely to impact sensitive biological resources. • Litter and trash management: All food scraps, wrappers, food containers, cans, bottles, and other trash from the project area will be deposited in closed trash containers. Trash containers will be removed from the project work areas at the end of each working day unless located in an existing substation, potential staging area, or the switching station site. • Parking: Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed or developed areas or work areas as identified in this document. • Pets and firearms: No pets or firearms will be permitted at the project site.
APM BIO-2	Preconstruction Surveys If construction is to occur during the avian nesting season (February 1 through August 31), a preconstruction migratory bird and raptor nesting survey will be performed by a qualified biologist. Note that given the urban nature of the project, surveys will be limited in urban areas to along streets within 50 feet of work with public access; surveys will not occur, for instance, in residential private property or backyards other than what can be observed from the street. If nesting birds are identified in areas susceptible to disturbance from construction activities, PG&E will establish a specific buffer zone to be maintained for that nest. Factors to be considered include intervening topography, roads, development, type of work, visual screening from the nest, nearby noise sources, etc. Buffers will not apply to construction-related traffic using existing roads that are not limited to project-specific use (that is, city streets, highways, etc.). Consideration will also include timing of nesting (that is, if the birds' nests are found in the project area during actual construction). Preconstruction bird nesting surveys will be conducted in the project area no more than 15 days before work is performed in the nesting season. A nest will be determined to be active if eggs or young are present in the nest. Upon discovery of active nests, appropriate minimization measures (e.g., buffers or shielding) will be determined and approved by the PG&E biologist. PG&E's biologist will determine the use of a buffer or shield and work may proceed based upon: acclimation of the species or individual to disturbance, nest type (cavity, tree, ground, etc.), and level and duration of construction activity. In the unlikely event a listed species is found nesting nearby in this urban environment that cannot be avoided, CDFW and USFWS will be notified, and CPUC will be provided with nest survey results, if requested. When active nests are identified, monitoring for significant disturbance to the birds will be implemented. Nest checks of active nests will occur each day construction is occurring near the buffer zone. Typically, a nest check will have a minimum duration of 30 minutes, but may be longer or shorter, or more frequent than one check per day, as determined by PG&E's biologist or designated biological monitor based on the type of

Table D.4-1
Applicant Proposed Measures for Biological Resources

APM No	Description
	construction activity (duration, equipment being used, potential for construction-related disturbance) and other factors related to assessment of nest disturbance (weather variations, pair behavior, nest stage, nest type, species, etc.). The biological monitor will record the PG&E construction activity occurring at the time of the nest check and note any work exclusion buffer in effect at the time of the nest check. Non-PG&E activities in the area should also be recorded (e.g., adjacent construction sites, roads, commercial/industrial activities, residential activities, etc.). The biological monitor will record any sign of disturbance to the active nest, including but not limited to parental alarm calls, agitated behavior, distraction displays, nest fleeing and returning, chicks falling out of the nest or chicks or eggs being predated as a result of parental abandonment of the nest. Should the PG&E biological monitor determine project activities are causing or contributing to nest disturbance that might lead to nest failure, the PG&E biological monitor will coordinate with the Construction Manager to limit the duration or location of work, and/or set other limits related to use of project vehicles, and/or heavy equipment. Should PG&E's biological monitor determine that project activities are not resulting in significant disturbance to the birds, construction activity will continue and nest checks while work is occurring will be conducted periodically.
APM BIO-3	Pre-construction Surveys/Rare Plant Surveys. If the potential Carter Street staging area will be used for the project, a pre-construction survey to assess the site will be conducted. If the area that will be impacted at this potential staging area is covered in gravel, free of vegetation, or covered in ruderal vegetation, then no further vegetation surveys will be conducted at this site prior to its use. If the pre-construction survey identifies that suitable habitat for special-status plants is present, rare plant surveys will be conducted within the staging area. If any special-status plants are observed, they will be fenced off and avoided.

Notes: APM = applicant proposed measure; ESA = Endangered Species Act; CPUC = California Public Utilities Commission; PG&E = Pacific Gas & Electric Company; CDFW = California Department of Fish and Wildlife; USFWS = U.S. Fish and Wildlife Service.

D.4.3.3 Impact Discussion

In the impact discussion below, the potential significance of the proposed project on biological resources is evaluated based on the criteria discussed above in Section D.4.3.1 and in consideration of the APMs addressed in the previous section.

Impact BIO-1 **Would construction or operation activities result in substantial adverse effects, either directly or through habitat modifications, to 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?**

Special-status plant and wildlife species known to occur within the project site (based on recorded occurrences and/or associations with on-site vegetation communities) and their potential to occur on site are listed in Tables 1 and 2 of Appendix D.4-1. As shown in Appendix D.4-1, there is a limited potential for white-tailed kite, American peregrine falcon, and American badger to be present within the project site while foraging; no special-status plants are expected to occur within any of the project sites (PG&E 2017).

White-tailed kite and American peregrine falcon are not expected to nest within or immediately adjacent to the proposed project footprint due to the lack of suitable nest habitat. Therefore, no direct impacts to active nests of these species would occur. As previously noted, the project site is entirely within paved surfaces with the exception of the ruderal habitat (which does not support nest habitat for these species) immediately south of the proposed Egbert Switching Station, which the proposed Jefferson-Egbert transmission line passes through. Portions of the proposed Jefferson-Egbert transmission line route pass through paved roadways within San Bruno Mountain State Park and John McLaren Park, which have suitable foraging habitat for white-tailed kite and American peregrine falcon. However, construction in already disturbed roads and paved areas would not be expected to adversely alter foraging behavior due to the existing high level of ongoing human activities (traffic, noise, pedestrians, etc.) associated with the urbanized nature of the area. Similarly, work within the Martin Substation boundary would not adversely affect foraging birds because the site is covered in paved or gravel surfaces and is already developed. In addition, construction-related noise and vibration associated with this portion of the project would be temporary and would not, therefore, be expected to adversely affect foraging behavior of these species.

Some species of common native birds (that are protected by various provisions of the California Fish and Game Code), particularly those adapted to urban environments, could potentially nest in landscaped areas within or immediately adjacent to the project footprint. Nesting birds may be adversely affected if construction activities occur near active nests during the breeding season. Potential direct impacts can include nest destruction or removal during vegetation trimming or during activities to provide construction equipment access. Indirect impacts could include nest abandonment or premature fledging from construction-related activities, noise, and/or vibration (e.g., from heavy equipment, vehicles, generators, and human presence). Implementation of APM BIO-1 and APM BIO-2 would reduce impacts on nesting birds because the worker environmental awareness program (APM BIO-1) would inform workers about impact avoidance measures to be taken for active nests and APM BIO-2 would require preconstruction surveys to identify any active nests within and immediately adjacent to construction areas and measures to be implemented to avoid direct/indirect impacts to any observed active nests.

American badger has the potential to occur on San Bruno Mountain near the proposed Jefferson-Egbert transmission line. As construction activities in the vicinity of San Bruno Mountain would be within paved surfaces, impacts to American badger are not expected, but this species could potentially pass through project work sites while foraging or dispersing. Implementation of APM BIO-1, which would require implementation of a worker environmental awareness program biological resources module for on-site construction personnel, would help ensure that impacts to this species would not occur in the unlikely event that individuals would move through the project site during ground-disturbance activities while foraging. Specifically, the awareness program would educate workers on how to recognize the species and on what measures to take to

prevent impacts on individual animals should they be encountered. No special-status bat species are expected to roost or breed within the project site. Therefore, no impacts to special-status bat species would occur (Appendix D.4-2).

No impacts to special-status plants are expected for the proposed Egbert Switching Station, proposed transmission line routes, and the potential Martin Substation, Cow Palace, and Amador Street staging areas because all areas that would be impacted are on or under paved surfaces or highly disturbed ruderal areas, neither of which support suitable habitat for special-status plants known to occur in the region. There is a very low potential for special-status plants to occur within the potential Carter Street staging area, which was not accessible for surveys. If the Carter Street staging area is used for the proposed project, surveys would be conducted as described in APM BIO-3, and any special-status plants observed would be avoided.

No direct or indirect adverse impacts to special-status species are expected during operation and maintenance activities, as these would occur within paved or highly disturbed areas that would not support any of the above special-status plant or animal species.

For the reasons described above, because of the highly disturbed and urbanized nature in which the proposed project would occur, and with implementation of APM BIO-1 and APM BIO-2, impacts on special-status species would be less than significant (Class III)**.**

Impact BIO-2 Would construction or operation activities result in a substantial adverse effect on 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?

As described in Section D.4.1, the proposed project components would predominantly occur within paved surfaces located in developed areas. No riparian habitat or sensitive natural community types are located in areas that would be impacted by the proposed project. The two arms of the riverine intermittent streambed on San Bruno Mountain would not be impacted by the proposed project. The proposed Jefferson-Egbert transmission line would go under or above the culvert in Guadalupe Canyon Parkway that the western arm flows through, depending on the depth of cover required and the diameter of the culvert. All other work activities in close proximity to the streambed would be underground within paved surfaces; no riparian habitat is associated with this drainage. Erosion control measures and the Stormwater Pollution Prevention Plan that would be implemented (see Section D.10, Hydrology and Water Quality) would minimize any indirect impacts within nearby drainages. As the proposed project would be located within paved or ruderal areas that do not contain any riparian habitat or sensitive natural communities, no impact to these resources would occur. All

project impact areas and potential staging areas are outside of areas under BCDC jurisdiction, with the exception of the South Container Terminal Pier 94/96 staging area. The South Container Terminal is an existing paved facility, the edges of which are operating within the BCDC shoreline band jurisdiction, and the potential use as a staging area is in keeping with that current use. No construction or operation and maintenance impacts to riparian habitat or sensitive natural communities would occur (No Impact).

Impact BIO-3 **Would construction or operation activities result in substantial adverse effects 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?**

As described in Section D.4.1, there are no state or federal jurisdictional waters or wetlands located within the project site that would be impacted by the proposed project. The proposed project does not propose removal, filling, or other hydrologic alteration of wetlands or other aquatic resources. Therefore, no construction or operation and maintenance impact would occur to federally protected wetlands (No Impact).

Impact BIO-4 **Would construction or operation activities substantially interfere with the movement of native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?**

The proposed project would be located in a highly urbanized and developed area that possesses few opportunities for terrestrial wildlife movement or migration. San Bruno Mountain State Park and John McLaren Park support natural communities that would be located near the proposed Jefferson-Egbert transmission line. Within these areas, there is potential for limited local wildlife movement, but no regional or migratory movements are expected because of surrounding dense development. Furthermore, construction of the proposed Jefferson-Egbert transmission line would occur within existing paved roads that are heavily traveled. Because of this, the proposed project would not interfere substantially with the movement of any native resident wildlife species or impede the use of any wildlife nursery sites. The proposed project would not be constructed within or adjacent to water features; therefore, it would not interfere with the movement of migratory fish. No impact would occur during either the proposed project's construction phase or operation and maintenance phase (No Impact).

Impact BIO-5 Would construction or operation activities conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The proposed project would not conflict with local ordinances relative to biological resources as specified in the General Plans for the City and County of San Francisco, City of Daly City, and City of Brisbane or other existing or planned local ordinances. In addition, the provisions of these plans apply to development projects within the jurisdiction of their respective cities and do not apply to the proposed project, which is regulated by the CPUC and would not be subject to local land use regulations. Regardless, the proposed project has been designed to avoid and minimize impacts to biological resources wherever possible, consistent with the intent of the General Plans for the City and County of San Francisco, City of Daly City, and City of Brisbane. The project does not conflict with the San Francisco Urban Forestry Ordinance or City of Brisbane Tree Ordinance. Accordingly, the proposed project would not conflict with any local policies or ordinances protecting biological resources, and there would be no impact (No Impact).

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

Although a portion of the proposed Jefferson-Egbert transmission line would be located within Carter Street and Guadalupe Canyon Parkway in areas that are bordered by four management units for the SBM HCP, these roads are not included in the SBM HCP management units, and no construction or operation and maintenance activities would occur off paved or disturbed surfaces. Therefore, the proposed project would not conflict with an adopted habitat conservation plan, natural community conservation plan, or other conservation plan, and no impact would occur (No Impact).

D.4.4 Project Alternatives

D.4.4.1 Bayshore Switching Station Alternative

Environmental Setting

The 6.6-acre Bayshore Switching Station Alternative site is primarily designated non-native annual grassland (City of Brisbane 2013) with a nursery in operation on the south end of the site. No suitable habitat for special-status plants or wildlife is present on the alternative switching station site (City of Brisbane 2013). Mature trees and shrubs are present along the western site boundary, adjacent to Bayshore Boulevard.

Approximately 0.5 miles of the Jefferson-Martin and Martin-Bayshore alternative lines would be constructed within non-native annual grassland and ruderal vegetation. The north end of the alternative lines would be constructed adjacent to Icehouse Hill, which represents a segment of the historic bay. Approximately 0.5 acres of native coastal scrub is present on Icehouse Hill directly south of the alternative Jefferson-Martin and Martin-Bayshore transmission line segments. Suitable habitat for special-status plants and wildlife occurs on Icehouse Hill. Bent-flowered fiddleneck (*Amsinckia lunaris*), San Francisco collinsia (*Collinsia multicolor*), Choris' popcorn flower (*Plagiobothrys chorisianus)*, and San Francisco campion (*Silene verecunda*) have the potential to occur in the annual grasslands and coastal scrub habitats on Icehouse Hill. Suitable habitat for the federally protected Mission blue butterfly (*Plebejus icariodes missionensis*) and Callippe silverspot butterfly (*Speyeria callippe callippe*) is also present on Icehouse Hill (City of Brisbane 2013). The alternative lines would interconnect with existing transmission infrastructure along Bayshore Boulevard, which may require removal of some mature trees located on the east side of the roadway. The alternative Martin-Bayshore transmission line would cross an unnamed drainage feature directly north of the alternative switching station site that is composed of willow scrub habitat (City of Brisbane 2013).

The Bayshore-Embarcadero transmission line would include construction of approximately 1.5 miles of underground transmission line, primarily within existing paved roadways, except for a small area of gravel and turf between Main Street and Midway Drive, south of the Martin Substation. No suitable habitat for special-status plants or wildlife is present along this alternative line. A SBM HCP management unit is located west of Bayshore Boulevard along the alignment, but the alternative Bayshore-Embarcadero transmission line would not impact any land covered by the HCP.

Environmental Impacts and Avoidance Measures

Impact BIO-1: No suitable habitat for special-status plants or wildlife species is present within the Bayshore Switching Station Alternative site. Icehouse Hill, located directly north of the switching station site, contains coastal scrub habitat suitable for numerous special-status plant and wildlife species. Although development of the alternative Jefferson-Martin and Martin-Bayshore transmission line segments would be constructed adjacent to the coastal scrub habitat at the north end of Icehouse Hill, PG&E would design the alternative transmission line segments within disturbed areas to avoid coastal scrub habitat on Icehouse Hill, to the extent practicable. No direct impacts to special-status species are anticipated, but because the location and extent of development is not known for this alternative, construction impacts have potential to result in indirect impacts to special-status wildlife species. If this alternative is chosen, mitigation would be applied to avoid or reduce potential direct and/or indirect impacts to special-status wildlife species within coastal scrub habitat in the vicinity of the alternative transmission line segments (Class II).

Development of the switching station on this alternative site could impact foraging and nesting habitat for several species protected under the MBTA. Construction of the switching station would result in grading and developing existing ruderal, non-native annual grassland habitats and a reduction in the overall amount of foraging area. The non-native annual grasslands also provide foraging grounds for bats, raptors, and small mammals. The San Bruno Mountain State Park, west of Bayshore Boulevard, provides more than 2,000 acres of significantly higher-quality foraging habitats that are protected in perpetuity. Therefore, the reduction in available foraging habitat on site would not represent a substantial reduction in available foraging habitat.

Although the existing high ambient levels of noise and disturbance at this alternative switching station site likely preclude nesting activities for many special-status birds, potential nesting habitat is present within the mature trees and shrubs adjacent to the switching station site and within the transmission line alignment east of Bayshore Boulevard. Removal or trimming of any of the existing trees during the nesting season (January 1 through September 15) could result in impacts to breeding raptors and avian species if an active nest is present. APM BIO-1 and APM BIO 2, included as part of the proposed project, would apply to this alternative. Implementation of APM BIO-1 and APM BIO-2 would reduce impacts to nesting birds, because the worker environmental awareness program (APM BIO-1) would inform workers about impact avoidance measures to be taken for active nests, and APM BIO-2 would require preconstruction surveys to identify any active nests within and immediately adjacent to construction areas as well as implementation of measures to avoid direct/indirect impacts to any observed active nests.

No direct or indirect adverse impacts to special-status species are expected during operation and maintenance activities, as these would occur within paved or highly disturbed areas that would not support any of the above special-status plant or animal species.

If this alternative were chosen, PG&E would be required to implement additional mitigation to address temporary direct and/or indirect impacts to special-status species within the coastal scrub habitat adjacent to the alternative transmission line segments. In addition, implementation of APM BIO-1 and APM BIO-2 would reduce potential impacts to nesting birds during construction activities east of Bayshore Boulevard. With implementation of mitigation and applicable APMs, impacts to special-status species would be less than significant (Class II).

Impact BIO-2 and Impact BIO 3: No designated wetlands or riparian habitat are present within the Bayshore Switching Station Alternative site. However, the alternative Martin-Bayshore transmission line would encroach on the south side of an unnamed drainage feature directly north of the switching station site that is mapped as potentially jurisdictional waters with willow scrub habitat. Under this alternative, PG&E would be required to perform a jurisdictional delineation and implement additional mitigation to address temporary and permanent impacts to the drainage, as applicable. Furthermore, PG&E would be required to obtain applicable permits and

provide evidence of permit approval prior to the start of construction. These permits would include a Clean Water Act Section 404 Permit from the ACOE, a Clean Water Act Section 401 water quality certification from the Regional Water Quality Control Board, and a Section 1602 Streambed Alteration Agreement from California Department of Fish and Wildlife. With implementation of mitigation, the Bayshore Switching Station Alternative would result in less-than-significant impacts to designated wetlands and riparian habitat (Class II).

Impact BIO-4: The Bayshore Switching Station Alternative site does not provide suitable habitat that is likely to attract or facilitate movement of animals. In addition, the site is isolated from other undeveloped areas within the Baylands Subarea due to existing structures to the east and south, and Bayshore Boulevard to the west. Contiguous, undeveloped open space areas in the vicinity of the this alternative site that support wildlife populations and attract wildlife movement include the San Bruno Mountain area to the west of the site, wetland and aquatic habitats in San Francisco Bay located to the east, and Visitacion Creek to the north. Development of the Bayshore Switching Station Alternative would not affect connectivity to or within the contiguous open space areas in the vicinity. Construction of the alternative transmission line segments in the open space area north of the switching station site may temporarily impede wildlife movement but would not result in any long-term obstruction of wildlife movement, as all components would be installed below ground. Because the potential impacts to wildlife movement are temporary and the area of this alternative is considered in the vicinity of wildlife movement as opposed to being located directly within an area of known wildlife movement, impacts relative to wildlife movement resulting from this alternative would be less than significant (Class III).

Impact BIO-5: Construction of the alternative transmission lines associated with the Bayshore Switching Station Alternative has potential to result in the removal of trees protected under the Brisbane Tree Ordinance. The Brisbane Tree Ordinance does not require tree removal permits for public utilities under the jurisdiction of the CPUC. Therefore, the Alternative Bayshore Switching Station would not be required to comply with the Brisbane Tree Ordinance and would not conflict with any local policies protecting biological resources (No Impact).

Impact BIO-6: The SBM HCP extends from San Bruno Mountain west of the site to Bayshore Boulevard. However, the SBM HCP area does not cover the Bayshore Switching Station Alternative site. There are no other adopted habitat conservation plans; natural community conservation plans; or other approved local, regional, or state habitat conservation plans that apply to the Bayshore Switching Station Alternative site. The alternative Bayshore-Embarcadero transmission line would be constructed within Bayshore Boulevard, adjacent to a management unit of the SBM HCP, but the roadway is not included in the SBM HCP management unit, and no construction or operation and maintenance activities would occur outside of paved or disturbed surfaces. Therefore, the Bayshore Switching Station Alternative, including the switching station and transmission lines, would not conflict with an adopted habitat conservation

plan, natural community conservation plan, or other conservation plan, and no impact would occur (No Impact).

Comparison to the Proposed Project

The Bayshore Switching Station Alternative would result in greater impacts to special-status species (Impact BIO-1) compared to the proposed project, due to presence of coastal scrub habitat adjacent to the alternative Jefferson-Martin and Martin-Bayshore transmission line segments. Should this alternative be chosen, mitigation would be required to avoid or reduce indirect impacts to known special-status species during construction activities. Similar to the proposed project, potential impacts to special-status species may occur to nesting birds; however, with implementation of APM BIO-1 and APM BIO-2, impacts to nesting birds for both the proposed project and this alternative would be less than significant.

The Bayshore Switching Station Alternative has potential to result in greater impacts on designated wetlands or riparian habitat (Impact BIO-2 and Impact BIO-3) compared to the proposed project. The alternative Martin-Bayshore transmission line segment would encroach on an unnamed drainage feature, requiring additional mitigation to address temporary and permanent impacts to the drainage, as applicable. The Bayshore Switching Station Alternative would not limit permanent movement of wildlife (Impact BIO-4), similar to the proposed project; however, there is a potential for temporary and/or indirect impacts associated with construction of alternative transmission lines north of the alternative switching station site.

There is a potential for the removal of mature trees west on the alternative switching station site and to accommodate installation of underground transmission lines; however, because public utilities regulated by the CPUC are not subject to local ordinances, there would be no conflict with the Brisbane Tree Ordinance; therefore, Impact BIO-5 would be similar to the proposed project. Similar to the proposed project, the Bayshore Switching Station would not impact the SBM HCP or any other habitat conservation plans or natural community conservation plans (Impact BIO-6). Overall, the Bayshore Switching Station would have greater impacts on biological resources than the proposed project due to development within or near sensitive biological resources.

D.4.4.2 Geneva Switching Station Alternative

Existing Setting

The approximately 11.1-acre Geneva Switching Station Alternative site is primarily paved and currently utilized as a parking lot. A vegetated area is located directly south and west of the site, designated Annual Grasslands in the Daly City General Plan (City of Daly City 2013), and dominated by blue gum eucalyptus and a blend of invasive scrub and coastal scrub species

(CH2M 2017). On the far side of this vegetated area, paved roads, residential developments, and golf courses separate this area from the nearest native plant communities on San Bruno Mountain (CH2M, 2017). Mature trees line the western and southern border of the site. No potentially jurisdictional areas are located in the vicinity of the site.

Approximately 2.3 miles of underground transmission lines would be constructed as part of this alternative. The transmission lines would be installed along Geneva Avenue and Carter Street, within existing roadways. The four management units of the SBM HCP border Guadalupe Canyon Parkway, where the Jefferson-Geneva alternative line would connect to the existing transmission line.

Environmental Impacts and Avoidance Measures

Impact BIO-1: The Geneva Switching Station Alternative site is composed of primarily developed/paved land with a vegetated area in the southern and western portion of the site with marginally suitable habitat for several special-status species (CH2M 2017). Development of the 11.1-acre switching station site could potentially impact special-status species within the on-site vegetated area. Under this alternative, implementation of APM BIO-3 would require pre-construction surveys, and if found, special-status species present in the existing annual grasslands would be avoided to the extent practicable within the alternative switching station site. However, if special-status species found during pre-construction surveys and avoidance is not feasible, additional mitigation could apply (Class II).

Impact BIO-2 and BIO-3: No wetlands or riparian habitat occur on within or adjacent to the area of disturbance for this alternative. Development of this alternative would not impact jurisdictional waters or wetlands (No Impact).

Impact BIO-4: The Geneva Switching Station Alternative would be located in a highly urbanized and developed area that possesses few opportunities for terrestrial wildlife movement or migration. Within this area, there is potential for limited local wildlife movement, but no regional or migratory movements are expected because of surrounding dense development. Furthermore, construction of this alternative would occur within existing paved roads that are heavily traveled. Because of this, the Geneva Switching Station Alternative would not interfere with the movement of any native resident wildlife species (No Impact).

Impact BIO-5: The Geneva Switching Station Alternative would not conflict with local ordinances relative to biological resources as specified in the General Plans for the City and County of San Francisco and City of Daly City or other existing or planned local ordinances. Furthermore, public utilities under to the jurisdiction of the CPUC are not subject to local ordinances. Accordingly, the Geneva Switching Station would not conflict with any local policies or ordinances protecting biological resources (No Impact).

Impact BIO-6: A portion of the proposed alternative Jefferson-Geneva transmission line would be located within Carter Street and Guadalupe Canyon Parkway, in areas that are bordered by four management units for the SBM HCP. The roadways are not included in the SBM HCP, and no construction, operation, or maintenance activities would occur off paved or disturbed surfaces within the HCP. Geneva Switching Station Alternative, including the switching station and transmission lines, would not conflict with an adopted habitat conservation plan, natural community conservation plan, or other conservation plan, and no impact would occur (No Impact).

Comparison to the Proposed Project

The Geneva Switching Station Alternative has greater potential to impact special-status species than the proposed project (Impact BIO-1). The alternative switching station site contains potential suitable habitat for special-status species, and the proposed switching station would be developed as an industrial land use, devoid of vegetation. Implementation of APM BIO-3 would require pre-construction surveys, and if found, special-status species present in the existing annual grasslands would be avoided to the extent practicable within the alternative switching station site. However, if special-status species are found during pre-construction surveys and avoidance is not feasible, additional mitigation could apply. Similar to the proposed project, due to its location in an urban and developed area, the Geneva Switching Station would not impact designated wetlands (Impact BIO-2), riparian habitat (Impact BIO-2 and Impact BIO-3), or movement of wildlife (Impact BIO-4). Furthermore, similar to the proposed project, this alternative would not conflict with any ordinances protecting biological resources or an adopted habitat conservation plan (Impact BIO-5 and Impact BIO-6). Overall, the Geneva Switching Station Alternative would result in greater potential impacts to biological resources than the proposed project because the alternative switching station is proposed on a vegetated, undeveloped lot, with potential suitable habitat for special-status plants as well as potential foraging habitat for bats, raptors, and small mammals. However, the biological impacts associated with the transmission lines for both the alternative and the proposed project would be similar.

D.4.4.3 Sunnydale HOPE SF Avoidance Line Alternative Option A

Existing Setting

The Sunnydale HOPE SF Avoidance Line Alternative Option A (Sunnydale Option A Alternative) would be constructed in an urban, developed area in the City and County of San Francisco and City of Daly City. No natural vegetation communities occur within or immediately adjacent to the alignment. The 0.6-mile-long transmission line would be located within existing paved surfaces. Section D.4.1 describes the existing notable biological characteristics of the Egbert Switching Station, Martin-Egbert transmission line, Egbert-Embarcadero transmission line, and the existing Martin Substation, which would remain unchanged under this alternative.

Therefore, because the existing setting for the remainder of the proposed project would remain unchanged, additional information pertaining to the biological resources setting for the area that remains the same as the proposed project alignment is not discussed as part of this alternative.

Environmental Impacts

Impact BIO-1: The Sunnydale Option A Alternative line segment is composed of developed/paved land, and all construction is proposed within existing paved surfaces. There are no natural vegetation communities within or immediately adjacent to the Sunnydale Option A Alternative line segment. The Sunnydale Option A Alternative would not result in impacts to special-status species (No Impact).

Impact BIO-2 and BIO-3: No wetlands or riparian habitat occur on within or adjacent to the area of disturbance for this alternative. Development of this alternative would not impact jurisdictional waters or wetlands (No Impact).

Impact BIO-4: The Sunnydale Option A Alternative line segment would be located in a highly urbanized and developed area that possesses few opportunities for terrestrial wildlife movement or migration. Within this area, there is potential for limited local wildlife movement, but no regional or migratory movements are expected because of surrounding dense development. Furthermore, construction of this alternative would occur within existing paved roads that are heavily traveled, and once construction is complete, this segment would be entirely underground. Because of this, the Sunnydale Option A Alternative would not interfere substantially with the movement of any native resident wildlife species (No Impact).

Impact BIO-5: The Sunnydale Option A Alternative line segment would not conflict with local ordinances relative to biological resources as specified in the General Plans for the City and County of San Francisco nor other existing or planned local ordinances. Furthermore, public utilities under the jurisdiction of the CPUC are not subject to local ordinances. Accordingly, the Sunnydale Option A Alternative would not conflict with any local policies or ordinances protecting biological resources (No Impact).

Impact BIO-6: The Sunnydale Option A Alternative would not be within or adjacent to land set aside for habitat conservation. This alternative is located within a densely developed residential area. Therefore, the Sunnydale Option A Alternative would not conflict with an adopted habitat conservation plan, natural community conservation plan, or other conservation plan, and no impact would occur (No Impact).

Comparison to the Proposed Project

The Sunnydale Option A Alternative line segment would result in no impacts to biological resources, because construction is proposed within existing paved surfaces in an urban residential area (Impacts BIO-1 though BIO 5). The local setting of the Sunnydale Option A Alternative would be similar to the portion of the Jefferson-Egbert transmission line that would otherwise affect the Sunnydale HOPE SF project site, which is also in an urban area surrounded by residential development. Therefore, the Sunnydale Option A Alternative line segment would have similar impacts to biological resources as the proposed project.

D.4.4.4 No Project Alternative

Under the No Project Alternative, none of the facilities associated with the proposed project or alternatives would be constructed, and therefore, none of the impacts in this section would occur.

D.4.5 Mitigation Monitoring, Compliance, and Reporting

Table D.4-2 shows the mitigation monitoring, compliance, and reporting program for biological resources. The CPUC is responsible for ensuring compliance with provisions of the monitoring program. The APMs that are incorporated as part of the proposed project are listed in the following table.

Table D.4-2
Mitigation Monitoring, Compliance, and Reporting Program for Biological Resources

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Timing	Responsible Party and Project Components
Impact BIO-1 Construction activities would result in substantial adverse effects, either directly or through habitat modifications, to 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	—	APM BIO-1	General Measures A worker environmental awareness program biological resources module will be conducted for on-site construction personnel prior to the start of construction activities. The module will explain the APMs and any other measures developed to prevent impacts on special-status species, including nesting birds. The module will also include a description of special-status species and their habitat needs, as well as an explanation of the status of these species and their protection under the federal and California ESAs, and other statutes. A brochure will be provided with color photos of sensitive species, as well as a discussion of any permit measures. A copy of the program and brochure will be provided to CPUC at least 30 days prior to the start of construction for project files. This APM also includes the following measures: • Environmental Inspector: A qualified environmental inspector will verify implementation and compliance with all APMs. The environmental inspector will have the authority to stop work or determine alternative work practices where safe to do so, as appropriate, if construction activities are likely to impact sensitive biological resources.	Implement worker awareness program as defined. Prepare weekly monitoring report summarizing biological monitoring activities (include environmental training sign-in sheets, biological monitors assigned to project components, compliance issues/concerns and general observations). Implement CPUC monitoring: Line item in compliance monitoring report.	Prior to and during construction During construction During construction	PG&E and CPUC * Applicable to all project components during construction

Table D.4-2
Mitigation Monitoring, Compliance, and Reporting Program for Biological Resources

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Timing	Responsible Party and Project Components
			• Litter and trash management: All food scraps, wrappers, food containers, cans, bottles, and other trash from the project area will be deposited in closed trash containers. Trash containers will be removed from the project work areas at the end of each working day unless located in an existing substation, potential staging area, or the switching station site. • Parking: Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed or developed areas or work areas as identified in this document. • Pets and firearms: No pets or firearms will be permitted at the project site.			
Impact BIO-1 Construction activities would result in substantial adverse effects, either directly or through habitat modifications, to 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	—	APM BIO-2	Pre-Construction Surveys If construction is to occur during the avian nesting season (February 1 through August 31), a preconstruction migratory bird and raptor nesting survey will be performed by a qualified biologist. Note that given the urban nature of the project, surveys will be limited in urban areas to along streets within 50 feet of work with public access; surveys will not occur, for instance, in residential private property or backyards other than what can be observed from the street. If nesting birds are identified in areas susceptible to disturbance from construction activities, PG&E will establish a specific buffer zone to be maintained for that nest. Factors to be	Verify biologist qualifications Conduct nesting bird survey(s) as defined Implement CPUC monitoring: Line item in compliance monitoring report. Document survey efforts in daily log and report to CPUC at the end of each week. Documentation of monitoring active nests	Prior to construction Prior to construction During construction Prior to construction/CPUC to review and approve and make additional recommendations for avoidance prior to issuance of Notice to Proceed During construction	PG&E and CPUC * Applicable to all project components during construction

Table D.4-2
Mitigation Monitoring, Compliance, and Reporting Program for Biological Resources

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Timing	Responsible Party and Project Components
			considered include intervening topography, roads, development, type of work, visual screening from the nest, nearby noise sources, etc. Buffers will not apply to construction-related traffic using existing roads that are not limited to project-specific use (that is, city streets, highways, etc.). Consideration will also include timing of nesting (that is, if the birds' nests are found in the project area during actual construction). Preconstruction bird nesting surveys will be conducted in the project area no more than 15 days before work is performed in the nesting season. A nest will be determined to be active if eggs or young are present in the nest. Upon discovery of active nests, appropriate minimization measures (e.g., buffers or shielding) will be determined and approved by the PG&E biologist. PG&E's biologist will determine the use of a buffer or shield and work may proceed based upon: acclimation of the species or individual to disturbance, nest type (cavity, tree, ground, etc.), and level and duration of construction activity. In the unlikely event a listed species is found nesting nearby in this urban environment that cannot be avoided, California Department of Fish and Wildlife and U.S. Fish and Wildlife Service will be notified, and CPUC will be provided with nest survey results, if requested. When active nests are identified, monitoring for significant	on daily basis within buffer areas (within 50 feet of construction activities or as increased by the biologist) CPUC to review and approve/deny decreases in buffer space		

Table D.4-2
Mitigation Monitoring, Compliance, and Reporting Program for Biological Resources

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Timing	Responsible Party and Project Components
			disturbance to the birds will be implemented. Nest checks of active nests will occur each day construction is occurring near the buffer zone. Typically, a nest check will have a minimum duration of 30 minutes, but may be longer or shorter, or more frequent than one check per day, as determined by PG&E's biologist or designated biological monitor based on the type of construction activity (duration, equipment being used, potential for construction-related disturbance) and other factors related to assessment of nest disturbance (weather variations, pair behavior, nest stage, nest type, species, etc.). The biological monitor will record the PG&E construction activity occurring at the time of the nest check and note any work exclusion buffer in effect at the time of the nest check. Non-PG&E activities in the area should also be recorded (e.g., adjacent construction sites, roads, commercial/industrial activities, residential activities, etc.). The biological monitor will record any sign of disturbance to the active nest, including but not limited to parental alarm calls, agitated behavior, distraction displays, nest fleeing and returning, chicks falling out of the nest or chicks or eggs being predated as a result of parental abandonment of the nest. Should the PG&E biological monitor determine project activities are causing or contributing to nest disturbance that might lead to nest failure, the PG&E biological monitor will coordinate with the Construction			

Table D.4-2
Mitigation Monitoring, Compliance, and Reporting Program for Biological Resources

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Timing	Responsible Party and Project Components
			Manager to limit the duration or location of work, and/or set other limits related to use of project vehicles, and/or heavy equipment. Should PG&E's biological monitor determine that project activities are not resulting in significant disturbance to the birds, construction activity will continue and nest checks while work is occurring will be conducted periodically.			
Impact BIO-1 Construction activities would result in substantial adverse effects, either directly or through habitat modifications, to 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	—	APM BIO-3	Pre-Construction Surveys/Rare Plant Surveys. If the potential Carter Street staging area will be used for the project, a pre-construction survey to assess the site will be conducted. If the area that will be impacted at this potential staging area is covered in gravel, free of vegetation, or covered in ruderal vegetation, then no further vegetation surveys will be conducted at this site prior to its use. If the pre-construction survey identifies that suitable habitat for special-status plants is present, rare plant surveys will be conducted within the staging area. If any special-status plants are observed, they will be fenced off and avoided.	Verify biologist qualifications Conduct focused surveys as identified Provide survey report and map of identified and inventoried special-status plant locations if found Monitor in vicinity of identified special-status plant (qualified biologist) if needed use fencing, markers or flagging Implement avoidance measures, if needed Implement CPUC monitoring: Line item in monitoring report	Prior to construction Timing is plant-specific During construction Prior to construction/CPUC to review and approve and make additional recommendations for avoidance prior to issuance of Notice to Proceed During construction During construction	PG&E and CPUC * Applicable to all project components during construction

Notes: MMCRP = mitigation monitoring, compliance, and reporting program; MM = mitigation measure; APM = applicant proposed measure; CPUC = California Public Utilities Commission; PG&E = Pacific Gas & Electric Company.

D.4.6 References Cited

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

16 USC 703–712. Migratory Bird Treaty Act, as amended.

16 USC 1531–1544. Endangered Species Act of 1973, as amended.

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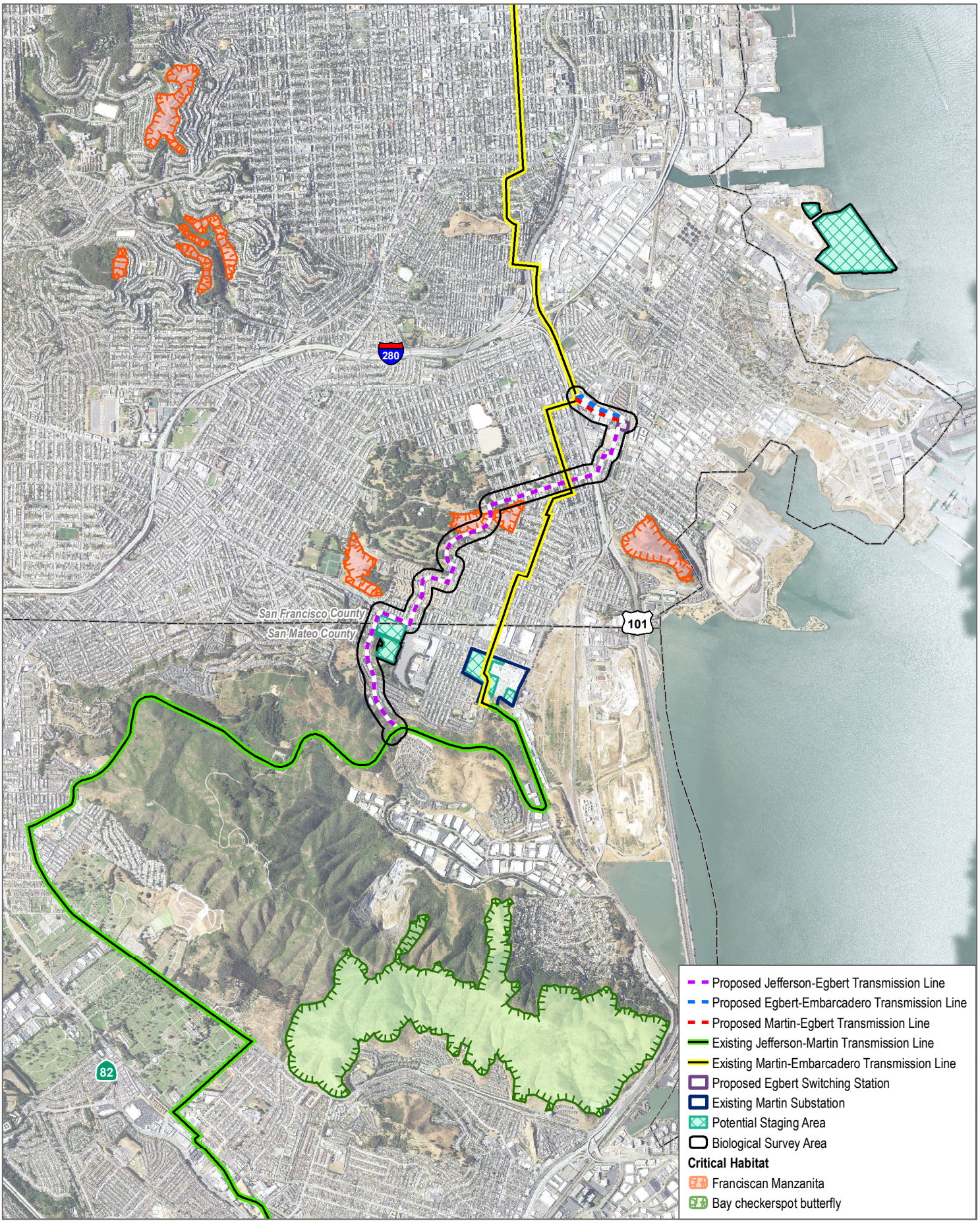
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SOURCE: USFWS 2019; USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

DUDEK

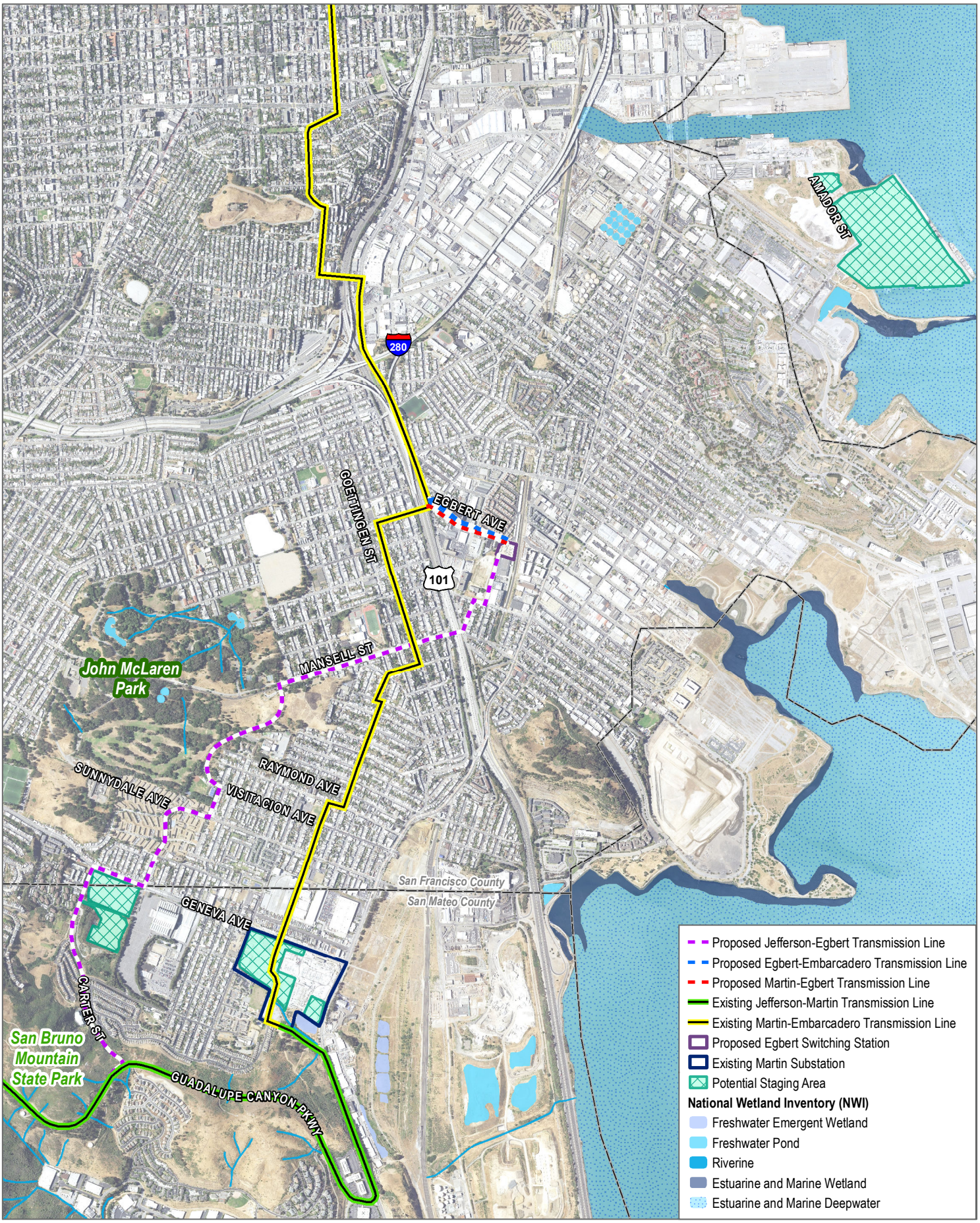
0 1,500 3,000 Feet

FIGURE D.4-1

USFWS Critical Habitat

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: USFWS 2019; USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

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0 1,500 3,000 Feet

FIGURE D.4-2

National Wetlands Inventory Mapping for the Project Site

Egbert Switching Station (Martin Substation Extension) Project

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D.5 CULTURAL RESOURCES

This section evaluates the potential for the Egbert Switching Station (Martin Substation Extension) Project (proposed project) and alternatives to impact both previously identified and unanticipated cultural resources on the project site during construction and operation. Section D.5.1 provides a description of the environmental setting, and Section D.5.2 provides applicable regulations. Potential impacts and mitigation measures for the proposed project are outlined in Section D.5.3, and the project alternatives are described in Section D.5.4. Mitigation monitoring, compliance, and reporting are discussed in Section D.5.5, and Section D.5.6 lists the references cited in this section. Cumulative effects are analyzed in Section F.5.2.4 of this EIR.

The discussion of cultural resources presented in this draft EIR and the evaluation of potential impacts on these resources as a result of proposed project implementation is based on the following technical reports and incorporated herein:

- Cultural Resources Study for PG&E's Egbert Switching Station Project, Far Western Anthropological Research Group Inc. (Confidential Appendix D.5-1)

D.5.1 Environmental Setting for the Proposed Project

Information presented in this chapter was gathered from a review of Pacific Gas & Electric Company's (PG&E's) environmental assessment (PG&E 2017), a cultural resources study (Confidential Appendix D.5-1), and Native American consultation.

D.5.1.1 Overview

Natural Environment

The project is located on the eastern side of the San Francisco Peninsula, and crosses the boundaries of the City and County of San Francisco, City of Daly City, and City of Brisbane (San Mateo County). Land use in the project vicinity is mostly urbanized. The project is within industrial and commercial zones and residential zones. The proposed Jefferson-Egbert transmission line crosses some open space areas near San Bruno Mountain and McLaren Park.

The San Francisco Peninsula is part of the Coast Ranges Physiographic Province, and consists of north-northwest-oriented ridges (Fenneman 1931). The Great Valley Physiographic Province is to the east, and the Pacific Ocean is to the west. The project is located in close proximity to the San Francisco Bay, which fills a north–northwest-trending structural trough in the central Coast Ranges between the San Andreas Fault to the southwest and the Hayward Fault to the northeast. Much of the modern-day bay shoreline, including portions of the project study area, was created by filling the bay to "reclaim" this area. The practice of creating land by placing artificial fill on

the gently sloping tidal flats along the eastern margin of the San Francisco Peninsula began near the time of the Gold Rush. The proposed switching station site and proposed transmission lines on Egbert Avenue are to the west of the known extent of artificial fill in an area of Pleistocene sediments with a low, flat topography.

In general, the topography of the San Francisco Peninsula consists of bedrock hills surrounding narrow valleys filled with unconsolidated deposits. Accordingly, the proposed Jefferson-Egbert transmission line crosses land that is alternately hilly and flat. The southern end begins on Guadalupe Canyon Parkway, which is along the Guadalupe Hills area of San Bruno Mountain. The line generally descends toward McLaren Park before rising to a high point along Mansell Street. Moving eastward, the line descends to the switching station.

The Franciscan Complex makes up the bedrock in the proposed Jefferson-Egbert route, and is exposed at higher elevation sites such as along Mansell Street and McLaren Park in the middle of the project study area and San Bruno Mountain on the southern end (USGS 1998a; USGS 1998b). Lower-lying portions of the project study area are covered with Holocene and Pleistocene epoch sediment. The Holocene and Pleistocene sediment lies unconformably on Franciscan Complex bedrock. Between the Pleistocene sediments and the Franciscan Complex, a period of 60 to 64 million years is not represented by any sediments whatsoever. The San Francisco Peninsula has alternated between being submerged beneath the bay and being dry land in response to glacially controlled fluctuations of sea level and perhaps tectonic uplift. This region may have been a topographic high where erosion rather than sedimentation prevailed. The beginning of tectonic downwarping of the San Francisco Bay trough during the early Pleistocene would account for the initiation of sedimentation.

D.5.1.2 History of the Project Site

Prehistoric

Archaeological evidence indicates that human occupation of the bay began sometime during the Early Holocene (ca. 11,700 to 8,200 years ago). However, relatively few archaeological sites have been found from this period, attributable at least in part to sea level rise that inundated parts of the area and deposited sediments on older landforms. These sediments would have covered the earliest evidence of human occupation, as indicated by the recovery of ancient human skeletons from as much as 13 meters (42 feet) below current mean sea level. These finds provide clear evidence that much of the early archaeological record remains buried and has yet to be discovered. As a result, very little is known about the nature of local and regional settlement and subsistence practices and the pace of culture change during the first several thousand years that Native Americans occupied the region.

The Late Holocene is very well documented in the Bay Area, with more than 200 dated sites occupied by complex hunter-gatherers. The beginning of the period saw the establishment of a number of large shell mounds along the bay margins, among them University Village (SMA-77), the Ellis Landing site (CCO-295), the San Bruno Mountain Mound (SMA-40), the Stege Mound (CCO-298), the West Berkley Mound (ALA-307), and ALA-17. Bay margin sites reveal a strong emphasis on marine shellfish (particularly bay mussel and oyster), marine fishes, and marine mammals. In contrast, interior sites emphasized freshwater fish and shellfish along with terrestrial mammals. Nuts and berries appear to have been particularly important plant resources.

More permanent settlement seems to have begun around 2,000 to 2,500 years ago. This time is considered by archaeologists to have been the heyday of mound building and is correlated with greater social complexity and ritual elaboration. Terrestrial resources appear to have been more heavily exploited than previously, with greater exploitation of deer and mussels, less reliance on oysters, and an increase in the use of acorns. By about 800 years ago, the native inhabitants had adopted bow and arrow technology and had established complex trading relationships with neighboring groups. They apparently relied heavily on small seeds as plant foods, while the faunal evidence indicates a wide range of animal resources—notably sea otters, rabbits, deer, clams (*Macoma* sp.), and horn snails (*Cerethedia* sp.). These patterns probably continued into the early historic period, at the time of nonnative contact.

Historic

The first European expedition into the San Francisco Bay Area occurred in 1772 when the Spaniard Pedro Fages and his party explored the eastern shore of San Francisco Bay north to San Pablo Bay, then traveled east along the southern shore of the Carquinez Strait and returned to the San Jose area through the Diablo and Livermore Valleys south of Concord. The Fages expedition encountered numerous Native American villages, and diarist Juan Crespí reported that the villagers welcomed the Spaniards, giving them food and gifts. No archaeological evidence of these explorations has been documented.

During the Spanish period (1776–1820), San Francisco (then known as Yerba Buena) saw the founding of a fortified military garrison or presidio, two missions, and a pueblo. Established in late June 1776, the San Francisco Presidio was situated along the northern edge of the peninsula.

The Spanish established Mission San Francisco de Asís (also known as Mission Dolores) in San Francisco in 1776, at a location west of Mission Bay. The first baptisms of local native people took place at Mission San Francisco de Asís on June 24, 1777. More baptisms followed, and Spanish priests began to recruit other Ohlone groups into the missions. This was followed almost immediately by catastrophic epidemics of European diseases, as well as food shortages, resulting in alarming death rates among the mission inhabitants. Because of introduced European diseases,

a declining birth rate, and high infant mortality, the overall Ohlone population decreased from at least 10,000 in pre-contact times to perhaps 2,000 by 1832, and to no more than 1,000 by 1852.

The missions of Alta California were never lucrative and thus were not considered a priority by distant Spanish authorities concerned with administering a number of colonial possessions. Following the ceding of Spain's North American colonial outposts to the newly independent Republic of Mexico in 1822, Alta California became, somewhat unwillingly, a province of the Republic of Mexico. Most of California south of Sonoma was under Mexican rule from 1821 to 1848. Historic-era settlement in the region began in earnest in 1823, and the Mexican government awarded large grants of land to wealthy and politically influential individuals willing to settle in what was still known as Alta California. In 1833–1834, the Mexican government secularized the Spanish missions, and many mission lands were also subsequently granted to individuals who established vast cattle raising estates or ranchos.

A small number of American and British merchants arrived in California during this period, many of them in search of beaver and sea otter pelts. Men like Jedediah Strong Smith and James Ohio Pattie established routes that would lay the groundwork for future westward migration.

European-American settlement of the San Francisco Peninsula outside of the Mission or Presidio began during the 1830s. The extremely profitable trade in hide and tallow led to an increased demand for imported goods throughout the San Francisco Bay area, which resulted in the appearance of retail establishments in Yerba Buena.

Ethnographic

The project site falls within the aboriginal territory of the Ohlone, once referred to by the Spanish as Costanos ("coastal people"). The aboriginal way of life for the Ohlone was disrupted by the influx of explorers and the establishment of missions by the Spanish in the late eighteenth century. Colonization and occupation of their land by Spanish, Mexican, and then Anglo-American immigrants substantially reduced native populations, displaced them, and dramatically altered their traditional ways of life. At the time of Spanish contact, the Bay Area and the Coast Range valleys were dotted with native villages; some early anthropologists estimated an aboriginal population of 7,000 to 10,000 Ohlone, with approximately 1,400 Ohlone inhabiting the area of modern San Francisco and San Mateo Counties in 1770.

For the Ohlone as a whole, the basic unit of political organization was a territory-holding group of one or more associated villages and smaller temporary encampments. These groups appear to have been independent, multifamily, land-holding groups. Each regional community was a largely autonomous polity numbering typically between 150 and 400 people, falling under the jurisdiction of a headman and council of elders who served as advisors to the villagers. Permanent villages were established near the coast and on river drainages, while temporary

camps were located in prime resource-processing areas. Some tribes occupied a central village, while others had several villages within a few miles of one another.

Prior to European contact, native people of the Bay Area were hunters, gatherers, and fisherfolk. Although they did not cultivate crops, the Ohlone practiced burning on an annual basis to ensure an abundance of seed-bearing annuals and forage for large game, and to facilitate the gathering of fall-ripening acorns. The most common type of housing consisted of small, hemispherical huts thatched with grasses and rushes. Other types of village structures included sweathouses, dance enclosures or plazas, and assembly houses. The Ohlone used a variety of stone tools, including knives, arrow and spear points, handstones and millingslabs, mortars and pestles, net sinkers, anchors, and pipes. They obtained tool stone from local quarries and acquired obsidian through trade. Many perishable items were made from tule (e.g., canoes, mats, and baskets), plant fibers (e.g., cordage, nets, and baskets), and animal skins (sea otter, rabbit, and duck skin blankets). Mortars, both bedrock and portable variants, were important components of acorn processing technology. The Ohlone used tule balsas for transportation, fishing, and duck hunting. These patterns persisted to the end of the prehistoric period, until they were completely disrupted by the arrival of the Spanish in the late eighteenth century, followed in the nineteenth century by Mexicans and Euro-Americans.

Historic Context

In 1837, the 8,880-acre Rancho Cañada de Guadalupe la Visitación y Rodeo Viejo was awarded by Mexican Governor Juan Alvarado to Jacob Primer Leese, a trader from Ohio who married María Rosalia Vallejo, sister of General Mariano Guadalupe Vallejo. Leese, who first came to California in 1833, took possession of the land grant in 1838, 3 years before he received official title to the land. The 1840 diseño indicates that the first structures—one of them presumably the Leese's home—were built in Guadalupe Valley, just south of the project study area. A few years later, Leese traded the rancho to English sailor Robert Ridley, who had also married a Mexican woman. Portions of the rancho changed ownership several times over the following years, and in the late 1860s the Visitacion Land Company acquiring the largest portion; by 1869 there were still only a few scattered structures and fenced parcels in the project study area. Through a series of sales and grants, 4,000 acres of the rancho came under the ownership of railroad magnate and banker Charles Crocker in the 1880s. By 1896, the project site was already partially developed, with roads laid out in grids and many structures along those roads. Development continued into the twentieth century, along with infilling of the bay.

Methodology

Records Search and Historical Research

Records searches were conducted in 2016 and 2017 by the Northwest Information Center (NWIC) of the California Historical Resources Information System. The 2016 records search covered a 2-mile radius around the existing Martin Substation. The NWIC is a repository of all archaeological site records, previously conducted cultural resources investigations, and historical information concerning cultural resources for 16 San Francisco Bay Area counties, including San Francisco and San Mateo Counties. The purpose of the 2016 records search was to compile information on previous cultural studies and known cultural resources within a 2-mile radius of Martin Substation. The purpose of the 2017 records search was to update and refine the earlier search in order to identify previous studies and known resources within a 0.25-mile radius (total width 0.5 miles) of the project site or project study area. The following sources were consulted during the records search:

- NWIC basemaps, U.S. Geological Survey San Francisco South 7.5-minute topographic quadrangle
- Survey reports and archaeological site records on file describing previously recorded cultural resources within a 0.25-mile radius of the project site
- California Department of Parks and Recreation's California Inventory of Historic Resources (CA-OHP 1976a) and the California Office of Historic Preservation's Historic Properties Directory (CA-OHP 2007), which combines cultural resources listed on the California Historical Landmarks (CA-OHP 1996) and California Points of Historic Interest (CA-OHP 1976b), and those that are listed in or determined eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR)
- Historical General Land Office plats and land grant maps (diseños) for the project site

In addition, the PG&E cultural resources database (maintained by Far Western Anthropological Research Inc.) was reviewed, and any additional studies or resources were added to the records search results.

Buried Site Sensitivity

An analysis of the sensitivity of the project routes for subsurface or buried resources included a consideration of historic-period resources that may lie beneath modern construction (e.g., streets, sidewalks, and buildings) and prehistoric resources that may have been buried by younger sediments or fill. The analysis included a consideration of local soils and geology, historical

shoreline locations, the presence or absence (and density) of historic-period development, the locations and extent of lands created by artificial fill, and locations of known cultural resources, to determine the sensitivity of the area of potential effect (APE) to contain surface or subsurface archaeological remains.

Cultural Resources Area of Potential Effect

The survey area included a minimum 300-foot-wide corridor of the proposed routes. Because most of the project elements would be constructed within existing paved streets, much of the APE is limited to the width of those streets. The *horizontal* project APE includes the location of the proposed Egbert Switching Station (1.7 acres); approximately 3.9 miles of new underground transmission line, to be installed primarily in paved streets, of which 420 feet would be installed under U.S. 101 using trenchless technology (probably auger boring); equipment removal at a small area within Martin Substation; and equipment staging and laydown areas in existing city streets, a warehouse, and/or on existing paved or graveled areas. The potential staging/laydown areas have existing industrial uses, including staging for construction for other projects, and no new ground disturbance is expected. The *vertical* APE for the project includes the depth of trenching, excavation, and trenchless work along the proposed routes (up to 15 feet); the equipment foundation removal at Martin Substation (up to 3 feet of concrete foundations, with no soil disturbance); and up to 100 feet at the proposed switching station site for ground rod installation.

Archaeological Survey

A pedestrian survey of the project routes was completed on May 5, 2017, beginning on the southern end at the intersection of Carter Street and Guadalupe Canyon Road. The survey team walked the entirety of the project APE to the intersection of Mansell Street and U.S. 101, and from Bacon Street to the eastern end of Egbert Avenue. Two areas could not be accessed: the paved lot behind 400 Paul Street was gated, and the proposed Egbert Switching Station site was located in an active construction staging and materials yard. These areas are paved, precluding a surface survey for cultural resources at this time. The potential staging areas (i.e., Amador Street, Cow Palace, Carter Street, and Martin Substation) are also paved or covered with gravel, or an active warehouse, making a surface survey infeasible. Moreover, use as staging areas would not involve ground disturbance or permanent impacts of any kind. The remaining portion of the APE along Crane Street was surveyed in its entirety.

Native American Coordination

Native American coordination began with the submission of a Sacred Lands file search request to the California Native American Heritage Commission (NAHC) on May 18, 2017. The NAHC responded on May 24, 2017, indicating that the file search was negative but providing a list of Native American groups and individuals with ancestral ties to the area. Under PG&E letterhead

and signature, letters were sent to these groups and individuals on May 25, 2017, and follow-up phone calls were made on June 8, 2017.

The proposed project is subject to compliance with Assembly Bill (AB) 52 (California Public Resources Code [PRC] Section 21074), which calls for consideration of impacts to TCRs as part of the California Environmental Quality Act (CEQA) process, and requires the lead agency to notify any NAHC-listed groups or representatives who previously requested notification of proposed projects within their traditional or culturally affiliated geographic area. The CPUC, acting as the lead agency for compliance with AB 52 and the primary contact for government-to-government consultation, has not received any requests for notification of proposed projects within the project site from NAHC-listed tribal representatives. Therefore, no project notification was required.

Results

Cultural Records Searches

The records searches identified a large number of previous studies within the project study area (0.5-mile-wide records search buffer), most of them linear surveys or small spot-surveys. These studies identified 17 resources, only 2 of which lie within the project APE. The Martin Substation compound itself has been recommended as a California Register Historic District: "Components of the district that contribute to its significance include the substation structure, transformer handling house [P-41-002205], pump house [P-41-002206], bus structures and transformers" (Maniery and Baker 2008:iv). Resources P-41-002307 and -002317 were not included in that study; therefore, they are listed in Table D.5-1 as unevaluated (Baker pers. comm., 2017). The eligible features are within the substation footprint but are not in the potential staging area or equipment removal area. Table D.5-1 summarizes the previous studies within the project study area and lists the known cultural resources in the project study area.

Table D.5-1
Previous Studies within the Project Study Area

Report Reference	Title	Author(s)	Year	Type	Intersects APE?
PM 42164689	Cultural Resources Constraints Report for EC15-101-2, City and County of San Francisco	R. Fies	2015	Records/Literature Search	No
PM 31228153	Cultural Resources Constraints Report; Gas Main Bayview, San Francisco, San Francisco County	A. Turner	2016	Archaeological Survey	Yes
PM 31068895	Cultural Resources Constraints Report: Gas Main Fitzgerald, City and County of San Francisco	E. Hammerle	2015	Archaeological Survey	No

Table D.5-1
Previous Studies within the Project Study Area

Report Reference	Title	Author(s)	Year	Type	Intersects APE?
PM 31025229	Cultural Resources Constraints Report for Gas Main Leland, City and County of San Francisco	E. Hammerle	2016	Records/Literature Search	No
—	Cultural Resources Constraints Report; Gas Main Raymond, City and County of San Francisco	E. Hammerle	2016	Archaeological Survey	No
PM 31228154	Cultural Resources Constraints Report; Gas Main Gilman Avenue, San Francisco, San Francisco County	A. Turner	2017	Archaeological Survey	No
PM 31017734	Cultural Resources Constraints Report; GPRP Replacement Cast Iron Subs, City and County of San Francisco	C. Harper	2014	Archaeological Survey	Yes
PM 31183624	Cultural Resources Constraints Report; GPRP Sunnydale, City and County of San Francisco;	E. Hammerle	2016	Archaeological Survey	Yes
T-018-12	Cultural Resources Constraints Analysis for Gas Hydrotesting at T-018-12	Far Western Anthro. Research	2012	Constraints Analysis	No
—	Cultural Resources Constraints Analysis for Gas Hydrotesting at T-39 on Gas Transmission Line 132	—	2011	Constraints Analysis	No
—	Cultural Resources Constraints Analysis for Gas Hydrotesting at T-37 on Gas Transmission Line 132	—	2011	Constraints Analysis	No
—	Cultural Resources Constraints Analysis for Gas Hydrotesting at T-38 on Gas Transmission Line 132	—	2011	Constraints Analysis	Yes
—	RE: Cultural Resources Study for the PG&E Line 109/132 Anode Project, San Mateo County, California	J. Thomas	2013	Archaeological Survey	No
—	Gas Lines 132 and 109 Replacement Study	—-	1991	Archaeological Survey	Yes
—	Draft: Overview Proposal; Potrero Power Plant 230 kV [kilovolt] Underground Transmission Line and Fuel Line	Wirth Associates Inc.	1978	Historical Overview	Yes
—	Potrero 7 Phase II Archaeological Test Excavations	Wirth Associates Inc.	1979	Archaeological Excavations (Testing)	Yes
30669061	Cultural Resources Constraints Report; R-20A Geneva Avenue Daly City, San Mateo and San Francisco Counties	B. Cox and D. Dang	2013	Archaeological Survey	No
S-10469	Archaeological Field Inspection of the Castro Heights Project Area, Daly City, San Mateo County, California (letter report)	M.P. Holman	1988	Archaeological Survey	No

Table D.5-1
Previous Studies within the Project Study Area

Report Reference	Title	Author(s)	Year	Type	Intersects APE?
S-11473	Cultural Resource Evaluation for the Property at 1750 Geneva Avenue in the City and County of San Francisco	—	1990	Archaeological Survey	No
S-13605	Report on Archaeological Monitoring of the Bayview Extension of the Auxiliary Water Supply System and Observations on CA-SFR-124, a Shell Midden Deposit at Lane Street and Shafter Avenue, Bayview District, San Francisco, California	—	1991	Survey/Monitoring	No
S-14361	An Archival Study of Two Traffic Signal and Intersection Improvement Projects (Geneva Avenue/Bayshore Boulevard and Geneva Avenue/Santos Street), Daly City, San Mateo County, California	E-M Solari	1992	Records/Literature Search	Yes
S-21196	Preliminary Cultural Resources Literature Review/Initial Architectural Field Review, Geneva Drive-In, Daly City (letter report)	C.I. Busby	1997	Archaeological Survey	Yes
S-22657	Phase 1 Archaeological Survey Along Onshore Portions of the Global West Fiber Optic Cable Project	—	2000	Archaeological Survey	No
S-24255	—	—	—	—	No
S-24854	—	—	—	—	No
S-25044	Archaeological Resources Review and Management Plan for the Muni Metro Third Street Light Rail Project (King Street to Sunnydale Avenue), San Francisco, California	J. Hupman and D. Chavez	2001	Management Plan	No
S-25045	Archaeological Resources Investigations for the Bayview-Hunters Point Redevelopment Plan, San Francisco, California	J.M. Hupman and D. Chavez	2001	Archaeological Survey	Yes
S-25225	Historic Architectural Survey Report, AT&T Wireless Services Site ID# 887, Cow Palace, 2500 Geneva, Daly City, San Mateo County, California	R. Windmiller	2002	Archaeological Survey	No
S-26045	Cultural Resources Reconnaissance Survey and Inventory Report for the Metromedia Fiberoptic Cable Project, San Francisco Bay Area and Los Angeles Basin Networks	R. Carrico T. Cooley, and W. Eck	2000	Archaeological Survey	Yes
S-27717	—	—	—	—	No
S-28633	—	—	—	—	No
S-28766	Archaeological Resources Investigations for the Bayview-Hunters Point Redevelopment Plan, San Francisco, California, Oakinba and South Basin Addition Activity Nodes	J.M. Hupman and D. Chavez	2004	Archaeological Survey	Yes

Table D.5-1
Previous Studies within the Project Study Area

Report Reference	Title	Author(s)	Year	Type	Intersects APE?
S-29657	Archaeological Inventory for the Caltrain Electrification Program Alternative in San Francisco, San Mateo, and Santa Clara Counties, California	W. Nelson	2002	Archaeological Survey	No
S-30669	—	—	—	—	No
S-31222	—	—	—	—	No
S-32606	Third Street Light Rail Project, San Francisco, California: Historic Property Survey Report	M.R. Corbett, D. Bradley, and William	1997	Archaeological Survey	No
S-33061	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project, State of California	N. Sikes	2006	Archaeological Survey	No
S-36313	Crystal Springs Pipeline No. 2 Replacement Project, San Francisco and San Mateo Counties, California: Historic Context and Archaeological Survey Report	—	2009	Archaeological Survey	Yes
S-36862	—	—	—	—	No
S-37046	Historical Resources Evaluation for Auxiliary Water Supply System, City and County of San Francisco	J. Mates	2009	Evaluation	No
S-37458	—	—	—	—	No
S-38298	Archaeological Sensitivity Assessment for the Sunnydale-Velasco Hope, San Francisco Redevelopment Project, City of San Francisco, California	B.F. Byrd, R. Allen, and J. Meyer	2011	Sensitivity Assessment	Yes
S-39561	Collocation Submission Packet, Cow Palace, CNU0887, 2500-2600 Geneva Avenue, Daly City	L. Billat	2012	Archaeological Survey	No
S-39730	—	—	—	—	No
S-43357	—	—	—	—	No
S-43960	—	—	—	—	No
S-44180	Draft Finding of Effect Caltrain Tunnel Rehabilitation Project, San Francisco, San Mateo, and Santa Clara Counties	M. Bunse	2003	Historical Survey	No
S-44996	Section 106 Federal Compliance for Land and Water Conservation Fund Project, McLaren Park Connector Trail	T. Moran	2013	Archaeological Survey	Yes
S-45493	—	—	—	—	No
S-45811	—	—	—	—	No
S-46177	—	—	—	—	Yes
S-47650	—	—	—	—	No
S-47839	—	—	—	—	No

Table D.5-1
Previous Studies within the Project Study Area

Report Reference	Title	Author(s)	Year	Type	Intersects APE?
S-47956	—	—	—	—	No
S-48266	Archaeological Research Design and Treatment Plan for the Biosolids Digester Facilities Project, Southeast Water Pollution Control Plant, San Francisco, California	B.F. Byrd, P. Kaijankoski, M.A. Russel, and R. Allen	2016	Research Design and Treatment Plan	Yes
S-5051	An Archaeological Reconnaissance of Portions and Land Proposed for Development by the Crocker Land Company on San Bruno Mountain in San Mateo County, California	M.P. Holman	1974	Archaeological Survey	Yes
S-6160	The Prehistory of San Francisco	M.O. Rudo	1982	Thesis	Yes
—	Cultural Resources Constraints Report; X-1112 Capacity (Circuit No.: X-1112), City and County of San Francisco; PM 30982911	E. Hammerle	2015	Archaeological Survey	Yes
S-35093	California Register of Historic Resources Evaluation for the Martin Transformer Handling House and Pump House at 3150 Geneva Avenue, in Brisbane, San Mateo County, California	M.L. Maniery and C.L. Baker	2008	Archaeological Survey	Yes
—	Addendum Cultural Resources Study for the PG&E Martin Cross-Tie Project	J. Thomas	2012	Archaeological Survey	Yes
S-38806	Cultural Resources Study for the Lomita Park, Martin, and Sullivan Regulator Stations Rebuild Project, San Mateo County, California	J. Thomas, MA, and C. Baker, MA	2012	Archaeological Survey	Yes
S-27930	Cultural Resource Assessment of Alternative Routes for PG&E's Jefferson-Martin Transmission Line, San Mateo County, California	K. Brown et al.	2003	Archaeological Survey	Yes
S-14725	Archival Literature Search and On-Site Archaeological Surface Reconnaissance of the Proposed Crystal Springs Pipeline, No. 1 Project, San Mateo County, California	A.G. Pastron	1993	Archaeological Survey	Yes
S-35093	California Register of Historic Resources Evaluation for the Martin Transformer Handling House and Pump House at 3150 Geneva Avenue, in Brisbane, San Mateo County, California	M.L. Maniery and C.L. Baker	2008	Evaluation	Yes
S-36313	Crystal Springs Pipeline No. 2 Replacement Project, San Francisco and San Mateo Counties, California: Historic Context and Archaeological Survey Report	—	2009	Archaeological Survey	Yes
30962675	Cultural Resources Constraints Report; HPR 2800 2850 3200 Bayshore, Brisbane, San Mateo County, PM 30962675	B. Cox and E. Hammerle	2013	Archaeological Survey	Yes

Table D.5-1
Previous Studies within the Project Study Area

Report Reference	Title	Author(s)	Year	Type	Intersects APE?
S-39265	Cultural Resources Study for the Martin Cross-Tie Project in the Cities of Brisbane and Daly City, San Mateo County, California	J. Thomas	2012	Archaeological Survey	Yes
P-38-004276	Hunters Point Power Station		No (Demolished)	P-38-004276	Hunters Point Power Station
P-38-004323	Industrial building	S-027717, S-030669, S-039730, S-047599, S-047956	No	P-38-004323	Industrial building
P-38-004339	Religious building	-	No	P-38-004339	Religious building
P-38-004354	1- to 3-story commercial building	S-024854, S-031222, S-037458	No	P-38-004354	1- to 3-story commercial building
P-38-004574	Single-family property	-	No	P-38-004574	Single-family property
P-38-004672	Well/Cistern; Water Conveyance System	-	No	P-38-004672	Well/Cistern; Water Conveyance System
P-38-004944	Overpass/Bridge	-	No	P-38-004944	Overpass/Bridge
P-38-005460	Overpass/Bridge	-	No	P-38-005460	Overpass/Bridge
P-41-002059	Civic Auditorium	-	No	P-41-002059	Civic Auditorium
P-41-002163	Red brick manhole	-	No	P-41-002163	Red brick manhole
P-41-002205	Martin Substation Transformer Handling House	S-35093	No	P-41-002205	Martin Substation Transformer Handling House
P-41-002206	Martin Substation Pump House	S-35093	No	P-41-002206	Martin Substation Pump House

Table D.5-1
Previous Studies within the Project Study Area

Report Reference	Title	Author(s)	Year	Type	Intersects APE?
-	Martin Substation structure, bus structures, and transformers	S-35093	No	-	Martin Substation structure, bus structures, and transformers
P-41-002307	Warehouse and public utility building	S-038806	Yes (potential staging area)	P-41-002307	Warehouse and public utility building
P-41-002317	Underground utility vault and manhole	-	Yes (potential staging area)	P-41-002317	Underground utility vault and manhole

Source: Confidential Appendix D.5-1.

Field Survey

Two historic-era cultural resources were identified during the pedestrian survey, both on Egbert Avenue. One was an abandoned rail line on the southern edge of the paved road (Temporary Number TH-01) composed of 2-1/2-inch-wide rails spaced 5 feet apart. The southeastern end of the rail line terminated abruptly, while the northwestern end terminated in a "Hayes-built"-style buffer stop. The railroad line does not appear on the 1939 U.S. Geological Survey San Mateo 15-minute quadrangle (perhaps because the map scale is less detailed), but it does appear on the 1947 San Francisco South 7.5-minute quadrangle, indicating that it dates no later than the mid-1940s. This feature has been recommended not eligible for the NRHP or the CRHR (JRP Historical Consulting 2017).

The second feature, a metal manhole/drain cover (Temporary Number TH-02), was located just north of the proposed switching yard. It indicates that additional drainage features (pipes) are present below the roadway. The metal grate is embossed with "SF CAL 1942." Many nearly identical examples exist elsewhere in San Francisco and have been recommended ineligible for the CRHR (Waechter et al., 2017). This feature has been recommended not eligible for the NRHP or the CRHR (JRP Historical Consulting 2017).

Also, noted during the survey was a row of Victorian-era residences along Crane Street. While the 300-foot survey corridor did include some of these residences, impacts to these buildings would be completely avoided during project construction.

There is also a historic-era structure at 400 Paul Avenue (formerly identified as 320 Paul Avenue). According to the Mitigated Negative Declaration for the 320-400 Paul Avenue Data Center and Associated Extension of PG&E 12kV Electrical Distribution Circuits (San Francisco Planning Department 2014), this site:

> Contains three vacant industrial buildings (320, 350, and 400 Paul Avenue) totaling approximately 150,760 square feet in area. The planned improvements include the renovation of the front two buildings (320 and 350 Paul Avenue) for administrative and office uses … and the demolition and replacement of the 95,000-square-foot rear building… The 320 Paul Avenue building was determined to be a historic resource for CEQA [California Environmental Quality Act] purposes under Criterion 3 due to its architectural features. … The buildings at 350 and 400 Paul Avenue were determined to be ineligible for listing in the California Register, nor are they part of a historic district, and therefore, are not a [sic] historic resources for CEQA purposes.

Native American Consultation

Letters were sent to six tribal representatives on May 25, 2017, requesting information or concerns regarding Native American cultural resources that could be affected by the proposed project. No tribes identified any cultural resources or tribal cultural resources within or near the project site. Mr. Andrew Galvin, with the Ohlone Indian Tribe, requested additional project information, specifically regarding ground disturbance. Additionally, two representatives did not respond; two representatives had no concerns about the project site; and one representative deferred to the Ohlone Indian Tribe. A complete discussion of tribal cultural resources and results of formal Assembly Bill 52 consultation are included in Section D.14, Tribal Cultural Resources.

D.5.2 Applicable Regulations, Plans, and Standards

Federal Regulations, Plans, and Standards

National Historic Preservation Act

The NRHP is the United States' official list of districts, sites, buildings, structures, and objects worthy of preservation. Overseen by the National Park Service under the U.S. Department of the Interior, NRHP was authorized under the National Historic Preservation Act, as amended. Its

listings encompass all National Historic Landmarks and historic areas administered by the National Park Service.

NRHP guidelines for the evaluation of historic significance were developed to be flexible and to recognize the accomplishments of all who have made significant contributions to the nation's history and heritage. Its criteria are designed to guide state and local governments, federal agencies, and others in evaluating potential entries in the NRHP. For a property to be listed in or determined eligible for listing, it must be demonstrated to possess integrity and to meet at least one of the following criteria (NPS 1995):

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

Integrity is defined in the NPS's NRHP guidance as "the ability of a property to convey its significance. To be listed in the NRHP, a property must not only be shown to be significant under the NRHP criteria, but it also must have integrity" (NPS 1995). The NRHP guidance further states that properties must have been completed at least 50 years ago to be considered for eligibility. Properties completed fewer than 50 years before evaluation must be proven to be "exceptionally important" (criteria consideration G) to be considered for listing.

A historic property is defined as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the NRHP criteria" (36 CFR 800.16[i][1]).

Effects on historic properties under Section 106 of the National Historic Preservation Act are defined in the Code of Federal Regulations (36 CFR 800.5[a][1]):

> An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

Adverse effects on historic properties are clearly defined and include the following (36 CFR 800.5[2]):

(i) Physical destruction of or damage to all or part of the property;

(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines;

(iii) Removal of the property from its historic location;

(iv) Change of the character of the property's use or of physical features within the property's setting that contributes to its historic significance;

(v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;

(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and

(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

To comply with Section 106, the criteria of adverse effects are applied to historic properties if any exist in a project's APE, pursuant to Title 36, Part 800.5(a)(1), of the Code of Federal Regulations. If no historic properties are identified in the APE, a finding of "no historic properties affected" would be made for the proposed project. If there are historic properties

in the APE, application of the criteria of adverse effect would result in project-related findings of either "no adverse effect" or "adverse effect." A finding of no adverse effect may be appropriate when the undertaking's effects do not meet the thresholds for the criteria of adverse effect (36 CFR 800.5[a][1]), in certain cases when the undertaking is modified to avoid or lessen effects, or if conditions were imposed to ensure review of rehabilitation plans for conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties (codified in 36 CCR, Part 68).

If adverse effects findings are expected to result from the proposed project, mitigation would be required, if feasible, and resolution of those adverse effects by consultation may occur to avoid, minimize, or mitigate adverse effects on historic properties pursuant to Title 36, Part 800.6(a), of the Code of Federal Regulations.

State Regulations, Plans, and Standards

California Register of Historical Resources

In California, the term "historical resource" includes "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (California Public Resources Code, Section 5020.1[j]). In 1992, the California legislature established the CRHR "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (California Public Resources Code, Section 5024.1[a]). The criteria for listing resources in the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the NRHP. According to California Public Resources Code, Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
2) Is associated with the lives of persons important in our past.
3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
4) Has yielded, or may be likely to yield, information important in prehistory or history.

To understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than 50 years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (14 CCR 4852[d][2]).

The CRHR protects cultural resources by requiring evaluation of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

California Environmental Quality Act

As described further below, the following CEQA statutes (California Public Resources Code, Section 21000 et seq.) and CEQA Guidelines (14 CCR 15000 et seq.) are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- California Public Resources Code, Section 21083.2(g), defines "unique archaeological resource."
- California Public Resources Code, Section 21084.1, and CEQA Guidelines, Section 15064.5(a), define "historical resources." In addition, CEQA Guidelines, Section 15064.5(b), defines the phrase "substantial adverse change in the significance of an historical resource"; it also defines the circumstances when a project would materially impair the significance of a historical resource.
- California Public Resources Code, Section 21074(a), defines "tribal cultural resources."
- California Public Resources Code, Section 5097.98, and CEQA Guidelines, Section 15064.5(e), set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.
- California Public Resources Code, Sections 21083.2(b) and 21083.2(c), and CEQA Guidelines, Section 15126.4, provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation in place mitigation measures. Preservation in place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site.

Under CEQA, a project may have a significant impact on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (California Public Resources Code, Section 21084.1; 14 CCR 15064.5[b]). If a site is either listed or eligible for

listing in the CRHR, or if it is included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of California Public Resources Code, Section 5024.1[q]), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA (California Public Resources Code, Section 21084.1; 14 CCR 15064.5[a]). The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (California Public Resources Code, Section 21084.1; 14 CCR 15064.5[a]).

A "substantial adverse change in the significance of an historical resource" reflecting a significant impact under CEQA means "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" (14 CCR 15064.5[b][1]; California Public Resources Code, Section 5020.1[q]). In turn, the significance of a historical resource is materially impaired when a project does any of the following (14 CCR 15064.5[b][2]):

1) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or
2) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the PRC or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the PRC [California Public Resources Code], unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
3) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA.

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any "historical resources," then evaluates whether that project would cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance would be materially impaired.

If it can be demonstrated that a project would cause damage to a unique archaeological resource, the lead agency may require that reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (California Public Resources Code, Sections 21083.2[a]–21083.2[c]).

California Public Resources Code, Section 21083.2(g), defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Impacts to non-unique archaeological resources are generally not considered a significant environmental impact (California Public Resources Code, Section 21083.2(a); 14 CCR 15064.5[c][4]). However, if a non-unique archaeological resource qualifies as a tribal cultural resource (California Public Resources Code, Sections 21074[c], 21083.2[h]), further consideration of significance is required.

CEQA Guidelines, Section 15064.5, assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in California Public Resources Code, Section 5097.98.

California Health and Safety Code

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. California Health and Safety Code, Section 7050.5, requires that, if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains can occur until the county coroner has examined the remains (California Health and Safety Code, Section 7050.5[b]). California Public Resources Code, Section 5097.98, also outlines the process to be followed in the event that remains are discovered. If the county coroner determines or has reason to believe that the remains are those of a Native American, the county coroner must contact the California NAHC within 24 hours (California Health and Safety Code, Section 7050.5[c]). The NAHC would notify the most likely descendant. With the permission of the landowner, the most likely descendant may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the most likely descendant by NAHC. The most likely descendant may recommend the means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

Assembly Bill 52

Assembly Bill 52 established that tribal cultural resources must be considered under CEQA and provided for additional Native American consultation requirements for the lead agency. A tribal cultural resource is a site, feature, place, cultural landscape, sacred place, or object that is considered of cultural value to a California Native American tribe. A tribal cultural resource is one of the following:

1. On the CRHR or a local historic register.
2. Eligible for the CRHR or a local historic register.
3. Determined by the lead agency to meet the register criteria.

A project that has potential to impact a tribal cultural resource such that it would cause a substantial adverse change constitutes a significant effect on the environment unless mitigation reduces such effects to a less-than-significant level.

Local Regulations, Plans, and Standards

Background research indicated that no cultural resources designated for local listing are found on the project site. Because the California Public Utilities Commission (CPUC) has exclusive jurisdiction over the siting, design, and construction of the proposed project, the proposed project is not subject to local discretionary land use regulations. However, the following analysis of local regulations relating to cultural resources is provided for informational purposes and to assist with CEQA review.

City and County of San Francisco

San Francisco Planning Commission Articles 10 and 11. San Francisco Planning Commission Articles 10 and 11 establish listings of important city landmarks, historic districts, and conservation districts. City landmarks include buildings, landscape features, and sites. Historic districts are composed of thematically related significant resources. Conservation districts are groupings of architecturally distinctive, historic-era structures in the downtown area (San Francisco Planning Department 2012).

San Francisco Preservation Bulletins. San Francisco Preservation Bulletins No. 9 and 10 list 230 city landmarks, 11 historic districts, and 6 conservation districts. In addition, the City and County of San Francisco recognize approximately 30 historic districts that are listed on the NRHP, the CRHR, and National Historic Landmarks. San Francisco Preservation Bulletins No. 1 through 21 outline the process for submitting, reviewing, and approving new landmarks and districts and provide legal compliance guidelines with respect to cultural resources (San Francisco Planning Department 2012).

Daly City General Plan

The Resource Management Element of the Daly City General Plan (City of Daly City 2013) has the following stated goal: "Ensure the enhancement and preservation of existing resources by effectively managing their development and conservation and providing adequate recreational open space for future generations." Concerning cultural resources, the goal is to preserve both historical and archaeologically significant resources and to "effectively manage the development and conservation" of those resources as follows:

- **Policy RME-19:** Undertake measures to protect and preserve historical and archaeological resources.
  - **Task RME-19.1:** Comply with State statues related to historical and archaeological resources.
  - **Task RME-19.2:** Serve as a leader in historic preservation by preserving, restoring, and reusing City-owned historic resources where feasible.
  - **Task RME-19.3:** Through the City's Facade Improvement Program, encourage the preservation of facades and exteriors that exhibit historical architectural characteristics, e.g., those identified by the City's Mission Street Urban Design Plan.
  - **Task RME-19.4:** Continue to support community projects that will add to the knowledge of Daly City's past, including the continuing work of the History Guild of Daly City/Colma and the Daly City History Museum.
  - **Task RME-19.5:** Cooperate with civic organizations in the placement of appropriate monuments or plaques to publicize or memorialize historic sites.
- **Policy RME-20:** Recognize the physical differences between different parts of the City and regulate land uses within these areas accordingly.
  - **Task RME-20.1:** Retain elements in the Zoning Ordinance which effectively preserve the architectural character of Daly City's older neighborhoods (e.g., setback and tandem parking allowances).
  - **Task RME-20.2:** Amend the Zoning Ordinance to provide development regulations that more closely reflect the predominant neighborhood character established when the neighborhood was constructed (e.g., provide for three-foot side yard setbacks in Westlake where there is currently no side setback required). Where necessary, establish either separate or overlay zoning districts for such neighborhoods.
  - **Task RME-20.3:** Update the Residential Design Guidelines to provide bulk, mass, and architectural guidelines for exterior additions and reconstructed homes in neighborhoods which possess unique architectural characteristics.

- **Task RME-20.4:** Incorporate design features in new development that reflects the character of the neighborhood, to ensure that new construction is compatible with existing development.

City of Brisbane General Plan

Section IX.5 of the City of Brisbane's General Plan (City of Brisbane 1994) addresses cultural resources, which it defines as "historical resources, which include structures over 50 years old, and prehistoric resources, generally archeological sites." According to the General Plan (City of Brisbane 1994):

> Brisbane has several older structures that remain from the railroad period, including the Roundhouse, as well as some residential structures of significance to the history of the City … Several archeological sites have been recorded in this locality. City policy to preserve archeological resources is based on consistency with CEQA requirements.

The City of Brisbane's policies for management of these resources are as follows:

- **Policy 136:** Encourage the maintenance and rehabilitation of structures important to the history of Brisbane.
  - **Program 136a:** Provide assistance to owners of historic property in planning rehabilitation projects.
  - **Program 136b:** Provide information to property owners on loan and grant funds and tax incentives.
  - **Program 136c:** Provide local incentives, such as the Brisbane Star awards, to maintain historic places.
- Policy 137: Conserve pre-historic resources in accordance with State and Federal requirements.
  - **Program 137a:** Consider amendments to the Zoning Ordinance to require resource surveys in conjunction with land use development applications and to establish procedures in the event of discovery to protect Native American Cultural Resources consistent with the standardized procedures given in Appendix K of CEQA.

D.5.3 Environmental Impacts and Mitigation Measures

D.5.3.1 Definition and Use of Significance Criteria

CEQA states that a project that may cause a substantial adverse change in the significance of a historical resource or that may have a significant effect on a unique archaeological resource may have a significant effect on the environment. The lead agency is required to determine whether a proposed project may adversely affect historical resources or unique archaeological resources. CEQA Section 15064.5 states: Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the CRHR. Unique archaeological resources are defined as artifacts, objects, or sites that contain information that can answer an important scientific research question, has a special and particular quality, or is directly associated with an important prehistoric or historic event or person (California Public Resources Code 21083.2[g]).

In accordance with Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on cultural resources if the proposed project would:

Impact CR-1	Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5
Impact CR-2	Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5
Impact CR-3	Disturb any human remains, including those interred outside of formal cemeteries

Project impacts on cultural resources are defined by CEQA as a change in the characteristics of a resource that convey its significance or justify its eligibility for inclusion in the NRHP, the CRHR, or a local historical register. Direct impacts may occur by (1) physically damaging, destroying, or altering all or part of a resource; (2) altering characteristics of the surrounding environmental setting that contribute to the significance of a resource; (3) allowing a resource to deteriorate through neglect; or (4) incidental discovery of archaeological resources without proper notification. Direct impacts can be assessed by determining the exact location of historical resources and assessing their significance under CEQA criteria, identifying the types and extent of the proposed impacts and their effect on significant resources, and determining appropriate measures to reduce impacts to less-than-significant levels. Indirect impacts may include changes to the viewshed of a significant resource through introduction of a new project element.

CEQA recommends avoidance or preservation in place as the preferred treatment for eligible properties and unique or important archaeological or historical resources (California Public Resources Code 21083.2). If avoidance is not a feasible option, data recovery is a common

treatment. For architectural resources, if physical changes to a property—excluding demolition—can be treated following the Secretary of Interior Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings, the project-related impact on the historical resource will generally be considered to be reduced to a less-than significant level.

D.5.3.2 Applicant Proposed Measures

Table D.5-2 includes Applicant Proposed Measures (APMs) proposed by PG&E to avoid project impacts related to cultural resources.

Table D.5-2
Applicant Proposed Measures for Cultural Resources

APM No.	Description
APM CR-1	APM Cultural Resources (CR)-1: Pre-construction Survey. Any locations that will be subject to ground disturbance but which were not accessible during the pedestrian survey will be surveyed by a CRS/archaeologist prior to project construction under the direction of the PG&E CRS. This will include the location of the proposed Egbert Switching Station and the work area for the proposed Jefferson-Egbert line on the 200 Paul Avenue and 400 Paul Avenue parcels; potential staging areas at Amador Street, Cow Palace, Carter Street, and Martin Substation; and any built-over areas that will be cleared for construction that were not previously surveyed. Although there have been no resources recorded in the vicinity of these locations, the proposed switching station and adjacent parcels have high sensitivity to contain buried or subsurface archaeological remains. Any archeological or historical sites, artifacts, or features identified during the surveys will be examined to determine whether further investigation is needed. If project work is occurring within 100 feet of the find, the work will be immediately redirected from within 100 feet of the find as soon as it is safe to do so. If the discovery can be avoided or protected and no further impacts will occur, the resource will be documented on California Department of Parks and Recreation 523 forms to be submitted to the PG&E CRS and the California Historical Resources Information System NWIC, and no further effort will be required.
APM CR-2	APM CR-2: Worker Environmental Awareness Program Cultural Resources Module. Because there are areas of High or Highest sensitivity for buried cultural resources, all project field personnel will be given training on cultural resources identification and protection, and the laws and penalties governing such protection. This training may be administered as a stand-alone session or included as part of the overall environmental awareness training as required by the project. The training will include, at a minimum, these elements: • A review of the environmental setting (prehistory, ethnography, history) associated with the project • A review of Native American cultural concerns and recommendations during project implementation • A review of applicable federal, state, and local laws and ordinances governing cultural resources and historic preservation • A review of what constitutes prehistoric or historic-era archaeological deposits (including maritime archaeological resources) and what the workers should look out for • A discussion of site avoidance requirements and procedures to be followed in the event unanticipated cultural resources are discovered during construction • A discussion of procedures to follow in the event human remains are discovered during construction • A discussion of disciplinary and other actions that could be taken against persons violating historic

Table D.5-2
Applicant Proposed Measures for Cultural Resources

APM No.	Description
	preservation laws and PG&E policies • A discussion of eligible and potentially eligible built environment resources and procedures to follow regarding minimizing vibration from equipment in designated areas • A statement by the construction company or applicable employer agreeing to abide by the program conditions, PG&E policies, and applicable laws and regulations All on-site project personnel, including those arriving after the start of construction, will attend this training before beginning work on the project.
APM CR-3	APM CR-3: Construction Monitoring. In high-sensitivity areas where a survey was not feasible (i.e., areas are covered with pavement or buildings), a qualified archaeologist will be present to monitor all ground-disturbing construction activities. The monitor will have the authority to halt the ground-disturbing work activity(ies) temporarily within 100 feet of a find when safe to do so to assess the find. The assessment, and any subsequent evaluation, will follow the processes described in APM CR-4. Monitoring at these locations can be reduced if, after initial monitoring, it is determined there is a low likelihood of identifying cultural resources.
APM CR-4	APM CR-4: Inadvertent Discoveries of Cultural Deposits. In the event that previously unidentified archaeological, cultural, or historical sites, artifacts, or features are uncovered during implementation of the project, ground-disturbing work will be suspended within 100 feet of the find and redirected to another location. A CRS or his/her designated representative will examine the discovery and determine whether additional work is needed or whether the buffer requires adjustment. The CRS will coordinate with the PG&E CRS and the state and federal 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 federal and state laws outlined above; personnel will implement data recovery or other appropriate treatment measures if warranted. A qualified historical archaeologist will complete an evaluation of historical-period resources, while evaluation of prehistoric 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 CR-5	APM CR-5: Unanticipated Discovery of Human Remains. If human remains, or suspected human remains, are discovered during construction, work within 100 feet of the find will stop immediately and the construction foreman will contact the designated PG&E CRS; the specialist will then call the San Francisco or San Mateo County Coroner, as appropriate. There will be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlie adjacent remains, until the county coroner has determined that the remains are not subject to provisions of Section 27491 of the Government Code. If the medical county coroner determines the remains to be Native American, he/she will contact the NAHC within 24 hours. The NAHC will appoint a Most Likely Descendent for recommendations on the treatment and disposition of the remains (Health and Safety Code Section 7050.5, PRC Section 5097.24).

Notes: CRS = cultural resource specialist.

D.5.3.3 Impact Discussion

Impact CR-1 Would the project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

As described in Section D.5.1, the only historic resources located within the proposed project APE are two unevaluated historic-era resources located within a potential staging area in the Martin Substation. These include a standing warehouse structure (P-41-2307) and an underground utility vault and covered manhole constructed in the early twentieth century (P-41-2317). However, there would be no ground disturbance during use of the potential staging area, and the two recorded resources would be avoided. Additional historic features that were encountered during the pedestrian survey were not located within the project APE and would not be impacted by the proposed project during construction or operation. If historic resources are discovered during surveys of previously inaccessible areas, as proposed by APM CR-1, or as a result of ground-disturbing activities, implementation of APM CR-2 (requiring pre-construction worker awareness training), APM CR-3 (requiring construction monitoring by a qualified archaeologist), and APM CR-4 (providing protocols for response, avoidance, and evaluation of inadvertent archaeological discoveries) would substantially reduce adverse effects. Consequently, the proposed project would not cause a substantial adverse change in the significance of a historical resource; therefore, impacts would be less than significant.

Project operation and maintenance activities would be conducted in areas previously disturbed during construction and would occur within city streets or facilities. Future maintenance operations would involve routine maintenance and inspection activities at the proposed Egbert Switching Station site. Since no resources have been identified that meet the significance criteria for historical resources under CEQA, and the proposed project operation and maintenance activities would not have an adverse effect on archaeological or historical resources, any potential impacts would be considered less than significant (Class III).

Impact CR-2 Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

As described in Section D.5.1, the cultural resources study prepared for the proposed project did not identify any known archaeological resources or sites within the project APE (Confidential Appendix D.5-1). However, archaeological resources have the potential to be discovered during project ground-disturbing activities, such as excavation and trenching. The buried site sensitivity analysis prepared for the project site determined that the majority of the project site has a low to lowest potential to contain prehistoric archaeological sites, with a small portion having moderate potential. Martin Substation, as well as the northernmost part of the project alignment, are estimated to have a high to highest potential for prehistoric archaeological sites. To determine potential for archaeological sites, artifacts, or features in areas that were not accessible during the

pedestrian survey, these areas would be surveyed by a cultural resources specialist/archaeologist prior to project construction in accordance with APM CR-1. Furthermore, implementation of APM CR-2 would require project field personnel to obtain training on cultural resources identification and protection, and the laws and penalties governing such protection. Additional APMs would include APM CR-3, which would require construction monitoring by a qualified archaeologist, and APM CR-4, which defines identification and evaluation protocols to be implemented in the event of inadvertent discovery of cultural resources. With these measures, the proposed project would not cause a substantial adverse change in the significance of an archaeological resource. Impacts would be less than significant (Class III).

Project operation and maintenance would not be ground disturbing and would occur within city streets or facilities. As such, project operation and maintenance would not cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5. No impact will occur (No Impact).

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

Cultural resources archival research, intensive-level pedestrian survey, and correspondence with NAHC and NAHC-listed Native American tribal representatives did not identify the presence or receive information related to human remains within the project site. However, there is the potential to encounter unanticipated human remains during construction, particularly in those areas identified as having high sensitivity for buried or subsurface resources. APM CR-5 would be implemented should human remains be discovered, which requires following protocols defined in California Health and Safety Code, Section 7050.5, and California Public Resources Code, Section 5097.98. Impacts to human remains would remain less than significant (Class III).

D.5.4 Project Alternatives

D.5.4.1 Bayshore Switching Station Alternative

Environmental Setting

The Bayshore Switching Station Alternative would be constructed in the Baylands subarea of the City of Brisbane. Bayshore Boulevard, directly west of the alternative switching station site, generally traces the early bay shoreline. After the 1906 San Francisco earthquake, the area west of the rail corridor was filled, primarily with demolition rubble, and the area east of the railroad was filled through the 1950s, extending the shoreline of the bay further east. The alternative switching station site and transmission alignments east of Bayshore Boulevard would be located on artificial fill placed between 1900 and 1939 (City of Brisbane 2013).

No archaeological resources have been recorded within the alternative switching station site. The Machinery and Equipment Building (former SPRR Ice Manufacturing Plant) is located directly east of the alternative switching station site. The structure was constructed in 1924 and is defined as a historical resource by the City of Brisbane (City of Brisbane 1994).

The majority of the alternative Martin-Geneva transmission line along Bayshore Boulevard and to the west was covered by the cultural resources records search prepared for the proposed project (Confidential Appendix D.5-1). One cultural resource, concrete foundations of a dairy barn and outbuildings (P-41-00314), has been previously recorded near the alternative line, south of Main Street. Additionally, components within the Martin Substation (P-41-002205, P-41-002206) are eligible for the California Register, but the connection at the Martin Substation would not impact these resources. Portions of the alternative Martin-Bayshore transmission line segment are located in areas of moderate/high-to-high sensitivity for historic resources and lowest sensitivity for buried prehistoric resources.

Environmental Impacts and Avoidance Measures

Impact CR-1: The historic Machinery & Equipment building is located directly east of the alternative switching station site. The Bayshore Switching Station Alternative would not directly impact the historic structure. No other historic resources were identified within the alternative switching station site or transmission alignment. To avoid potential impacts to unknown historic resources within the alternative switching station site and transmission alignment, a pre-construction field survey would be required (APM CR-1) in areas not surveyed as part of the proposed project. Additionally, implementation of APM CR-2 (requiring pre-construction worker awareness training), APM CR-3 (requiring construction monitoring by a qualified archaeologist), and APM CR-4 (providing protocols for response, avoidance, and evaluation of inadvertent archaeological discoveries) would substantially reduce adverse effects to unknown historical resources. Therefore, impacts to historic resources would be less than significant (Class III).

Impact CR-2: The alternative Bayshore Switching Station and transmission alignments east of Bayshore Drive consist of artificial fill associated with the 1906 earthquake, and this artificial fill would not likely yield important historic data. No archaeological resources were identified within the alternative Bayshore Switching Station site or transmission alignment (Confidential Appendix D.5-1). However, archaeological resources have the potential to be discovered during project ground-disturbing activities, such as excavation and trenching. The alternative transmission alignments are located in an area with very low sensitivity for subsurface prehistoric resources, except for an area of low-to-moderate sensitivity along Bayshore Boulevard (Confidential Appendix D.5-1). To avoid potential impacts to unknown archaeological resources within the alternative switching station site and transmission alignment, a pre-construction field survey would be required (APM CR-1) in areas not surveyed as part of

the proposed project. In addition, implementation of APM CR-2 (requiring pre-construction worker awareness training), APM CR-3 (requiring construction monitoring by a qualified archaeologist), and APM CR-4 (providing protocols for response, avoidance, and evaluation of inadvertent archaeological discoveries) would substantially reduce adverse effects to unknown historical resources, and impacts would be less than significant (Class III).

Impact CR-3: There are no records of human remains within the alternative Bayshore Switching Station site and transmission alignment. However, there is a potential to encounter unanticipated human remains during construction, particularly in areas near the Martin Substation identified as having high sensitivity for historic-era resources at the north end of the alternative Bayshore-Embarcadero transmission line segment. APM CR-5 regarding discovery of human remains would be implemented during construction. APM CR-5 would be followed consistent with protocols defined in California Health and Safety Code, Section 7050.5, and California Public Resources Code, Section 5097.98. Impacts to human remains would remain less than significant (Class III).

Comparison to the Proposed Project

The Bayshore Switching Station Alternative is anticipated to result in reduced impacts to historic resources compared to the proposed project, because the alternative transmission line segments would result in less ground disturbance in areas within high sensitivity for presence of historic-era resources. The Bayshore Switching Station Alternative would also be less likely to impact archaeological resources compared to the proposed project, because the alternative switching station site is located on artificial fill that is unlikely to contain archeological resources and the alternative transmission lines would require less ground disturbance, particularly in areas with moderate-to-high sensitivity for presence of buried prehistoric resources. Implementation of APM CR-1, APM CR-2, APM CR-3, APM CR-4, and APM CR-5 would reduce potential inadvertent impacts to cultural resources, including human remains, during ground-disturbing activities.

D.5.4.2 Geneva Switching Station Alternative

Environmental Setting

The alternative Geneva Switching Station and transmission lines are located within the APE for the cultural records search performed for the proposed project (Confidential Appendix D.5-1). The records search identified six resources within the vicinity of the alternative Geneva Switching Station site and transmission lines, including Cow Palace, components of the Martin Substation, and a red brick manhole south of Main Street. No known cultural resources were identified within the alternative switching station site or transmission alignment.

The alternative switching station site is within an area of low sensitivity for subsurface historic-era resources and lowest sensitivity for subsurface prehistoric resources. The alternative

transmission alignments are in areas of low to moderate sensitivity for subsurface historic-era resources and lowest sensitivity for subsurface prehistoric resources, except for an area of low-to-moderate sensitivity along Carter Street (Confidential Appendix D.5-1).

Environmental Impacts and Avoidance Measures

Impact CR-1: No historic resources were identified within the alternative Geneva Switching Station site or transmission alignment (Confidential Appendix D.5-1). To avoid potential impacts to unknown historic resources within the alternative switching station site and transmission alignment, a pre-construction field survey would be required (APM CR-1) in areas not surveyed as part of the proposed project. Additionally, implementation of APM CR-2 (requiring pre-construction worker awareness training) and APM CR-4 (providing protocols for response, avoidance, and evaluation of inadvertent archaeological discoveries) would substantially reduce adverse effects to unknown historical resources, and impacts would be less than significant (Class III).[1]

Impact CR-2: No archaeological resources were identified within the alternative Geneva Switching Station site or transmission alignment (Confidential Appendix D.5-1). However, archaeological resources have the potential to be discovered during project ground-disturbing activities, such as excavation and trenching. The alternative transmission alignments are located in an area with lowest sensitivity for subsurface prehistoric resources, except for an area of low-to-moderate sensitivity along Carter Street (Confidential Appendix D.5-1). To avoid potential impacts to unknown archaeological resources within the alternative switching station site and transmission alignment, a pre-construction field survey would be required (APM CR-1) in areas not surveyed as part of the proposed project. Additionally, implementation of APM CR-2 (requiring pre-construction worker awareness training) and APM CR-4 (providing protocols for response, avoidance, and evaluation of inadvertent archaeological discoveries) would substantially reduce adverse effects to unknown historical resources, and impacts would be less than significant (Class III).[1]

Impact CR-3: There are no records of human remains within the alternative Geneva Switching Station site and transmission alignment. It is unlikely that human remains would be inadvertently discovered during ground-disturbing activities because the Geneva Switching Station Alternative is in an area identified as having the lowest sensitivity for buried or subsurface resources (Confidential Appendix D.5-1). However, there is still potential for inadvertent discovery of buried human remains during ground disturbing activities. APM CR-5 regarding discovery of human remains would be implemented during construction. APM CR-5 would be followed consistent with protocols defined in California Health and Safety Code, Section 7050.5, and

[1] APM CR-3 would not be required because the area under construction is not considered high sensitivity for cultural resources.

California Public Resources Code, Section 5097.98. Impacts to human remains would remain less than significant (Class III).

Comparison to the Proposed Project

The Geneva Switching Station Alternative is anticipated to result in reduced impacts to historic resources compared to the proposed project, because the alternative transmission line segments would result in less ground disturbance in areas within high sensitivity for presence of historic-era resources. The Bayshore Switching Station Alternative would also be less likely to impact archaeological resources compared to the proposed project, because the alternative switching station site is located on a disturbed site and the alternative transmission lines would require less ground disturbance, particularly in areas with moderate-to-high sensitivity for presence of buried prehistoric resources. Implementation of APM CR-1, APM CR-2, APM CR-4, and APM CR-5 would reduce potential inadvertent impacts to cultural resources, including human remains, during ground-disturbing activities.[2]

D.5.4.3 Sunnydale HOPE SF Avoidance Line Alternative Option A

Environmental Setting

The Sunnydale HOPE SF Avoidance Line Alternative Option A (Sunnydale Option A Alternative) is located east of the proposed Jefferson-Egbert transmission line in the City and County of San Francisco. The Sunnydale Option A Alternative is surrounded by residential development along Sawyer Street and commercial and residential development along Geneva Avenue. The Sunnydale Option A Alternative is located within the APE for the cultural records search performed for the proposed project (Confidential Appendix D.5-1). The records search identified one resource (Cow Palace) within the vicinity of the Sunnydale Option A Alternative. No known cultural resources were identified within the Option A alternative line segment.

The Sunnydale Option A Alternative is in an area with moderate sensitivity for subsurface historic resources and lowest sensitivity for subsurface prehistoric resources (Confidential Appendix D.5-1). The Sunnydale Option A Alternative is limited to the alternative line segment. Existing conditions (Section D.5.1) and environmental impacts (Section D.5.3) would remain unchanged for the Egbert Switching Station, Martin-Egbert transmission line, Egbert-Embarcadero transmission line, Martin Substation, and the remainder of the Jefferson-Egbert transmission line.

[2] APM CR-3 would not be required because the area under construction is not considered high sensitivity for cultural resources.

Environmental Impacts and Avoidance Measures

Impact CR-1: No historic resources were identified within the Sunnydale Option A Alternative line segment (Confidential Appendix D.5-1). The Cow Palace, located south of Geneva Avenue along the alternative line segment, is eligible for the National Register as an individual property; however, improvements would be confined within the Geneva Avenue public right-of-way and Cow Palace would not be impacted. To avoid potential impacts to unknown subsurface historic resources during construction of the Sunnydale Option A Alternative, a pre-construction field survey would be required (APM CR-1). Additionally, implementation of APM CR-2 (requiring pre-construction worker awareness training) and APM CR-4 (providing protocols for response, avoidance, and evaluation of inadvertent archaeological discoveries) would reduce potential adverse effects to unknown historical resources, and impacts would be less than significant (Class III).[3]

Impact CR-2: No archaeological resources were identified within the Sunnydale Option A Alternative line segment (Confidential Appendix D.5-1). However, archaeological resources have the potential to be discovered during construction ground-disturbing activities, such as excavation and trenching. The Sunnydale Option A Alternative is in an area with lowest sensitivity for subsurface prehistoric resources (Confidential Appendix D.5-1). Although potential for discovering subsurface pre-historic resources is low, ground-disturbing activities increase the likelihood of inadvertently encountering subsurface archaeological resources. To avoid potential impacts to unknown archaeological resources within the alternative transmission line segment, a pre-construction field survey would be required (APM CR-1) in areas not surveyed as part of the proposed project. In addition, implementation of APM CR-2 (requiring pre-construction worker awareness training) and APM CR-4 (providing protocols for response, avoidance, and evaluation of inadvertent archaeological discoveries) would substantially reduce adverse effects to unknown archaeological resources, and impacts would be less than significant (Class III).[3]

Impact CR-3: There are no records of the presence of human remains within the Sunnydale Option A Alternative line segment. It is unlikely that human remains would be inadvertently discovered during ground-disturbing activities because the Geneva Switching Station Alternative is in an area identified as having the lowest sensitivity for buried or subsurface resources (Confidential Appendix D.5-1). However, there is still potential for inadvertent discovery of buried human remains during ground-disturbing activities. APM CR-5, regarding discovery of human remains, would be implemented during construction. APM CR-5 would be followed consistent with protocols defined in California Health and Safety Code, Section 7050.5, and

[3] APM CR-3 would not be required because the area under construction is not considered high sensitivity for cultural resources.

California Public Resources Code, Section 5097.98. Impacts to human remains would remain less than significant (Class III).

Comparison to the Proposed Project

The Sunnydale Option A Alternative has potential to result in similar impacts to historic resources compared to the proposed project. The Sunnydale Option A Alternative line segment would be installed in an area with moderate sensitivity for historic-era resources, while the portion of the Jefferson-Egbert transmission line it bypasses would be constructed in an area of low-to-moderate sensitivity, but implementation of APMs would avoid impacts to unknown historic resources. The Sunnydale Option A Alternative would have similar impacts on archaeological resources as the proposed project, because construction would occur within existing roadways in areas of low sensitivity for buried pre-historic resources. Implementation of APM CR-1, APM CR-2, APM CR-4, and APM CR-5 would ensure potential inadvertent impacts to cultural resources, including human remains, would be avoided during ground-disturbing activities.[4]

D.5.4.4 No Project Alternative

Under the No Project Alternative, none of the facilities associated with the proposed project or alternatives evaluated in this EIR would be constructed, and therefore, none of the impacts identified in this section would occur.

D.5.5 Mitigation Monitoring, Reporting, and Compliance

Table D.5-3 shows the mitigation monitoring, compliance, and reporting program for cultural resources. The CPUC is responsible for ensuring compliance with provisions of the monitoring program. The APMs that are incorporated as part of the proposed project are listed in the following table.

[4] APM CR-3 would not be required because the area under construction is not considered high sensitivity for cultural resources.

Table D.5-3
Mitigation, Monitoring, Compliance and Reporting Program for Cultural Resources

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
Impact CUL-1 and CUL-2 Construction of the project could inadvertently impact unknown historic and archaeological resources	—	APM CR-1	Pre-construction Survey. Any locations that will be subject to ground disturbance but which were not accessible during the pedestrian survey will be surveyed by a CRS/archaeologist prior to project construction under the direction of the PG&E CRS. This will include the location of the proposed Egbert Switching Station and the work area for the proposed Jefferson-Egbert transmission line on the 200 Paul Avenue and 400 Paul Avenue parcels; potential staging areas at Amador Street, Cow Palace, Carter Street, and Martin Substation; and any built-over areas that will be cleared for construction that were not previously surveyed. Although there have been no resources recorded in the vicinity of these locations, the proposed switching station and adjacent parcels have high sensitivity to contain buried or subsurface archaeological remains. Any archeological or historical sites, artifacts, or features identified during the surveys will be examined to determine whether further investigation is needed. If project work is occurring within 100 feet of the find, the work will be immediately redirected from within 100 feet of the find as soon as it is safe to do so. This buffer may be adjusted based on review of the find and context by the CRS. If the discovery can be avoided or protected and no further impacts will occur, the resource will be documented on	PG&E to implement measure as described. PG&E to submit survey results to CPUC for review and recordkeeping.	CPUC to review all survey results to verify compliance.	During ground-disturbing activities

Table D.5-3
Mitigation, Monitoring, Compliance and Reporting Program for Cultural Resources

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
			California Department of Parks and Recreation 523 forms to be submitted to the PG&E CRS and the California Historical Resources Information System NWIC, and no further effort will be required			
Impact CUL-1 and CUL-2 Construction of the project could inadvertently impact unknown historic and archaeological resources	—	APM CR-2	Worker Environmental Awareness Program Cultural Resources Module. Because there are areas of High or Highest sensitivity for buried cultural resources, all project field personnel will be given training on cultural resources identification and protection, and the laws and penalties governing such protection. This training may be administered as a stand-alone session or included as part of the overall environmental awareness training as required by the project. The training will include, at a minimum, these elements: • A review of the environmental setting (prehistory, ethnography, history) associated with the project • A review of Native American cultural concerns and recommendations during project implementation • A review of applicable federal, state, and local laws and ordinances governing cultural resources and historic preservation • A review of what constitutes prehistoric or historic-era archaeological deposits (including maritime archaeological resources) and what the workers should look out for	PG&E to conduct training program as described.	PG&E to provide CPUC documentation demonstrating implementation of the training program.	Prior to ground-disturbing activities in all construction areas.

Table D.5-3
Mitigation, Monitoring, Compliance and Reporting Program for Cultural Resources

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
			• A discussion of site avoidance requirements and procedures to be followed in the event unanticipated cultural resources are discovered during construction • A discussion of procedures to follow in the event human remains are discovered during construction • A discussion of disciplinary and other actions that could be taken against persons violating historic preservation laws and PG&E policies • A discussion of eligible and potentially eligible built environment resources and procedures to follow regarding minimizing vibration from equipment in designated areas • A statement by the construction company or applicable employer agreeing to abide by the program conditions, PG&E policies, and applicable laws and regulations All on-site project personnel, including those arriving after the start of construction, will attend this training before beginning work on the project.			
Impact CUL-1 and CUL-2 Construction of the project could inadvertently impact unknown historic and archaeological resources	—	APM CR-3	Construction Monitoring. In high-sensitivity areas or where a survey was not feasible (i.e., areas are covered with pavement or buildings), a qualified archaeologist will be present to monitor all ground-disturbing construction activities. The monitor will have the authority to halt the ground-disturbing work activity(ies) temporarily within 100 feet of a find, or as determined suitable for protection of this potential resource by the	PG&E to provide qualified archaeological monitor and incorporate monitoring requirements on the construction plans.	CPUC to verify monitoring requirements through review of pre-construction plans. CPUC to verify archaeological monitor in the field.	Prior to and during construction.

Table D.5-3
Mitigation, Monitoring, Compliance and Reporting Program for Cultural Resources

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
			CRS, when safe to do so to assess the find. The assessment, and any subsequent evaluation, will follow the processes described in APM CR-4. Monitoring may be adjusted at the discretion of the CRS based on observation of subsurface conditions and the assessed likelihood of identifying cultural resources.			
Impact CUL-1 and CUL-2 Construction of the project could inadvertently impact unknown historic and archaeological resources	—	APM CR-4	Inadvertent Discoveries of Cultural Deposits. In the event that previously unidentified archaeological, cultural, or historical sites, artifacts, or features are uncovered during implementation of the project, ground-disturbing work will be suspended within 100 feet of the find, or as approved by the CRS suitable to protect the find, and redirected to another location. A CRS or his/her designated representative will examine the discovery and determine whether additional work is needed or whether the buffer requires adjustment. The CRS will coordinate with the PG&E CRS and the state and federal 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 federal and state laws outlined above; personnel will implement data recovery or other appropriate treatment measures if warranted. A	PG&E to implement measure as defined and incorporate commitments into construction contracts. PG&E to provide project archaeologist in the event that prehistoric or historic cultural resources are discovered.	CPUC and PG&E monitor to ensure work is suspended upon discovery of resources to ensure avoidance of all significant cultural resources. PG&E to provide summary report of mitigation program to CPUC.	During construction.

Table D.5-3
Mitigation, Monitoring, Compliance and Reporting Program for Cultural Resources

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
			qualified historical archaeologist will complete an evaluation of historical-period resources, while evaluation of prehistoric 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.			
Impact CUL-5: Construction of the project could inadvertently impact unknown human remains	—	APM CR-5	Unanticipated Discovery of Human Remains. If human remains, or suspected human remains, are discovered during construction, work within 100 feet of the find will stop immediately and the construction foreman will contact the designated PG&E CRS; the specialist will then call the San Francisco or San Mateo County Coroner, as appropriate. There will be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlie adjacent remains, until the county coroner has determined that the remains are not subject to provisions of Section 27491 of the Government Code. If the medical county coroner determines the remains to be Native American, he/she will contact the NAHC within 24 hours. The NAHC will appoint a Most Likely Descendent for recommendations on the treatment and disposition of the remains (Health and Safety Code Section 7050.5, PRC Section 5097.24).	PG&E to provide qualified archaeologist to monitor during ground-disturbing activities. PG&E to contact San Francisco or San Mateo County Coroner if human remains are found. Coroner to contact NAHC if appropriate.	CPUC and PG&E monitor to ensure work is suspended upon discovery of resources to ensure avoidance of all significant cultural resources. The qualifications of the qualified archaeologist shall be approved by the CPUC.	During ground-disturbing activities in all construction areas.

D.5.6 References Cited

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D.6 ENERGY

This section evaluates the potential impacts that the Egbert Switching Station (Martin Substation Extension) Project (proposed project) and alternatives may have on energy resources. Sections D.6.1 and D.6.2 describe the environmental and regulatory energy resource setting for the proposed project, respectively. Section D.6.3 includes analysis and discussion of energy resource impacts resulting from the proposed project, while Section D.6.4 assesses alternatives. Section D.6.5 provides information about mitigation monitoring and reporting. Finally, Section D.6.6 lists the references cited in this section. Cumulative effects are analyzed in Section F.5.2.5 of this Environmental Impact Report (EIR).

D.6.1 Environmental Setting for the Proposed Project

The environmental setting for the proposed project related to electricity, natural gas, and petroleum, including associated service providers, supply sources, and estimated consumption, is discussed as follows. In summary, in 2016 (the latest calendar year for which data is uniformly available for all three types of energy sources), California's estimated annual energy use included the following:

- Approximately 256,846 gigawatt hours of electricity (EIA 2018a)
- Approximately 22 billion therms of natural gas (approximately 6 billion cubic feet of natural gas per day) (EIA 2018b)
- Approximately 16 billion gallons of gasoline (CEC 2017a)

Electricity

Electricity usage in California varies substantially by the types of uses in a building, types of construction materials used in a building, and the efficiency of all electricity-consuming devices within a building. Due to the state's energy efficiency building standards and efficiency and conservation programs, California's electricity use per capita has remained stable for more than 30 years, and the national average has steadily increased (CEC 2015a).

Pacific Gas & Electric Company (PG&E) is the utility provider for the City and County of San Francisco. PG&E provides electric services to 5.4 million customers, including 106,681 circuit miles of electric distribution lines and 18,466 circuit miles of interconnected transmission lines over a 70,000-square-mile service area that includes in Northern California and central California (PG&E 2016). As presented in Table D.6-1, according to PG&E, customers consumed 82,224 million kilowatt-hours (kWh) of electricity in 2017 (CEC 2017c).

Table D.6-1
Pacific Gas & Electric Company 2017 Electricity Consumption

Sector	Total Electricity (in millions of kWh)
Agricultural and Water Pump	5,049.66
Commercial Buildings	30,446.89
Commercial Other	4,309.58
Industry	10,409.92
Mining and Construction	1,747.35
Residential	29,920.19
Streetlight	340.73
Total Consumption	82,224.32

Source: CEC 2017c.
Notes: kWh = kilowatt-hour.

PG&E receives electric power from a variety of sources. According to California Public Utilities Commission's (CPUC's) *2018 Renewable Portfolio Standard (RPS) Annual Report to the Legislature*, 33% of PG&E's power came from eligible renewable energy sources in 2017, including biomass/waste, geothermal, small hydroelectric, solar, and wind sources (CPUC 2018).

Based on recent energy supply and demand projections in California, statewide annual peak electricity demand is projected to grow an average of 890 megawatts per year for the next decade, or 1.4% annually, and consumption per capita is expected to remain relatively constant at 7,200–7,800 kWh per person (CEC 2015a).

In San Francisco, PG&E reported an annual electrical consumption of approximately 5,741 million kWh in 2017, with 4,221 million kWh for non-residential use and 1,519 million kWh for residential use (CEC 2017d).

Natural Gas

The CPUC regulates natural gas utility service for approximately 10.8 million customers who receive natural gas from PG&E, Southern California Gas, San Diego Gas & Electric, Southwest Gas, and several smaller natural gas utilities. CPUC also regulates independent storage operators Lodi Gas Storage, Wild Goose Storage, Central Valley Storage, and Gill Ranch Storage (CPUC 2017). PG&E provides natural gas service to most of Northern California. As provided in Table D.6-2, PG&E customers consumed approximately 4,715 million therms of natural gas, in 2017 (CEC 2017e).

Table D.6-2
Pacific Gas & Electric Company 2017 Natural Gas Consumption

Sector	Total Natural Gas (in millions of therms)
Agricultural and Water Pump	36.40
Commercial Buildings	864.81
Commercial Other	67.96
Industry	1,701.34
Mining and Construction	170.82
Residential	1,873.36
Total Consumption	4,714.69

Source: CEC 2017e.

Natural gas is used for cooking, space heating, generating electricity, and as an alternative transportation fuel. The majority of California's natural gas customers are residential and small commercial customers (core customers). These customers accounted for approximately 30% of the natural gas delivered by California utilities in 2017. Large consumers, such as electric generators and industrial customers (noncore customers), accounted for approximately 70% of the natural gas delivered by California utilities in 2017 (EIA 2018b).

CPUC regulates California natural gas rates and natural gas services, including in-state transportation over transmission and distribution pipeline systems, storage, procurement, metering, and billing. Most of the natural gas used in California comes from out-of-state natural gas basins. California gas utilities may soon also begin receiving biogas into their pipeline systems (CPUC 2017).

In 2012, California customers received 35% of their natural gas supply from basins located in the Southwest, 16% from Canada, 40% from the Rocky Mountains, and 9% from basins located within California (CPUC 2017). Natural gas from out-of-state production basins is delivered into California through the interstate natural gas pipeline system. The major interstate pipelines that deliver out-of-state natural gas to California are the Gas Transmission Northwest Pipeline, Kern River Pipeline, Transwestern Pipeline, El Paso Pipeline, Ruby Pipeline, Southern Trails Pipeline, and Mojave Pipeline. The North Baja–Baja Norte Pipeline takes gas off the El Paso Pipeline at the California/Arizona border and delivers it through California into Mexico. The Federal Energy Regulatory Commission regulates the transportation of natural gas on interstate pipelines, and CPUC often participates in Federal Energy Regulatory Commission regulatory proceedings to represent the interests of California natural gas consumers (CPUC 2017).

Most of the natural gas transported through interstate pipelines, as well as some California-produced natural gas, is delivered through the PG&E and Southern California Gas intrastate natural gas transmission pipeline systems (commonly referred to as California's "backbone" natural gas pipeline

system). Natural gas on the backbone pipeline system is then delivered into local transmission and distribution pipeline systems or to natural gas storage fields. Some large noncore customers take natural gas directly off the high-pressure backbone pipeline system, and some core customers and other noncore customers take natural gas off the utilities' distribution pipeline systems. CPUC has regulatory jurisdiction over 150,000 miles of utility-owned natural gas pipelines, which transported 82% of the natural gas delivered to California's gas consumers in 2012 (CPUC 2017).

PG&E and Southern California Gas own and operate several natural gas storage fields located in Northern and Southern California. These storage fields and four independently owned storage utilities—Lodi Gas Storage, Wild Goose Storage, Central Valley Storage, and Gill Ranch Storage—help meet peak-season natural gas demands and allow California natural gas customers to secure natural gas supplies more efficiently (CPUC 2017).

California's regulated utilities do not own any natural gas production facilities. All natural gas sold by these utilities must be purchased from suppliers and/or marketers. The price of natural gas sold by suppliers and marketers was deregulated by the Federal Energy Regulatory Commission in the mid-1980s and is determined by market forces. However, CPUC decides whether California's utilities have taken reasonable steps to minimize the cost of natural gas purchased on behalf of its core customers (CPUC 2017).

In 2017 (the most recent year for which data is available), PG&E had delivered 230 millions of therms to the City and County of San Francisco, with the majority going to residential uses (133 millions of therms) (CEC 2017f).

Demand for natural gas can vary depending on factors such as weather, price of electricity, the health of the economy, environmental regulations, energy efficiency programs, and the availability of alternative renewable energy sources. As previously indicated, natural gas is available from a variety of in-state and out-of-state sources and is provided throughout the state in response to market supply and demand. Complementing available natural gas resources, biogas may soon be available through existing delivery systems, thereby increasing the availability and reliability of resources.

Petroleum

There are more than 35 million registered vehicles in California, and those vehicles consume an estimated 18 billion gallons of fuel each year (CEC 2017b; DMV 2018). Petroleum currently accounts for approximately 92% of California's transportation energy consumption (CEC 2017b). However, technological advances, market trends, consumer behavior, and government policies could result in significant changes in fuel consumption by type and in total. At the federal and state levels, various policies, rules, and regulations have been enacted to improve vehicle fuel efficiency, promote the development and use of alternative fuels, reduce

transportation-source air pollutants and greenhouse gas (GHG) emissions, and reduce vehicle miles traveled. Market forces have driven the price of petroleum products steadily upward over time, and technological advances have made use of other energy resources or alternative transportation modes increasingly feasible.

Largely as a result of and in response to these multiple factors, gasoline consumption within the state has declined in recent years, and availability of other alternative fuels/energy sources has increased. The quantity, availability, and reliability of transportation energy resources have increased in recent years, and this trend may likely continue and accelerate (CEC 2017b). Increasingly available and diversified transportation energy resources act to promote continuing reliable and affordable means to support vehicular transportation within the state.

D.6.2 Applicable Regulations, Plans, and Standards

Federal, state, and local agencies regulate energy use and consumption through various means and programs. On the federal level, the U.S. Department of Transportation, the U.S. Department of Energy, and the U.S. Environmental Protection Agency are three federal agencies with substantial influence over energy policies and programs. On the state level, CPUC and California Energy Commission (CEC) are two agencies with authority over different aspects of energy. Relevant federal, state, and local energy-related regulations are summarized as follows.

Federal Regulations, Plans, and Standards

Federal Energy Policy and Conservation Act

In 1975, Congress enacted the Federal Energy Policy and Conservation Act, which established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the act, the National Highway Traffic Safety Administration is responsible for establishing additional vehicle standards. In 2012, new fuel economy standards for passenger cars and light trucks were approved for model years 2017 through 2021 (77 FR 62624–63200). Fuel economy is determined based on each manufacturer's average fuel economy for the fleet of vehicles available for sale in the United States.

Intermodal Surface Transportation Efficiency Act of 1991

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 promoted the development of intermodal transportation systems to maximize mobility and address national and local interests in air quality and energy. ISTEA contained factors for metropolitan planning organizations to address in developing transportation plans and programs, including some energy-related factors. To meet the new ISTEA requirements, metropolitan planning

organizations adopted policies defining the social, economic, energy, and environmental values guiding transportation decisions.

Transportation Equity Act for the 21st Century

The Transportation Equity Act for the 21st Century was signed into law in 1998 and builds on the initiatives established in the ISTEA legislation (previously discussed). The act authorizes highway, highway safety, transit, and other efficient surface transportation programs. The act continues the program structure established for highways and transit under ISTEA, such as flexibility in the use of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of transportation decisions. The act also provides for investment in research and its application to maximize the performance of the transportation system through, for example, deployment of intelligent transportation systems to help improve operations and management of transportation systems and vehicle safety.

Energy Independence and Security Act of 2007

On December 19, 2007, the Energy Independence and Security Act (EISA) of 2007 was signed into law. In addition to setting increased Corporate Average Fuel Economy standards for motor vehicles, the EISA includes the following other provisions related to energy efficiency:

- Renewable Fuel Standard (RFS) (Section 202)
- Appliance and Lighting Efficiency Standards (Sections 301–325)
- Building Energy Efficiency (Sections 411–441)

This federal legislation (the RFS) requires ever-increasing levels of renewable fuels to replace petroleum (EPA 2013, 2015). The U.S. Environmental Protection Agency is responsible for developing and implementing regulations to ensure that transportation fuel sold in the United States contains a minimum volume of renewable fuel. The RFS program regulations were developed in collaboration with refiners, renewable fuel producers, and many other stakeholders.

The RFS program was created under the Energy Policy Act of 2005 and established the first renewable fuel volume mandate in the United States. As required under the act, the original RFS program (RFS1) required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012. Under the EISA, the RFS program was expanded in several key ways that lay the foundation for achieving significant reductions in GHG emissions from the use of renewable fuels, reducing imported petroleum, and encouraging the development and expansion of the renewable fuels sector in the United States. The updated program is referred to as "RFS2" and includes the following:

- Expands the RFS program to include diesel, in addition to gasoline

- Increases the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022
- Establishes new categories of renewable fuel, and sets separate volume requirements for each one
- Requires the U.S. Environmental Protection Agency to apply lifecycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces

Additional provisions of the EISA address energy savings in government and public institutions, research for alternative energy, additional research in carbon capture, international energy programs, and the creation of "green" jobs.

State Regulations, Plans, and Standards

The following discussion focuses primarily on those policies, regulations, and laws that directly pertain to energy-related resources. Also refer to Section D.8, Greenhouse Gas Emissions, which addresses various policies, regulations, and laws targeted to the reduction of GHG emissions that are expected to achieve co-benefits in the form of reduced demand for energy-related resources and enhanced efficiencies in the consumption of energy-related resources.

Warren–Alquist Act

The California Legislature passed the Warren–Alquist Act in 1974. The Warren–Alquist Act was created by the CEC. The legislation also incorporated the following three key provisions designed to address the demand side of the energy equation:

- It directed the CEC to formulate and adopt the nation's first energy conservation standards for both buildings constructed and appliances sold in California.
- The act removed the responsibility of electricity demand forecasting from the utilities, which had a financial interest in high demand projections, and transferred it to a more impartial CEC.
- The CEC was directed to embark on an ambitious research and development program, with a particular focus on fostering what were characterized as non-conventional energy sources.

State of California Energy Action Plan

The CEC and CPUC approved the first State of California Energy Action Plan in 2003. The plan established shared goals and specific actions to ensure that adequate, reliable, and reasonably priced electrical power and natural gas supplies are provided. The plan also identified policies, strategies, and actions that are cost effective and environmentally sound for California's

consumers and taxpayers. In 2005, a second Energy Action Plan was adopted by the CEC and CPUC to reflect various policy changes and actions of the prior 2 years.

At the beginning of 2008, the CEC and CPUC determined that it was not necessary or productive to prepare a new energy action plan. This determination was based, in part, on a finding that the state's energy policies have been significantly influenced by the passage of Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006 (discussed as follows). Rather than produce a new energy action plan, the CEC and CPUC prepared an "update" that examines the state's ongoing actions in the context of global climate change.

Senate Bill 1078 (2002)

Senate Bill (SB) 1078 (2002) established the California RPS Program and required that a retail seller of electricity purchase a specified minimum percentage of electricity generated by eligible renewable energy resources as defined in any given year, culminating in a 20% standard by December 31, 2017. These retail sellers include electrical corporations, community choice aggregators, and electric service providers. The bill also required the CEC to certify eligible renewable energy resources, design and implement an accounting system to verify compliance with the RPS by retail sellers, and allocate and award supplemental energy payments to cover above-market costs of renewable energy.

Senate Bills 107 (2006), X1-2 (2011), 350 (2015), and 100 (2018)

SB 107 (2006) accelerated the RPS established by SB 1078 by requiring that 20% of electricity retail sales be served by renewable energy resources by 2010 (not 2017). Additionally, SB X1-2 (2011) requires all California utilities to generate 33% of their electricity from eligible renewable energy resources by 2020. Specifically, SB X1-2 sets a three-stage compliance period: by December 31, 2013, 20% had to come from renewables; by December 31, 2016, 25% had to come from renewables; and by December 31, 2020, 33% will come from renewables.

SB 350 (2015) requires retail seller and publicly owned utilities to procure 50% of their electricity from eligible renewable energy resources by 2030, with interim goals of 40% by 2024 and 45% by 2027.

SB 100 (2018) increased the standards set forth in SB 350 establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024; 52% by December 31, 2027; and 60% by December 31, 2030, be secured from qualifying renewable energy sources. SB 100 states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California. This bill requires that the achievement of 100% zero-carbon electricity resources do not increase

the carbon emissions elsewhere in the western grid and that the achievement not be achieved through resource shuffling.

Consequently, utility energy generation from non-renewable resources is expected to be reduced based on implementation of the 60% RPS in 2030.

Assembly Bill 1007 (2005)

AB 1007 (2005) required the CEC to prepare a statewide plan to increase the use of alternative fuels in California (State Alternative Fuels Plan). The CEC prepared the plan in partnership with the California Air Resources Board (CARB) and in consultation with the other state, federal, and local agencies. The plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

Assembly Bill 32 (2006) and Senate Bill 32 (2016)

In 2006, the Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020. In 2016, the Legislature enacted SB 32, which extended the horizon year of the state's codified GHG reduction planning targets from 2020 to 2030, requiring California to reduce its GHG emissions to 40% below 1990 levels by 2030. In accordance with AB 32 and SB 32, CARB prepares scoping plans to guide the development of statewide policies and regulations for the reduction of GHG emissions. Many of the policy and regulatory concepts identified in the scoping plans focus on increasing energy efficiencies and the use of renewable resources and reducing the consumption of petroleum-based fuels (e.g., gasoline and diesel). As such, the state's GHG emissions reduction planning framework creates co-benefits for energy-related resources. Additional information on AB 32 and SB 32 is provided in Section D.8 of this EIR.

California Building Standards

Part 6 of Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. Part 6 establishes energy efficiency standards for residential and non-residential buildings constructed in California to reduce energy demand and consumption. Part 6 is updated periodically (every 3 years) to incorporate and consider new energy efficiency technologies and methodologies. The 2016 Title 24 building energy efficiency standards, which became effective on January 1, 2017, further reduce energy used in the state. In general, single-family homes built to the 2016 standards are anticipated to use approximately 28% less energy for lighting, heating, cooling, ventilation, and water heating

than those built to the 2013 standards, and non-residential buildings built to the 2016 standards will use an estimated 5% less energy than those built to the 2013 standards (CEC 2015a).

The 2019 Title 24 standards were approved and adopted by the California Building Standards Commission in December 2018. The 2019 standards will become effective January 1, 2020. The standards would require that all low-rise residential buildings shall have a photovoltaic system meeting the minimum qualification requirements such that annual electrical output equal to or greater than the dwelling's annual electrical usage. Notably, net energy metering rules limit residential rooftop solar generation to produce no more electricity than the home is expected to consume on an annual basis. Single-family homes built with the 2019 standards will use about 7% less energy due to energy efficiency measures versus those built under the 2016 standards, while new nonresidential buildings will use about 30% less energy.

The CPUC, CEC, and CARB previously established a goal of achieving zero net energy (ZNE) for new construction in California. The key policy timelines include (1) all new residential construction in California will be ZNE by 2020 and (2) all new commercial construction in California will be ZNE by 2030 (CPUC 2013). As most recently defined by the CEC in its 2015 *Integrated Energy Policy Report*, a ZNE code building is "one where the value of the energy produced by on-site renewable energy resources is equal to the value of the energy consumed annually by the building" using the CEC's Time Dependent Valuation metric (CEC 2015b).

The 2019 Title 24 standards take a significant step towards the state's ZNE goal. However, as explained by the CEC, California's energy landscape has changed since the ZNE target was set. Electricity produced for the grid now comes substantially from renewables, and 60% renewable electricity generation is required by 2030. Further, new net energy metering rules also limit the amount of residential rooftop solar generation to no more electricity production than the home is annually expected to consume.

The 2019 Title 24 standards, therefore, focus on building energy efficiency and ensuring solar electricity generated on site is used on site.

> Looking beyond the 2019 standards, the most important energy characteristic for a building will be that it produces and consumes energy at times that are appropriate and responds to the needs of the grid, which reduces the building's emissions (CEC 2018).

In furtherance of that characteristic, the 2019 standards require that new homes include solar photovoltaic to meet the home's expected annual electric needs and also encourage demand responsive technologies, including battery storage, heat pump water heaters, and improving the building's thermal envelope through high performance attics, walls, and windows. These smarter homes perform better and affect the grid less, which reduces the building's GHG emissions.

Title 24 also includes Part 11, the California Green Building Standards Code (CALGreen). CALGreen institutes mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential, and state-owned buildings, as well as schools and hospitals. The 2016 CALGreen standards became effective on January 1, 2017. The mandatory standards require the following:

- 20% mandatory reduction in indoor water use
- 50% diversion of construction and demolition waste from landfills
- Mandatory inspections of energy systems to ensure optimal working efficiency

State Vehicle Standards

In a response to the transportation sector accounting for more than half of California's carbon dioxide (CO_2) emissions, AB 1493 was enacted in 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles whose primary use is noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. The 2009–2012 standards resulted in a reduction in approximately 22% GHG emissions compared to emissions from the 2002 fleet, and the 2013–2016 standards resulted in a reduction of approximately 30%.

In 2012, CARB approved a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero-emission vehicles into a single package of standards called Advanced Clean Cars. By 2025, when the rules would be fully implemented, new automobiles would emit 34% fewer global warming gases and 75% fewer smog-forming emissions (CARB 2011).

Although the focus of the state's vehicle standards is on the reduction of air pollutants and GHG emissions, one co-benefit of implementation of these standards is a reduced demand for petroleum-based fuels.

Sustainable Communities Strategy

The Sustainable Communities and Climate Protection Act of 2008, or SB 375, coordinates land use planning, regional transportation plans, and funding priorities to help California meet its GHG emissions reduction mandates. As codified in California Government Code, Section 65080, SB 375 requires metropolitan planning organizations to include a sustainable communities strategy in its regional transportation plan. The main focus of the sustainable communities strategy is to plan for growth in a fashion that will ultimately reduce GHG emissions, but the strategy is also a part of a bigger effort to address other development issues within the general

vicinity, including transit and vehicle miles traveled, which influence the consumption of petroleum-based fuels.

Local Regulations, Plans, and Standards

Association of Bay Area Governments

In July 2017, the Association of Bay Area Governments, the designated metropolitan planning organization for the San Francisco Bay Area region adopted the Plan Bay Area 2040 (ABAG 2017). The Plan Bay Area is a long-range plan for transportation projects within the planning area and focuses on cost-effective operational improvements to preserve the existing and expanded regional transportation system through 2040. The 2017 update to the Plan Bay Area focused on refinement of and addressing implementation challenges to the previous (2010) plan. The Plan Bay Area includes seven goals and 13 performance targets covering three broad areas: the environment, equity, and the economy. The performance targets are evaluated in several areas defined as key concerns, including climate protection, adequate housing, healthy and safe communities, open space and agricultural preservation, equitable access, economic vitality, and transportation system effectiveness.

San Francisco General Plan

The Environmental Protection Element of the San Francisco General Plan includes:

- Objective 12: Establish the City and County of San Francisco as a model for energy management.
    - Policy 12.1: Incorporate energy management practices into building, facility, and fleet maintenance and operations.
- Objective 14: Promote effective energy management practices to maintain the economic vitality of commerce and industry.
    - Policy 14.2: Insure adequate local enforcement of California's nonresidential building standards.
- Objective 15: Increase the energy efficiency of transportation and encourage land use patterns and methods of transportation which use less energy.
    - Policy 15.1: Increase the use of transportation alternatives to the automobile.
    - Policy 15.2: Provide incentives to increase the energy efficiency of automobile travel.

San Francisco Climate Action Strategy

In October 2013, the City and County of San Francisco adopted the Climate Action Strategy, which represents an update to the initial Climate Action Plan developed in 2004. The Climate Action Strategy presents the potential effects of climate change on San Francisco based on scientific research and develops an inventory of San Francisco's contribution to GHG emissions. The Climate Action Strategy provides an overview of policies and programs to reach zero waste, 50% sustainable transportation, and 100% renewable energy. Overall, the Climate Action Strategy includes 35 climate actions to project future GHG emissions in San Francisco (San Francisco Department of Environment 2013).

San Francisco Electricity Resource Plan

San Francisco's 2011 Energy Resource Plan further develops strategies to keep the City and County of San Francisco on a path towards zero-GHG emissions from its electric sector. The strategies recommended in the Energy Resource Plan include empowering San Francisco citizens and businesses to cost-effectively reduce GHG emissions associated with their own electric energy usage; increasing the amount of zero-GHG electricity supplied to customers from the wholesale energy market; and continuing and expanding San Francisco Public Utilities Commission electric service to guarantee reliable, reasonably-priced, and environmentally sensitive service to its customers (SFPUC 2011).

D.6.3 Environmental Impacts and Mitigation Measures

D.6.3.1 Definition and Use of Significance Criteria

CEQA Guidelines (Appendix G, Environmental Checklist Form) (14 CCR 15000 et seq.) provides guidance for evaluating whether a development project may result in significant impacts with regard to energy. Based on Appendix G of the CEQA Guidelines, a project could have a significant impact on energy conservation if the project would:

Impact EN-1	Result in the wasteful and inefficient use of nonrenewable resources during its construction
Impact EN-2	Result in the wasteful and inefficient use of nonrenewable resources during long-term operation
Impact EN-3	Be inconsistent with adopted plans and policies

D.6.3.2 Applicant Proposed Measures

The applicant did not propose any measures to reduce potential energy impacts associated with the construction and operation of the proposed project.

D.6.3.3 Impact Discussion

Impact EN-1 Would the project result wasteful and inefficient use of nonrenewable resources, during its construction?

Energy Consumption

Electricity

Temporary electric power for as-necessary lighting and electronic equipment (e.g., computers inside temporary construction trailers and heating, ventilation, and air conditioning) would be powered by a generator. The amount of electricity used during construction would be minimal; typical demand would stem from the use of electrically powered hand tools and several construction trailers by managerial staff during the hours of construction activities. The majority of the energy used during construction would be from petroleum. The electricity used for construction activities would be temporary and minimal; therefore, impacts would be less than significant (Class III).

Natural Gas

The need for natural gas is not anticipated during construction of the proposed project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed under the following subsection, ***Petroleum***. Any minor amounts of natural gas that may be consumed as a result of proposed project construction would be temporary and negligible and would not have an adverse effect; therefore, impacts would be less than significant (Class III).

Petroleum

Petroleum would be consumed throughout construction of the proposed project. Fuel consumed by construction equipment would be the primary energy resource expended over the course of construction, and vehicle miles traveled associated with the transportation of construction materials and construction worker commutes would also result in petroleum consumption. Heavy-duty construction equipment associated with construction activities and haul trucks involved in relocating dirt around the project site would rely on diesel fuel. Construction workers would travel to and from the project site throughout the duration of construction. It is assumed that construction workers would travel to and from the project site in gasoline-powered vehicles.

Heavy-duty construction equipment of various types would be used during construction. A spreadsheet-based model consisting of data values presented in Appendix D of CalEEMod's User Guide and specific information provide by PG&E was used to estimate construction equipment usage; results are included in Appendix D.3-1 of this EIR. Construction equipment

and fuel use associated with truck dumping and loading are also included in this analysis. Based on that analysis, diesel-fueled construction equipment would operate for an estimated 42,805 hours, as summarized in Table D.6-3, Hours of Operation for Construction Equipment.

Table D.6-3
Hours of Operation for Construction Equipment

Phase	Hours of Equipment Use
Transmission Line – Installation with Trenching	
Mobilization	40
Manholes	1,850
Trenching	26,500
Cable Installation and Splicing	1,620
Transmission Line – Trenchless Installation	
Bore Pit Excavation, Stage Equipment and Bore, Pull in Casing and Duct Bundle, Grouting Space Between Casing and Ducts, and Restoration	1,690
Switching Station	
Civil Site Preparation	600
Building Foundations, Excavation, and Install	1,800
Remaining Equipment Foundations	430
Ground Grid and Conduits	600
Building Delivery and Erection	1,800
Set Series and Shunt Reactors on Pads	50
Screen Walls	300
Install GIS Equipment and Wire; Control Room and Battery Room Equipment; 230 kV Bus Work; 230 kV Cable Installation/Tie-in; Dress/Test/Wire Equipment	3,600
Install and Test Oil Pump House, SSVTs	400
Testing and Commissioning	600
Exterior Walls, Final Grading, and Paving	470
Cleanup and Landscaping	200
Substation-Remote Ends	
Martin Substation Series and Shunt Reactor Removal	255
Total	42,805

Source: Appendix D.3-1.
Notes: kV = kilovolt; SSVT = station service voltage transformer.

Fuel consumption from construction equipment was estimated by converting the total CO_2 emissions from each construction phase to gallons using conversion factors for CO_2 to gallons of gasoline or diesel. The conversion factor for gasoline is 9.13 kilograms per metric ton CO_2 per gallon, and the conversion factor for diesel is 10.35 kilograms per metric ton CO_2 per gallon (The Climate Registry 2018). The estimated diesel fuel use from construction equipment is shown in Table D.6-4, Construction Equipment Diesel Demand.

Table D.6-4
Construction Equipment Diesel Demand

Phase	Pieces of Equipment	Equipment CO_2 (MT)[a]	kg CO_2/Gallon	Gallons
Transmission Line – Installation with Trenching				
Mobilization	1	0.68	10.35	65.89
Manholes	4	55.81	10.35	5,392.27
Trenching	12	622.95	10.35	60,188.41
Cable Installation and Splicing	4	13.14	10.35	1,269.08
Transmission Line - Trenchless Installation				
Bore Pit Excavation, Stage Equipment and Bore, Pull in Casing and Duct Bundle, Grouting Space Between Casing and Ducts, and Restoration	9	91.79	10.35	8,868.12
Switching Station				
Civil Site Preparation	4	3.33	10.35	321.84
Building Foundations, Excavation, and Install	3	11.36	10.35	1,097.78
Remaining Equipment Foundations	2	6.20	10.35	598.65
Ground Grid and Conduits	3	3.01	10.35	290.72
Building Delivery and Erection	3	24.56	10.35	2,372.56
Set Series and Shunt Reactors on Pads	1	1.43	10.35	137.78
Screen Walls	3	3.94	10.35	381.06
Install GIS Equipment and Wire; Control Room and Battery Room Equipment; 230 kV Bus Work; 230 kV Cable Installation/Tie-in; Dress/Test/Wire Equipment	3	25.76	10.35	2,488.99
Install and Test Oil Pump House, SSVTs	1	0.63	10.35	61.26
Testing and Commissioning	1	4.43	10.35	427.63
Exterior Walls, Final Grading, and Paving	1	7.21	10.35	697.00
Cleanup and Landscaping	1	3.07	10.35	296.62
Substation-Remote Ends				
Martin Substation Series and Shunt Reactor Removal	4	3.92	10.35	378.26
			Total	69,602.90

Sources:
[a] Appendix D.3-1.
[b] The Climate Registry 2018.

Notes: CO2 = carbon dioxide; kg = kilogram; MT = metric ton; kV = kilovolt; SSVT = station service voltage transformer.

Fuel consumption from worker and vendor trips was estimated by converting the total CO_2 emissions from the construction phase to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Worker vehicles are assumed to be gasoline fueled, and vendor/hauling vehicles are assumed to be diesel fueled.

Calculations for total worker, vendor, and hauler fuel consumption are provided in Table D.6-5, Construction Worker Vehicle Gasoline Demand; Table D.6-6, Construction Vendor Truck Diesel Demand; and Table D.6-7, Construction Haul Truck Diesel Demand.

Table D.6-5
Construction Worker Vehicle Gasoline Demand

Phase	Trips	Vehicle CO_2 (MT)[a]	kg CO_2/Gallon[b]	Gallons
Transmission Line – Installation with Trenching				
Mobilization	128	1.21	9.13	131.98
Manholes	2,400	19.77	9.13	2,165.06
Trenching	20,000	101.51	9.13	11,118.18
Cable Installation and Splicing	6,340	16.90	9.13	1,851.37
Inspectors	1,268	2.44	9.13	267.03
Transmission Line – Trenchless Installation				
Bore Pit Excavation, Stage Equipment and Bore, Pull in Casing and Duct Bundle, Grouting Space Between Casing and Ducts, and Restoration	600	4.02	9.13	439.87
Switching Station				
General Construction	10,560	30.04	9.13	3,290.47
Civil Site Preparation	500	1.03	9.13	113.03
Building Foundations, Excavation, and Install	1,440	3.15	9.13	345.02
Remaining Equipment Foundations	800	1.65	9.13	180.72
Ground Grid and Conduits	400	0.83	9.13	90.36
Building Delivery and Erection	1,440	3.63	9.13	397.26
Set Series and Shunt Reactors on Pads	100	0.25	9.13	26.83
Screen Walls	160	0.38	9.13	41.29
Install GIS Equipment and Wire; Control Room and Battery Room Equipment; 230 kV Bus Work; 230 kV Cable Installation/Tie-in; Dress/Test/Wire Equipment	9,120	24.07	9.13	2,636.25
Install and Test Oil Pump House, SSVTs	640	1.51	9.13	165.17
Testing and Commissioning	720	1.58	9.13	172.95
Exterior Walls, Final Grading, and Paving	752	1.77	9.13	194.09
Cleanup and Landscaping	400	0.98	9.13	107.56
Inspectors	1,760	3.38	9.13	370.65
Substation-Remote Ends				
General Construction	2,000	5.69	9.13	623.22
Martin Substation Series and Shunt Reactor Removal	1,200	3.47	9.13	380.39
Jefferson, Martin, and Embarcadero Indoor Work	480	1.40	9.13	152.79
Inspectors	120	0.23	9.13	25.30
			Total	25,286.86

Sources:
[a] Appendix D.3-1.
[b] The Climate Registry 2018.
Notes: CO_2 = carbon dioxide; kg = kilogram; MT = metric ton; kV = kilovolt; SSVT = station service voltage transformer.

Table D.6-6
Construction Vendor Truck Diesel Demand

Phase	Trips	Vehicle CO_2 (MT)[a]	kg CO_2/Gallon[b]	Gallons
Transmission Line – Installation with Trenching				
Manholes	0	0.00	10.35	663.67
Trenching	120	6.87	10.35	110.63
Cable Installation and Splicing	200	1.15	10.35	25.80
Transmission Line – Trenchless Installation				
Bore Pit Excavation, Stage Equipment and Bore, Pull in Casing and Duct Bundle, Grouting Space Between Casing and Ducts, and Restoration	40	2.29	10.35	221.26
Switching Station				
General Construction	880	3.00	10.35	290.05
Civil Site Preparation	50	0.17	10.35	16.52
Building Foundations, Excavation, and Install	540	2.01	10.35	194.40
Remaining Equipment Foundations	86	0.30	10.35	28.60
Ground Grid and Conduits	40	0.14	10.35	13.14
Building Delivery and Erection	120	0.69	10.35	66.38
Set Series and Shunt Reactors on Pads	10	0.06	10.35	5.51
Screen Walls	40	0.18	10.35	17.68
Install GIS Equipment and Wire; Control Room and Battery Room Equipment; 230 kV Bus Work; 230 kV Cable Installation/Tie-in; Dress/Test/Wire Equipment	320	1.28	10.35	123.38
Install and Test Oil Pump House, SSVTs	160	0.55	10.35	52.75
Testing and Commissioning	240	0.82	10.35	79.13
Exterior Walls, Final Grading, and Paving	398	1.99	10.35	192.46
Cleanup and Landscaping	240	1.04	10.35	100.10
Substation-Remote Ends				
General Construction	200	0.68	10.35	65.89
Martin Substation Series and Shunt Reactor Removal	182	1.82	10.35	175.65
			Total	2,443.00

Sources:
[a] Appendix D.3-1.
[b] The Climate Registry 2018.
Notes: CO_2 = carbon dioxide; kg = kilogram; MT = metric ton; kV = kilovolt; SSVT = station service voltage transformer.

Table D.6-7
Construction Haul Truck Diesel Demand

Phase	Trips	Vehicle CO_2 (MT)[a]	kg CO_2/Gallon[b]	Gallons
Transmission Line – Installation with Trenching				
Mobilization	24	2.06	10.35	199.13
Manholes	240	1.37	10.35	132.75
Trenching	2,700	61.82	10.35	5,972.95
Cable Installation and Splicing	8	0.27	10.35	25.80
Truck Drivers	1,600	30.53	10.35	2,949.66
Transmission Line – Trenchless Installation				
Bore Pit Excavation, Stage Equipment and Bore, Pull in Casing and Duct Bundle, Grouting Space Between Casing and Ducts, and Restoration	180	1.03	10.35	99.52
Truck Drivers	40	0.76	10.35	73.72
Switching Station				
Civil Site Preparation	350	67.55	10.35	6,526.96
Building Foundations, Excavation, and Install	544	42.83	10.35	4,138.36
Remaining Equipment Foundations	8	0.21	10.35	19.90
Ground Grid and Conduits	8	0.21	10.35	19.90
Truck Drivers	792	15.11	10.35	1,460.10
Substation-Remote Ends				
Martin Substation Series and Shunt Reactor Removal	40	0.23	10.35	22.13
Truck Drivers	80	1.53	10.35	147.44
			Total	21,788.31

Sources:
[a] Appendix D.3-1.
[b] The Climate Registry 2018.
Notes: CO_2 = carbon dioxide; kg = kilogram; MT = metric ton.

As shown in Tables D.6-3 through D.6-7, the proposed project is estimated to consume approximately 119,121 gallons of petroleum during the construction phase. By comparison, approximately 25.3 billion gallons of petroleum would be consumed in California over the course of the proposed project's construction phase based on the California daily petroleum consumption estimate of approximately 52.9 million gallons per day (CEC 2016). The proposed project would be required to comply with CARB's Airborne Toxics Control Measure, which restricts heavy-duty diesel vehicle idling time to 5 minutes. Overall, since petroleum use during construction would be short-term (approximately 2 years) and would not be wasteful or inefficient, impacts would be less than significant (Class III).

Impact EN-2 Would the project result wasteful and inefficient use of nonrenewable resources, during project long-term operation?

Energy Consumption

Electricity

Following completion of construction, the proposed project's operational phase would require electricity for operating an 11,000-square-foot gas-insulated switchgear (GIS) building. The proposed project's gas-insulated switchgear building would be built in accordance with the current Title 24 standards at the time of construction and the CALGreen. Therefore, due to the limited amount of electricity use and the inherent increase in efficiency of building code regulations, the proposed project would not result in a wasteful use of energy. Impacts related to operational electricity use would be less than significant (Class III).

Natural Gas

The proposed project would not have natural gas service connected to the gas-insulated switchgear building. There would be no natural gas consumption during operation (No Impact).

Petroleum

The majority of fuel consumption resulting from the proposed project's operational phase would be attributable to workers traveling to and from the project site, and worker vehicles traveling on the project site. However, petroleum consumption associated with inspections and ongoing maintenance activities (primarily associated with periodic maintenance vehicle travel) would be negligible, because these activities are part of PG&E's ongoing baseline operations at the existing Embarcadero, Jefferson, and Martin Substations and are expected to be infrequent and minimal. Furthermore, over the lifetime of the proposed project, the fuel efficiency of the vehicles being used by the employees is expected to increase. As such, the amount of petroleum consumed as a result of vehicular trips to and from the project site during operation would decrease over time. There are numerous regulations in place that require and encourage increased fuel efficiency. For example, CARB has adopted an approach to passenger vehicles by combining the control of smog-causing pollutants and GHG emissions into a single, coordinated package of standards. The approach also includes efforts to support and accelerate the number of plug-in hybrids and zero-emissions vehicles in California (CARB 2013). Additionally, in response to SB 375, CARB adopted the goal of reducing per-capita GHG emissions from 2005 levels by 10% by 2020, and 19% by 2035 for light-duty passenger vehicles in the planning area for the Association of Bay Area Governments. As such, operation of the proposed project is expected to use decreasing amounts of petroleum over time due to advances in fuel economy.

In summary, although the proposed project would slightly increase petroleum use during operation, the use would be a small fraction of the statewide use and, due to efficiency increases, would diminish over

time. Given these considerations, petroleum consumption associated with the proposed project would not be considered inefficient or wasteful and would result in a less-than-significant impact (Class III).

Impact EN-3 Would the project be inconsistent with adopted plans and policies?

The proposed project's GIS building would meet the Title 24 and CALGreen standards to reduce energy demand and increase energy efficiency. Additionally, worker vehicles would meet the applicable standards of AB 1493 (vehicles manufactured 2009 or later) and, as a result, would likely consume less energy as fuel efficiency standards are increased and vehicles are replaced. In addition, the proposed project would support the implementation of the City and County of San Francisco's General Plan objectives by improving the reliability of PG&E's transmission system serving the City and County of San Francisco. For reasons stated, the proposed project would be consistent with all applicable energy plans and policies; therefore, impacts would be less than significant (Class III).

D.6.4 Project Alternatives

D.6.4.1 Bayshore Switching Station Alternative

Environmental Setting

Section D.6.1 describes energy demand and consumption characteristics for the State of California. Because the Bayshore Switching Station Alternative would occur within the same area as the proposed project, the existing conditions would be the same as described in Section D.6.1.

Environmental Impacts

Impact EN-1: The Bayshore Switching Station Alternative would require construction of a 6.6-acre switching station site and installation of approximately 2.6 miles of underground transmission lines to connect to the existing system. The shorter transmission line associated with this alternative would result in a reduced construction schedule by as much as 171 days (assuming installation of 40 feet of underground transmission line per day); however, based on conclusions described in Section D.7.4.1, construction within the alternative switching station site is anticipated to require over-excavation and replacement of an unknown amount of artificial fill to avoid potential geologic hazards. Truck trips required for over-excavation and replacement of soils within the alternative switching station site would result in an increase in petroleum demand, even when factoring in the shorter construction schedule for the alternative transmission lines. Although the Bayshore Switching Station Alternative would require more petroleum during construction activities, petroleum use during construction would be short-term (approximately 2 years) and would not be wasteful or inefficient; therefore, impacts would be less than insignificant (Class III).

Impact EN-2: The switching station proposed for this alternative is the same capacity as the proposed project; therefore, operational impacts requiring electricity would be similar to the proposed project, and impacts would be less than significant (Class III).

Impact EN-3: The Bayshore Switching Station Alternative would be consistent with all adopted plans and policies associated with energy use and reduction, and impacts would be less than significant (Class III).

Comparison to the Proposed Project

Energy impacts resulting from the Bayshore Switching Station Alternative would be greater when compared to the proposed project due to increased haul trips required for over-excavation and replacement of artificial fill within the alternative switching station site, even factoring in the shorter construction schedule for the alternative transmission lines. Operational impacts resulting from this alternative would not be substantially different from the proposed project. Overall, energy resources required to develop this alternative would be greater than the proposed project.

D.6.4.2 Geneva Switching Station Alternative

Environmental Setting

Section D.6.1 describes energy demand and consumption characteristics for the State of California. Because the Geneva Switching Station Alternative would occur within the same area as the proposed project, the existing conditions would be the same as described in Section D.6.1.

Environmental Impacts

Impact EN-1: The Geneva Switching Station Alternative would require construction of an 11.1-acre switching station site and installation of approximately 2.3 miles of underground transmission lines to connect to the existing electrical infrastructure. The shorter transmission line associated with this alternative would result in a reduced construction schedule by as much as 211 days (assuming installation of 40 feet of underground transmission line per day). Although the switching station site would be much larger than the proposed Egbert Switching Station site, construction of the alternative switching station would have a similar schedule. A shorter construction schedule would result in an overall reduction of petroleum required for construction of this alternative; therefore, impacts would be insignificant (Class III).

Impact EN-2: The switching station proposed for this alternative is the same capacity as the proposed project, so operational impacts requiring electricity would be similar to the proposed project, and impacts would be less than significant (Class III).

Impact EN-3: The Geneva Switching Station Alternative would be consistent with all adopted plans and policies associated with energy use and reduction, and impacts would be less than significant (Class III).

Comparison to the Proposed Project

Energy impacts resulting from the Geneva Switching Station Alternative would be reduced as compared to the proposed project due to a shorter construction schedule for transmission line infrastructure. Operational impacts from this alternative would not substantially differ from those resulting from the proposed project. Overall, energy resources required to develop this alternative would be less than the proposed project.

D.6.4.3 Sunnydale HOPE SF Avoidance Line Alternative Option A

Environmental Setting

Section D.6.1 describes energy demand and consumption characteristics for the State of California. Because the Sunnydale HOPE SF Avoidance Line Alternative Option A (Sunnydale Option A Alternative) would occur within the same area as the proposed project, the existing conditions would be the same as described in Section D.6.1.

The proposed Egbert Switching Station, Martin-Egbert transmission line, Egbert-Embarcadero transmission line, and the existing Martin Substation would remain unchanged under this alternative. Therefore, the impact analysis for the Sunnydale Option A Alternative would only compare the alternative line option to the segment of the proposed Jefferson-Egbert transmission line it would replace.

Environmental Impacts

Impact EN-1: The Sunnydale Option A Alternative would require construction of 0.6 miles of underground transmission lines, which is 0.14 miles greater than the proposed alignment. The longer transmission line associated with this alternative would require approximately 19 additional days of construction (assuming installation of 40 feet of underground transmission line per day). The longer construction schedule would result in an overall increase in petroleum required for construction of this alternative, but the increased demand would be minimal and would not result in a significant impact (Class III).

Impact EN-2: The Sunnydale Option A Alternative would require petroleum for regular maintenance activities within the line segment. Petroleum consumption resulting associated with inspections and ongoing maintenance activities (primarily associated with periodic maintenance vehicle travel) would be negligible, because these activities are part of PG&E's ongoing baseline

operations at the existing Embarcadero, Jefferson, and Martin Substations and are expected to be infrequent and minimal. Therefore, impacts would be less than significant (Class III).

Impact EN-3: The Sunnydale Option A Alternative would be consistent with all adopted plans and policies associated with energy use and reduction, and impacts would be less than significant (Class III).

Comparison to the Proposed Project

Energy impacts resulting from the Sunnydale Option A Alternative would be marginally higher compared to the proposed project, due to a longer construction schedule for transmission line infrastructure. Operational impacts from this alternative would not substantially differ from those resulting from the proposed project. Overall, energy resources required to develop this alternative would be slightly greater than the proposed project.

D.6.4.4 No Project Alternative

Under the No Project Alternative, none of the facilities associated with the proposed project or alternative would be constructed, and therefore, none of the impacts discussed in this section would occur.

D.6.5 Mitigation Monitoring, Compliance, and Reporting

Because no impacts have been identified to energy, no applicant proposed measures or mitigation measures are necessary.

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D.7 GEOLOGY AND SOILS

This section evaluates the potential for the Egbert Switching Station (Martin Substation Extension) Project (proposed project) to impact geological and soil conditions in the project site. Section D.7.1 provides a summary of existing geological and soil conditions and associated geologic and seismic hazards in the project study area. Applicable regulations, plans, and standards are listed in Section D.7.2. Potential impacts and mitigation measures for the proposed project are presented in Section D.7.3; whereas, Section D.7.4 presents an analysis of the project alternatives. Mitigation monitoring, compliance, and reporting are discussed in Section D.7.5, and Section D.7.6 lists the references cited in this section. Cumulative effects are analyzed in Section F.5.2.6 of this EIR.

The discussion of geology and soils presented in this draft EIR and the evaluation of potential impacts as a result of proposed project implementation is based on the following technical reports and incorporated herein:

- Geotechnical Hazards and Feasibility Evaluation, Langan Engineering and Environmental Services Inc., June 2017 (Appendix D.7-1)
- Final Paleontological Inventory Report, Egbert Switching Station Project, CH2M Hill, November 2017 (Appendix D.7-2)

D.7.1 Environmental Setting for the Proposed Project

The project site lies along the northeastern edge of the San Francisco Peninsula within the City and County of San Francisco and the Cities of Daly City and Brisbane. Land use near the project site is highly urbanized, predominantly consisting of residential, commercial, and light industrial land uses. The following analysis is based on review of the PEA (PG&E 2017), which contains a detailed review of the geology, soils, and seismicity of the project site. This section summarizes the PEA review, where relevant to the analysis of the proposed project's potential impacts. In addition, a review of relevant state and local plans and policies regarding geology and soils, an overview of the Geologic Hazard and Feasibility Evaluation prepared for the proposed project by Langan Engineering and Environmental Services Inc. in June 2017 (Appendix D.7-1), and an overview of the paleontological inventory report prepared by CH2M Hill in November 2017 (Appendix D.7-2).

D.7.1.1 Regional Setting

The project site lies along the northeastern edge of the San Francisco Peninsula, passing through the Cities of San Francisco, Daly City, and Brisbane, California. The San Francisco Peninsula is bound by the Pacific Ocean on the west and San Francisco Bay on the east. The San Francisco Bay region is located within the northern Coast Ranges geomorphic province of California, an

area characterized by northwest-trending mountains and associated valleys formed along the tectonic margin shared by the Pacific and North American plates (CGS 2002).

Features associated with the active San Andreas Fault system dominate the geologic setting of the San Francisco Bay region. The project site is located in close proximity to the San Francisco Bay, which fills a north-northwest trending structural trough in the central Coast Ranges between the San Andreas Fault to the southwest and the Hayward Fault to the northeast. Much of the modern-day San Francisco Bay shoreline, including portions of the project study area, was created by extending the natural shoreline outward through placement of artificial fills[1] to raise the natural land surface above the water. The practice of creating land by placing artificial fill on the gently sloping tidal flats along the eastern margin of the San Francisco Peninsula began about the time of the Gold Rush. The proposed switching station site and proposed transmission lines on Egbert Avenue are outside of and to the west of the known extent of artificial fill in an area of Pleistocene sediments with a low, flat topography. The Martin Substation is within and area mapped as being composed of artificial fill over tidal flats (PG&E 2017).

D.7.1.2 Topography

In general, the topography of the San Francisco Peninsula consists of bedrock hills surrounding narrow valleys filled with unconsolidated deposits. Accordingly, the proposed Jefferson-Egbert transmission line crosses land that is alternately hilly and flat. The southern end begins on Guadalupe Canyon Parkway, which is along the Guadalupe Hills area of San Bruno Mountain. The line generally descends toward McLaren Park before rising to a high point along Mansell Street. Moving eastward, the line descends to the switching station. Project elevations vary between approximately 30 and 400 feet above sea level.

The Franciscan Complex makes up the bedrock in the proposed Jefferson-Egbert route, and is exposed at higher elevation sites such as along Mansell Street and McLaren Park in the middle of the project study area and San Bruno Mountain on the southern end (Bonilla 1998). Lower-lying portions of the project study area are covered with Holocene and Pleistocene epoch sediment.

D.7.1.3 Geology and Soils

Along the alignment of the proposed transmission lines, between the City and County of San Francisco and the City of Daly City, the geology varies from undifferentiated sedimentary deposits to Franciscan Complex bedrock. The northern section of the proposed Jefferson-Egbert transmission

[1] In this context, artificial fill means the placement of dirt, debris, and/or rock from outside sources to create new land over water, or level land for construction. Depending on the time of placement and building regulations in place at the time, artificial fills may be "engineered" (i.e., in conformance with modern building codes and practices), or "undocumented." Fill is typically presumed to be unsuitable for new construction if no records exist to substantiate the pre-existing content, mixture, and/or strength of the fill.

line is underlain by sedimentary deposits, including several feet of clayey fill over loose- to medium-density sand, with varying fines content and clay layers. The southern section of the Jefferson-Egbert transmission line passes through the edge of a band of Franciscan Complex bedrock. Above the bedrock are intermittent layers of sand and clay (see Appendix D.7-1). The Martin Substation is within an area mapped as being composed of artificial fill over tidal flats, and the proposed Egbert Switching Station and the Martin-Egbert transmission line are over sediments mapped as undifferentiated sedimentary deposits of Pleistocene age (PG&E 2017).

Across the entire project site, 12 soil units are located along proposed project routes and within the Egbert Switching Station site. Table D.7-1 identifies the soil types and characteristics within the project site.

Table D.7-1
Soil Units and Characteristics

Soil Name[a]	Description[a]	Soil Drainage Class[b]	Shrink-Swell Potential[a]
Candlestick–Kron–Buriburi complex, 30% to 75% slopes	This unit, which is present along 0.86 miles of the proposed Jefferson-Egbert transmission line, is 40% Candlestick fine sandy loam, 25% Kron sandy loam, and 20% Buriburi gravelly loam.	Well-drained	Low
Orthents, cut and fill, 0% to 15% slopes	This unit, which is present along approximately 0.15 miles of the proposed Jefferson-Egbert transmission line, consists of soils that have been cut and filled for recreational development (e.g., golf courses and ballfields) or for cemeteries. These very shallow to very deep, well-drained soils are on alluvial fans, coastal terraces, and hills. The soils formed in alluvium and residuum derived dominantly from hard or soft sandstone.	Well-drained	Low
Orthents, cut and fill–Urban land complex, 0% to 5% slopes	This unit is present along approximately 0.27 miles of the proposed Martin-Egbert transmission line, 0.61 miles of the Jefferson-Embarcadero transmission line, and at the proposed Egbert Switching Station. The unit is 55% Orthents, cut and fill, and 35% Urban land. The Orthents consist of soils that have been cut and filled for urban development (e.g., construction of roads and buildings). These are poorly to well-drained soils and are nearly level to gently sloping. These soils are predominantly deep and very deep, loam or clay loam. In most areas, the texture of the surface layer varies greatly, because the upper part of the profile has been graded and moved or fill material has been added. Urban land consists of areas covered by asphalt, concrete, buildings, and other structures. The material covered by these structures consists of soils that are similar to the Orthents.	Well-drained	Shrink-swell potential of the Orthents is low; shrink-swell potential of Urban land is unrated.

Table D.7-1
Soil Units and Characteristics

Soil Name[a]	Description[a]	Soil Drainage Class[b]	Shrink-Swell Potential[a]
Orthents, cut and fill–Urban land complex, 5% to 75% slopes	This unit is present along approximately 0.06 miles of the proposed Jefferson-Egbert transmission line. These very shallow to very deep, well-drained soils are on uplands. The soils formed in residuum derived predominantly from sandstone. This unit consists of soils that have been cut and filled for urban development and are moderately steep to very steep. These soils vary greatly in thickness and in the texture of the surface layer. The soil material in the steeper areas generally has been cut or removed for the construction of building foundations and roadways, and bedrock is commonly exposed. The areas of fill generally have slopes of less than 30%.	Well-drained	Shrink-swell potential of the Orthents is low; shrink-swell potential of Urban land is unrated.
Pits and Dumps	This map unit consists of gravel pits, refuse dumps, and rock quarries. Major quarries are in Pacifica, near Rockaway Beach, and on San Bruno Mountain, west of the City of Brisbane. Sanitary landfills are in the City of Daly City, near Mussel Rock and along El Camino Real, and along San Francisco Bay, in San Mateo and Redwood City. A few small gravel pits are throughout the unit. This unit typically is barren and has little value for agricultural uses.	Unrated	Unrated
Urban land	This map unit consists of areas where more than 85% of the surface is covered by asphalt, concrete, buildings, and other structures. Slope generally is 0% to 5% but can range from 0% to 30%.	Unrated	Unrated
Urban land–Orthents, cut and fill complex, 0% to 5% slopes	This unit is 50% Urban land and 45% Orthents, cut and fill. Urban land consists of areas that are covered by asphalt, concrete, buildings, and other structures. Urban soils are similar to the Orthents, which consist of soils that have been cut and filled for urban development such as the construction of roads and buildings. These soils are deep loam or clay loam. In most areas, the texture of the upper part of the soils varies greatly, because it has been graded and moved or fill material has been added.	Well-drained	Shrink-swell potential of the Orthents is low; shrink-swell potential of Urban land is unrated.
Urban land-Orthents, cut and fill complex, 5% to 75% slopes	This unit is 50% Urban land and 40% Orthents, cut and fill. Urban land consists of areas that are covered by asphalt, concrete, buildings, and other structures. Urban soils are similar to Orthents, which consist of soils that have been cut and filled for home site and urban development. These soils vary greatly in thickness and in the texture of the surface layer. Extensive terraces have been constructed on the side slopes of uplands. These soils are used as building foundations and road bases and to control runoff.	Well-drained	Shrink-swell potential of the Orthents is low; shrink-swell potential of Urban land is unrated.

Source: NRCS, 2012 as cited in PG&E 2017.
Notes: — = no data.
[a] Soil name, description, and shrink-swell potential taken from PG&E 2017.
[b] Soil drainage class data taken from the U.S. Department of Agriculture Web Soil Survey database (USDA 2018).

Soils within the project site are generally well drained. Soil drainage class indicates soil wetness or degree of saturation in the presence of applied surface water. Poorly drained soil conditions can occur when the amount of water added to the soils exceeds that removed by drainage, due to an impervious material in the subsurface or a high groundwater table. Soil drainage directly affects soil saturation, which can affect runoff and soil erosion. Furthermore, soil shrink-swell potential is generally low within the project site. Soil units and characteristics presented in Table D.7-1 are estimates based on representative soil profiles evaluated by the U.S. Department of Agriculture and are useful approximations, but they do not necessarily represent the exact soil conditions present within the proposed project's disturbance footprint.

D.7.1.4 Geologic Hazards

Erosion

Erosion is the process by which rocks, soil, and other land materials are abraded or worn away from Earth's surface over time. A soil's susceptibility to erosion varies and is a function of its texture, structure, topography, amount of vegetative cover, climate, drainage, and human activity. Erosion from water mainly occurs in loose soils on moderate-to-steep slopes, particularly during high-intensity storm events and in areas that are sparsely vegetated or where the soil structure has been disturbed. Preexisting urbanization and paving limits the susceptibility of underlying soil to erosion. Because the proposed project is predominantly in urbanized and paved areas, the erosion susceptibility is low.

Faults and Seismicity

The Alquist-Priolo Earthquake Fault Zoning Act requires the establishment of "earthquake fault zones" along known Holocene-active (past 11,700 years) faults in California. The nearest Alquist-Priolo fault zones to the project site include the Green Valley, Concord, Calaveras, Hayward, Rodgers Creek-Healdsburg, San Andreas, and San Gregorio Faults (Bryant and Hart 2007). Figure D.7-1 includes a regional fault map showing faults in the San Francisco Bay Area and the vicinity of the proposed project. There are no Alquist-Priolo earthquake fault zones or other known faults within or adjacent to the project site; there is no fault hazard rupture for the project.

The San Andreas Fault Zone is the Alquist-Priolo zoned fault of closest proximity to the project. The fault is a right-lateral strike-slip fault that extends roughly 700 miles (1,126 kilometers) from Northern California to near the United States/Mexico border. Significant earthquakes along the San Andreas Fault in the San Francisco Peninsula region include the 1906 San Francisco

earthquake with an estimated moment magnitude[2] (M_w) of 7.9, a 1957 offshore quake (M_w 5.7), and the 1989 Loma Prieta earthquake (M_w 6.9).

Fault System Classification

Jennings and Bryant (2010) establish the following classification scheme for fault age and recency of movement:

- Historic faults underwent displacement within the last 200 years
- Holocene faults exhibit evidence of displacement within the last 11,700 years without historic record
- Late Quaternary faults exhibit evidence of displacement within the last 700,000 years
- Quaternary faults exhibit evidence of displacement within the last 1.6 million years
- Pre-Quaternary faults exhibit evidence of displacement prior to the last 1.6 million years

A Quaternary or Pre-Quaternary fault called the City College Fault crosses the proposed Jefferson-Egbert transmission line at approximately Velasco Avenue. This fault does not meet the criteria for a sufficiently active or well-defined fault and is not governed by the Alquist-Priolo Act. The fault appears to have a low potential for sympathetic movement associated with an earthquake on regional active faults (Appendix D.7-1). The seismicity of active and potentially active regional faults are summarized in Table D.7-2.

Table D.7-2
Regional Faults and Seismicity

Regional Faults and Seismicity Fault Segment	Approximate Distance from the Proposed Egbert Switching Station (miles)	Direction from the Proposed Egbert Switching Station
North San Andreas–Peninsula	5.5	West
North San Andreas (1906 rupture)	5.5	West
San Gregorio Connected	10.5	West
North San Andreas–North Coast	10.5	West
Total Hayward	12.5	Northeast
Total Hayward–Rodgers Creek	12.5	Northeast
Monte-Vista Shannon	22	Southeast

[2] The magnitude is a number that characterizes the relative size of an earthquake. Magnitude is based on measurement of the maximum motion recorded by a seismograph. Several scales have been defined, but the most commonly used are (1) local magnitude (ML), commonly referred to as "Richter magnitude", (2) surface-wave magnitude (Ms), (3) body-wave magnitude (Mb), and (4) moment magnitude (M_w). Scales 1-3 have limited range and applicability and do not satisfactorily measure the size of the largest earthquakes. The M_w scale, based on the concept of seismic moment, is uniformly applicable to all sizes of earthquakes but is more difficult to compute than the other types.

Table D.7-2
Regional Faults and Seismicity

Regional Faults and Seismicity Fault Segment	Approximate Distance from the Proposed Egbert Switching Station (miles)	Direction from the Proposed Egbert Switching Station
Total Calaveras	22.5	East
Mount Diablo Thrust	22.5	East
Rodgers Creek	25	North
Green Valley Connected	25.5	East
Point Reyes	28	West

Source: Appendix D.7-1.

Ground Shaking

The U.S. Geological Survey evaluated the Bay Area seismicity through a study by the Working Group on California Earthquake Probabilities (WGCEP) using the Uniform California Earthquake Rupture Forecast model (WGCEP 2015). WGCEP estimated a 6.4% chance of one or more earthquakes of M_w 6.7 or greater occurring on the San Andreas Fault within 30 years of the publication date (2014–2044). Comparatively, the WGCEP estimated a 14.3% chance that a M_w 6.7 or greater earthquake will occur on the Hayward Fault, located approximately 12.5 miles (20 kilometers) east of the project, within the same time period. The 30-year probability of a 6.7 M_w earthquake occurring in the San Francisco region was modeled at 72% (WGCEP 2015).

Ground shaking, a general term referring to all aspects of motion of the Earth's surface resulting from an earthquake, is normally the major cause of damage in seismic events. The primary tool that seismologists use to evaluate ground-shaking hazard and characterize statewide earthquake risks is a probabilistic seismic hazard assessment. The probabilistic seismic hazard assessment for the State of California takes into consideration the range of possible earthquake sources and estimates their characteristic magnitudes to generate a probability map for ground shaking. A commonly used probabilistic seismic hazard assessment metric consists of the peak ground acceleration (PGA) that has a 10% probability of being exceeded in 50 years (i.e., a 1 in 475 chance). The PGA for a given component of motion is the largest value of horizontal acceleration obtained from a seismograph. PGA is expressed as the percentage of the acceleration due to gravity (g), which is approximately 980 centimeters per second squared. Use of this probability level allows engineers to design structures to withstand ground motions that have a 90% chance of not occurring in the next 50 years, making buildings and structures safer than if they were merely designed for the most probable events.

The PGA for the project site with a 10% chance of being exceeded in a 50-year period ranges between 0.5 and 0.6 g. The PGA for the project site with a 2% chance of being exceeded in a 50-year period ranges between 0.8 and 0.9 g (CGS 2008).

Liquefaction

Liquefaction, which can occur in earthquakes with strong ground shaking, is mostly found in areas with sandy soil or fill and a high water table located 50 feet or less below ground surface. When a saturated, cohesionless soil liquefies during a major earthquake, it experiences a temporary loss of shear strength due to a transient rise in excess pore water pressure generated by strong ground motion. Flow failure, lateral spreading, differential settlement, loss of bearing strength, ground fissures, and sand boils are evidence of excess pore pressure generation and liquefaction. Liquefaction can cause damage to property, when underlying soils liquefy and become unstable, causing sinking or other major structural damage. Evidence of liquefaction may be observed in "sand boils," which are expulsions of sand and water from below the surface due to increased pressure below the surface.

Characteristics controlling liquefaction susceptibility include grain-size distribution, level of compaction, and degree of saturation. Because liquefaction can be caused by seismic shaking, the magnitude of liquefaction exhibited by a material can be related to the intensity of ground shaking. As shown in Figure D.7-2, Seismic Hazards, the potential staging area along Amador Street in the Port of San Francisco's (Port's) Southern Waterfront heavy industrial port area would be located within a mapped liquefaction hazard zone. Furthermore, the proposed Jefferson-Egbert transmission line is located within a mapped liquefaction hazard zone in a narrow 100-foot zone between Velasco and Geneva Avenues (Figure D.7-2). Based on the Geologic Hazard and Feasibility Evaluation for the proposed project, which reviewed pre-existing subsurface data, it was determined that the soils underlying this 100-foot zone between Velasco and Geneva Avenues are sandy, dense, and not liquefiable (Appendix D.7-1). However, approximately 1–4 inches of liquefaction-induced settlement may occur in a zone surrounding the proposed Egbert Switching Station, the proposed Martin-Egbert and Egbert-Embarcadero transmission line segments, and approximately 0.2 miles of the proposed Jefferson-Egbert transmission line south of the Egbert Switching Station site, as shown in cross-hatches in Figure D.7-2 (Appendix D.7-1). During a major seismic event, there is the potential for liquefaction to occur within these areas, and such areas could result in erratic and differential settlement.

Because the liquefiable layers appear discontinuous and the site is relatively level, the potential for lateral spreading is low (Appendix D.7-1).

Landslides

Slope failures include many phenomena that involve the downslope displacement and movement of material, triggered either by gravity or seismic (earthquake) forces. Exposed rock slopes may experience rockfalls, rockslides, or rock avalanches, and soil slopes may experience soil slumps, rapid debris flows, and deep-seated rotational slides. Slope stability can depend on a number of

complex variables, including the geology, structure, and amount of groundwater, as well as external processes such as climate, topography, slope geometry, and human activity. The factors that contribute to slope movements include those that decrease the resistance in the slope materials and those that increase the stresses on the slope. Slope failure can occur on slopes of 15% or less, but the probability is greater on steeper slopes that exhibit old landslide features such as scarps, slanted vegetation, and transverse ridges.

As described previously, the proposed project is located within an area of known seismic activity. Earthquake-induced landslides can be a source of earthquake-related damage. The majority of the project site is not located within an area of high landslide hazard, because it has been modified by urban development. However, approximately 0.27 miles of the proposed Jefferson-Egbert transmission line near the intersection of Carter Street and Guadalupe Canyon Road passes within 100 feet of three zones prone to earthquake-induced landslides and through areas mapped as having potential to produce debris flows (Figure D.7-2) (Appendix D.7-1). The area most likely to experience debris flows is the southern portion of the Jefferson-Egbert transmission line where it extends along the base of San Bruno Mountain. The material is mapped as slope and ravine fill (likely sourced from higher elevations on the mountain) and sandstone and shale bedrock of the Franciscan Complex (Appendix D.7-1). At least some portion of this area has been subject to human modification associated with urban development of adjacent commercial and residential properties. Therefore, landslide potential within this area is reduced.

Subsidence

Land subsidence is the downward settlement of a large area of land, and it has the potential to result in surface infrastructure damage. Historical subsidence in California has resulted from several processes, including oil and gas production, groundwater withdrawal, hydro-compaction, and peat oxidation. Subsidence associated with water or gas withdrawal occurs when compressible subsurface deposits are depressurized as a result of removing water or gas, and can no longer support the weight of the overlying material. In the case of groundwater withdrawal, subsidence occurs primarily when groundwater withdrawal from confined aquifers results in the depressurization and dewatering of compressible clay layers. Subsidence generally occurs slowly, and can continue for a period of several years after pumping has stopped, as water continues to move out of compressible clay layers.

D.7.1.5 Paleontological Resources

As previously discussed in Section D.7.1.3, the geology varies from undifferentiated sedimentary deposits to Franciscan Complex bedrock. A fossil is generally defined as a remnant or trace of an organism of a past geologic age. Most paleontologists in North America use 10,000 years before present (roughly the boundary between the Pleistocene and Holocene) as the cutoff for what

constitutes a paleontological resource, because this boundary is associated with the last major extinction event preserved in the sedimentary record. Appendix D.7-2 is a Paleontological Inventory Report prepared to assess the project site's potential to contain fossils based on the local geology, review of scientific literature, query of online databases (including the University of California at Berkeley Museum of Paleontology), and identification of previous paleontological finds in the project vicinity. Additional details on the study methods and paleontological assessment standards are found therein. The results of the inventory are provided in Table D.7-3 as an assessment of the potential for previously undiscovered paleontological resources to be present within the geologic units underlying the proposed project. There is no potential for disturbance of known fossil locations because the records search of known fossil locations found none within the project study area (Appendix D.7-2).

According to the results of the inventory in Table D.7-3, the paleontological sensitivity of the soils underlying the proposed project range from "very low" to "moderate" (Appendix D.7-2). To address what would constitute significant impact to paleontological resources, Pacific Gas & Electric Company (PG&E) uses the Potential Fossil Yield Classification (PFYC) System developed by the Bureau of Land Management to assess paleontological sensitivity and level of effort required to manage potential impacts to significant resources. In this system, geologic units are classified based on the relative abundance of vertebrate fossils or scientifically significant invertebrate or plant fossils and their sensitivity to adverse impacts. The classifications range from very low to very high with associated numerical indicators (i.e., Class 1 to Class 5, respectively) and apply to geologic formations, members, or other distinguishable units at the most detailed mappable level available. It is important to note that although significant localities may occasionally occur in a geologic unit, a few widely scattered important fossils or localities do not necessarily indicate a higher class. The relative abundance of significant localities is the primary determinant for the class assignment. The sensitivity of the units underlying the project site range from very low (PFYC Class 1) to moderate (PFYC Class 3b), as follows:

- Very Low (PFYC Class 1): These geologic units are not likely to contain fossil remains. They include the igneous or metamorphic units, units of Precambrian in age or older, and artificial or imported fill material.
- Low (PFYC Class 2): These sedimentary geologic units are not likely to contain vertebrate or scientifically significant invertebrate fossils. These units have the following characteristics: vertebrate or significant invertebrate or plant fossils not present or very rare; units younger than 10,000 years before present; recent aeolian deposits; and/or sediments that exhibit significant physical and chemical changes.
- Moderate (PFYC Class 3b): These are fossiliferous sedimentary geologic units where fossil content varies in significance, abundance, and occurrence, or are sedimentary units of unknown fossil potential. Class 3b is a subclassification where the paleontological potential is unknown.

Table D.7-3
Paleontological Sensitivity of Geologic Units within the Project Study Area

Geologic Age	Geologic Unit (Abbreviation)	Paleontological Sensitivity (PFYC Class)	Basis for Sensitivity Rating
Holocene	Artificial Fill (Qad and Qaf/tf)	Very Low (PFYC Class 1)	Consists of artificial fill
	Dune Sand (Qd)	Low (PFYC Class 2)	Recent Aeolian deposits; less than 10,000 years old
	Landslide Deposits (Ql)	Low (PFYC Class 2)	Fossils are rare at shallow depths; no adjacent fossiliferous units; less than 10,000 years old.
Pleistocene	Sedimentary Deposits (Qu)	Moderate (PFYC Class 3b)	Fossils are rare at shallow depths
	Slope Debris and Ravine Fill (Qsr)	Low (PFYC Class 2)	Slope debris coming out of slopes where fossils are rare; subaerial deposition
Cretaceous and Jurassic (Franciscan Complex)	Sandstone and Shale (KJs and KJsk)	Low (PFYC Class 2)	Fossils are rare
	Greenstone (KJg)	Very Low (PFYC Class 1)	Metamorphic unit
	Chert (KJc)	Low (PFYC Class 2)	Fossils are rare
	Sheared Rocks (KJu)	Very Low (PFYC Class 1)	Mechanically altered.
	Metamorphic Rocks (KJm)	Very Low (PFYC Class 1)	Metamorphic unit.
	Serpentine (sp)	Very Low (PFYC Class 1)	Metamorphic unit.

Source: Appendix D.7-2.
Notes: PFYC = Potential Fossil Yield Classification.

Holocene units in the project study area are determined to be of very low to low sensitivity, as shown in Table D.7-2. Most Holocene sediment in the project study area is artificial fill (Qaf and Qaf/tf), which is generally considered to have very low or no paleontological sensitivity. Fill sediment was excavated somewhere else and is generally not considered to be of scientific value because the stratigraphic context has been altered. There are small areas of dune sand (Qd) in the project study area; these are of low paleontological sensitivity because of their deposition in a high-energy, sub-aerial environment and because of the porosity of sand. All of these factors make fossil preservation in sand dunes unlikely. The project study area also contains a few small areas of landslide deposits. These areas are of similarly low paleontological sensitivity because they occur as pockets within areas of Franciscan Complex rock, largely representing landslides of Franciscan Complex material (which, as indicated in Table D.7-2, has low paleontological sensitivity). In addition, these geologic units are assumed to be less than 10,000 years old, which is less than the widely accepted minimum age for fossils (Appendix D.7-2).

Fossils have been found in Pleistocene epoch sediments in San Francisco during excavations for construction projects, including the Bay Bridge, Bay Shore Southern Pacific Tunnel, Twin Peaks Tunnel, construction of an office building on Pacific Street, and construction of the Southeast Sewage Treatment Plant (Appendix D.7-2). The Islais Creek channel is approximately 1.25 miles from the project study area. This site yielded a sparse Rancholabrean-age fossil fauna (Appendix D.7-2). Fossils were also found in borings in the Islais Creek area in sediment identified as Old Bay Mud. Fossil plants and mollusk fossils were found in an excavation at the Southeast Water Pollution Control Plant, in the Bayview District 0.8 miles northeast of the project study area. Two localities in South San Francisco (University of California at Berkeley Museum of Paleontology localities V-6203 and V-6319) have also produced Rancholabrean faunas, including bison and elk or moose (Appendix D.7-2).

Many of the Pleistocene epoch fossils found on the San Francisco Peninsula are recorded as being found in named geologic units such as the Colma Formation or Old Bay Mud that do not occur in the project study area (Appendix D.7-2). Fossils in undifferentiated sediment such as Qu are rarely encountered at shallow depths (less than 20 feet below ground surface). Excavations associated with the project in Qu would be a maximum of 10 feet below ground surface. As previously discussed, scientifically significant fossils are occasionally found in Pleistocene sediment although the probability of finding them is low. Thus, the paleontological sensitivity is considered to be moderate. The sensitivity of Qsr, which is slope debris and ravine fill, is low because the adjacent slopes from which the material was originated, the Franciscan Complex, have low paleontological sensitivity and the material was deposited subaerially (Appendix D.7-2).

Fossils have been found in the Franciscan Complex in the greater Bay Area, but they are not very common (Appendix D.7-2). Sandstone and shale (KJs and KJsk) of the Franciscan Complex has on very rare occasion yielded fossils, but its deposition on deep-ocean plains principally as a result of marine landslides was not conducive to fossil preservation. The paleontological sensitivity of KJs and KJsk is low. Chert (KJc) may contain abundant microfossils such as radiolaria but rarely contains macrofossils; therefore, paleontological sensitivity is low. Greenstone (KJg), metamorphic rocks (KJm), and serpentinite (sp) are highly metamorphosed rocks altered by intense heat and pressure, and are not expected to yield fossils; they also have very low paleontological sensitivity. Similarly, sheared rock (KJu) has been so mechanically altered as to be of no paleontological sensitivity; any fossils within it would have been destroyed (Appendix D.7-2).

D.7.2 Applicable Regulations, Plans, and Standards

Geologic resources and geotechnical hazards are governed primarily by local jurisdictions. The conservation elements and seismic safety elements of city general plans contain policies for the protection of geologic features and avoidance of hazards, but do not specifically address transmission line construction projects. For the proposed underground segment, local grading ordinances establish detailed procedures for underground utility construction, including trench

backfill, compaction, and testing. Relevant and potentially relevant statutes, regulations, and policies are discussed as follows.

Federal Regulations, Plans, and Standards

Occupational Safety and Health Administration Regulations

Excavation and trenching are among the most hazardous construction operations. The Occupational Safety and Health Administration Excavation and Trenching standard (29 CFR 1926.650) covers requirements for excavation and trenching operations. The Occupational Safety and Health Administration requires that all excavations in which employees could potentially be exposed to cave-ins be protected by sloping or benching the sides of the excavation, supporting the sides of the excavation, or placing a shield between the side of the excavation and the work area.

State Regulations, Plans, and Standards

California Environmental Quality Act (CEQA) (California PRC, Section 21000 et seq.) was adopted in 1970 and applies to most public agency decisions to carry out, authorize, or approve projects that may have adverse environmental impacts. CEQA requires that agencies inform themselves about the environmental effects of their proposed actions, consider all relevant information, provide the public with an opportunity to comment on the environmental issues, and avoid or reduce potential environmental harm whenever feasible. Relevant CEQA sections include those for protection of geologic and mineral resources, protection of soil from erosion, and protection of paleontological resources (certain fossils found in sedimentary rocks).

Alquist-Priolo Earthquake Fault Zoning Act of 1972

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 (formerly the Special Studies Zoning Act) (California PRC, Sections 2621–2630) regulates development and construction of buildings intended for human occupancy to avoid the hazard of surface fault rupture. While the act does not specifically regulate gas pipelines, it does help define areas where fault rupture is most likely to occur. The act groups faults into categories of active, potentially active, and inactive. Historical and Holocene-age faults are considered active, late-Quaternary-age and Quaternary-age faults are considered potentially active, and pre-Quaternary-age faults are considered inactive. These classifications are qualified by the conditions that a fault must be shown to be "sufficiently active" and "well defined" by detailed site-specific geologic explorations in order to determine whether building setbacks should be established.

The proposed project is not within an Alquist-Priolo earthquake fault zone and does not involve a structure for human occupancy; therefore, it is not subject to the requirements of this act.

California Seismic Hazards Mapping Act: Seismic Ground Shaking Hazards

The California Seismic Hazards Mapping Act of 1990 (California PRC, Sections 2690–2699.6) is designed to protect the public from the effects of strong ground shaking, liquefaction, landslides, other ground failures, or other hazards caused by earthquakes. The act requires site-specific geotechnical investigations to identify the hazard and the formulation of mitigation measures before the permitting of most developments designed for human occupancy. Special Publication 117, *Guidelines for Evaluating and Mitigating Seismic Hazards in California* (CGS 2008), constitutes the guidelines for evaluating seismic hazards other than surface fault rupture and for recommending mitigation measures, as required by California Public Resources Code, Section 2695(a).

California Building Code

The California Building Code (CBC), which is codified in Title 24 of the California Code of Regulations, Part 2, was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards related to structural strength, means of egress to facilities (entering and exiting), and general stability of buildings. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures within its jurisdiction. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under state law, all building standards must be centralized in Title 24 or they are not enforceable. The provisions of the CBC apply to the construction, alteration, movement, replacement, location, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The 2016 edition of the CBC is based on the 2015 International Building Code published by the International Code Council. The code is updated triennially, and the 2016 edition of the CBC was published by the California Building Standards Commission on July 1, 2016, and takes effect starting January 1, 2017. The 2016 CBC contains California amendments based on the American Society of Civil Engineers Minimum Design Standard ASCE/SEI 7-10, Minimum Design Loads for Buildings and Other Structures, provides requirements for general structural design and includes means for determining earthquake loads[3] as well as other loads (such as wind loads) for inclusion into building codes. Seismic design provisions of the building code generally prescribe minimum lateral forces applied statically to the structure, combined with the gravity forces of the dead and live loads of the structure, which the structure then must be designed to withstand. The prescribed lateral forces are generally smaller than the actual peak forces that would be

[3] A load is the overall force to which a structure is subjected in supporting a weight or mass, or in resisting externally applied forces. Excess load or overloading may cause structural failure.

associated with a major earthquake. Consequently structures should be able to (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural damage but with some nonstructural damage, and (3) resist major earthquakes without collapse, but with some structural as well as nonstructural damage.

California Public Utilities Commission General Orders

PG&E, as the applicant, is required to comply with all applicable California Public Utilities Commission (CPUC) General Orders (GOs), which establish regulatory requirements for the design, construction, and operation of electrical systems. Applicable GOs include:

- GO 128 – Rules for Construction of Underground Electric Supply and Communication Systems
- GO 165 – Inspection Requirements for Electric Distribution and Transmission Facilities

Of the many requirements of GO 128, it stipulates that project elements (e.g., handholes, manholes, vaults, and trenches) provide sufficient strength to sustain, with a suitable margin of safety, the loads which may reasonably be imposed on them.

Industry Building Code and Standards

In addition to the requirements of CPUC GOs, foundations and structures for electrical substation and transmission facilities are required to be constructed in accordance with applicable industry building codes and standards. For example, PG&E standards require substations be designed and equipped according to qualification requirements described in the Institute of Electrical and Electronics Engineers (IEEE) Standard 693-2005, Recommended Practice for Seismic Design of Substations. IEEE Standard 693-2005 exists to ensure that substations do not experience damage or loss of function during and after seismic events. Other applicable IEEE standards include (but are not limited to) IEEE 691-2001, Guide for Transmission Structure Foundation Design and Testing, and IEEE 977-2010, Guide to Installation of Foundations for Transmission Line Structures.

Local

The CPUC has exclusive jurisdiction over the siting, design, and construction of the proposed project; the proposed project is not subject to local discretionary regulations. PG&E would obtain a building permit or other required ministerial permits for construction of the Egbert Switching Station building and equipment foundations.

D.7.3 Environmental Impacts and Mitigation Measures

D.7.3.1 Definition and Use of Significance Criteria

Geologic and soil conditions were evaluated with respect to the impacts the project may have on the local geology, as well as the impact specific geologic hazards may have on the proposed project. The significance of these impacts was determined on the basis of CEQA statutes (14 CCR 15000 et seq.), guidelines, and appendices; thresholds of significance developed by local agencies; government codes and ordinances; and requirements stipulated by California Alquist–Priolo Act statutes. Significance criteria and methods of analysis were also based on standards set or expected by agencies for the evaluation of geologic hazards. In accordance with Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on geology and soils if the proposed project would:

Impact GS-1 Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

(i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault

(ii) Strong seismic ground shaking

(iii) Seismic related ground failure, including liquefaction

(iv) Landslides

Impact GS-2 Result in substantial soil erosion or the loss of topsoil

Impact GS-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

Impact GS-4 Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property

Impact GS-5 Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water

Impact GS-6 Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature

D.7.3.2 Applicant Proposed Measures

Table D.7-4 presents the applicant proposed measure (APM) proposed by PG&E to reduce project impacts related to geology and soils.

Table D.7-4
Applicant Proposed Measures for Geology and Soils

APM No.	Description
APM GS-1	Appropriate Design Measures Implementation. A site-specific geotechnical investigation will be performed to develop appropriate conclusions and recommendations for final design.
APM GS-2	Appropriate Soil Stability Measures Implementation. Based on available references, bedrock, artificial fills, loam, sandy loam, and clay loam are the primary subsurface materials expected to be encountered in the excavated areas as project construction proceeds. Potentially problematic subsurface conditions may include soft or loose soils. Where soft, loose, or liquefiable soils are encountered during design studies or construction, appropriate measures will be implemented to avoid, accommodate, replace, or improve soft or loose soils and liquefaction hazards. Such measures may include the following: • Locating construction staging and operations away from areas of soft and loose soil • Over excavating soft or loose soils and replacing them with suitable non-expansive engineered fill • Increasing the density and strength of soft or loose soils through mechanical vibration and/or compaction • Treating soft or loose soils in place with binding or cementing agents • Adding physical ground improvement such as in situ soil mixing, drain piles, or sheet piles • Deepening of trench and/or using trenchless technology to place the transmission line beneath liquefiable fills and/or potential for lateral spreading, where feasible
APM PR-1	Worker's Environmental Training Awareness Program – Paleontological Module. The project's worker environmental awareness program, which all workers will complete prior to beginning work on the project site, will include a module on paleontological resources (fossils). The module will discuss the laws protecting paleontological resources, recognition in the field and types of paleontological resources that could be encountered on the project, and the procedures to be followed if a paleontological resource is discovered. A copy of the project's worker environmental awareness training will be provided to CPUC for recordkeeping prior to the start of construction.
APM PR-2	Unanticipated Paleontological Resource Discovery. If fossils are observed during excavation, work in the immediate vicinity of a paleontological find will be halted or redirected to avoid additional impact to the specimen(s), and to allow a professional paleontologist to assess the scientific importance of the find and determine appropriate treatment. If the discovery is significant, the qualified paleontologist will implement data recovery excavation (with the landowner's permission) to scientifically recover and curate the specimen.

D.7.3.3 Impact Discussion

Impact GS-1 **Would the project directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving:**

(i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

As discussed in Section D.7.1, Environmental Setting, the proposed project is not located within an Alquist-Priolo earthquake fault zone or near any other known earthquake fault. Therefore, the risk of earthquake fault rupture at the proposed Egbert Switching Station site, existing Martin and Jefferson Substations, or anywhere along the proposed transmission line alignments is negligible. Impacts with respect to this criterion would be less than significant (Class III).

(ii) Strong seismic ground shaking?

As discussed in Section D.7.1, the proposed project would be located in seismically active area. The probabilistic PGA values in the project site (with a 10% chance of occurring in 50 years) range from 0.5 to 0.6 g. This level of ground shaking is sufficient to be widely felt and cause damage to buildings and structures. Historically, the largest earthquake known to have occurred in the area since the year 1800 was a M_w 7.5 earthquake in 1906, which occurred on the San Andreas Fault from Shelter Cover to San Juan Bautista, approximately 470 kilometers in length. Because the proposed project does not include structures for human occupancy, the structures to be replaced would have the same or greater load-bearing characteristics, and the proposed work would be collocated with existing infrastructure, the proposed project would not increase existing levels of public exposure to fault rupture, seismic ground shaking, or seismic-related ground failure such as liquefaction. The proposed project must comply with strength requirements and safety factors for construction and maintenance found in CPUC GO 128, and would be designed and constructed in accordance with appropriate IEEE standards. Specifically, the switching station equipment would follow High Level IEEE 693[4] seismic design requirements. Among other requirements, CPUC GOs 128 and 165 require that lines or parts thereof be replaced or reinforced when safety factors have been reduced below certain specified minimums.

[4] IEEE 693 covers seismic qualification of battery racks, transformers, switchgear, and other products and equipment for substations. The standard details the requirements for qualification by analysis and shake table testing. IEEE 693 specifies three different seismic levels for qualification: High Seismic Level, Moderate Seismic Level, and Low Seismic Level. Qualification to the high and moderate levels require analysis and/or physical testing.

To reduce potential impacts related to seismic-related ground shaking, APM GS-1 would be implemented, which requires a final, site-specific geotechnical investigation be performed to further assess soil conditions for final design. The final geotechnical investigation, which is standard practice in the building industry to follow a preliminary geotechnical investigation, is not anticipated to uncover geologic conditions that cannot be mitigated through standard geotechnical engineering. Furthermore, in accordance with APM GS-2, where soft soil conditions are encountered, PG&E would employ one or more measures to avoid, accommodate, replace, or improve such soils. Such methods include moving construction staging and operations away from soft and loose soil, over excavating and replacing unsuitable soils with engineered fill, or mechanically strengthening the soft soils through vibration, compaction, binding, and/or cementing.

Although the proposed project could be subject to strong seismic ground shaking, it would not appreciably increase public exposure to such risks, and would be designed and constructed in accordance with applicable industry standards and APM GS-1 and APM GS-2. Furthermore, the purpose of the project is to provide redundancies in the electrical distribution system to minimize interruptions in electrical services in the event of localized damage that may occur from seismic hazards. In the event an earthquake produces significant ground motions within the project site, PG&E would send crews to inspect the lines and repair any damage detected, in accordance with existing practice and procedures. For these reasons, impacts would be less than significant (Class III).

(iii) Seismic-related ground failure, including liquefaction?

As discussed in Section D.7.1, portions of the proposed Jefferson-Egbert transmission line, the entire Egbert Switching Station site, and the proposed Martin-Egbert and Egbert-Embarcadero transmission line alignments could be susceptible to liquefaction and seismic-related settlement. Furthermore, potential staging areas along Amador Street in the Port's Southern Waterfront heavy industrial port area would be located within a mapped liquefaction hazard zone.

The Geologic Hazard and Feasibility Evaluation recommended that at-grade structures within the proposed Egbert Switching Station site be supported on mat foundations constructed over improved soil or deep foundation that extend through the unsuitable soils to material below the potentially liquefiable soil layers (see Appendix D.7-1). The report also recommended that soil-cement-columns or drilled displacement columns could be used for ground improvement. Project design within the project site would include excavation of soft, loose, and wet soils and replacement with imported structural fill materials, as required by APM GS-2. Replacement of native soils with properly compacted fill materials would avoid and/or substantially reduce the liquefaction potential within the project site. Furthermore, in accordance with APM GS-1, PG&E

would perform a final site-specific geotechnical investigation and adhere to recommendations and design conclusions from the Geologic Hazard and Feasibility Evaluation.

As the staging areas for the proposed project, including the staging area along Amador Street in the Port's Southern Waterfront heavy industrial port area, would not include structures, project activities in those areas would not expose people or structures to potential substantial adverse effects. Furthermore, the purpose of the project is to provide redundancies in the electrical distribution system to minimize interruptions in electrical services in the event of localized damage that may occur from seismic hazards. Therefore, potential impacts from seismic-related ground failure, including liquefaction, would be less than significant during construction, operation, and maintenance phases (Class III).

(iv) Landslides?

As discussed in Section D.7.1, the majority of the project site is not located within an area of high landslide hazard. However, approximately 0.27 miles of the proposed Jefferson-Egbert transmission line near the intersection of Carter Street and Guadalupe Canyon Road is located within a potential debris flow source area. The proposed project in these areas consist of underground elements within existing street rights-of-way and are located downslope of (rather than on) potential debris source areas and, thus, are not likely to be significantly damaged in the event of a landslide or debris flow. Further, any damage that may occur to these structures would not represent a public safety hazard, and the purpose of the project is to provide redundancies in the electrical distributions system to minimize interruptions in electrical services for such a scenario. Nevertheless, with incorporation of APM GS-1, PG&E would perform a final, site-specific geotechnical investigation and implement appropriate design criteria and measures to address potentially unstable soil conditions within this area. As discussed for seismic-related impacts, the final geotechnical investigation, which is standard practice in the building industry to follow a preliminary geotechnical investigation, is not anticipated to uncover geologic conditions that cannot be mitigated through standard geotechnical engineering. Accordingly, impacts associated with potential debris flows would be less than significant (Class III).

Impact GS-2 Would the project result in substantial soil erosion or the loss of topsoil?

As described in Section D.7.1, preexisting urbanization and paving limits the susceptibility of underlying soil to erosion. Because the proposed project is predominantly in urbanized and paved areas, the erosion potential is low. However, the preliminary stage of construction of the proposed Egbert Switching Station, especially initial site grubbing, grading, and soil stockpiling, would result in loose soil temporarily being exposed to the erosive forces of rainfall and high winds. Similarly, demolition activities associated with removal of foundations

at the Martin Substation, temporary stockpiling of soil during trenching and trenchless auger bore installation, and grubbing of staging areas could result in short-term erosion impacts. In general, soil erosion can result in sedimentation of downstream water bodies, which in turn can result in adverse biological impacts.

In accordance with APM WQ-1, a stormwater pollution prevention plan would be implemented during proposed project construction to control potential erosion of temporarily disturbed areas. APM WQ-1 requires implementation of erosion control best management practices, including, but not limited to, perimeter controls (e.g., straw wattles, hay bales, or silt fences) and containment measures (i.e., covering stockpiles). Furthermore, under APM WQ-2, a worker environmental awareness program would be developed and provided for all field personnel to train workers on spill prevention, response measures, and proper best management practice implementation. Due to the limited and temporary nature of ground disturbances in any one place, and the implementation of standard erosion control best management practices, the proposed project would not result in substantial soil erosion or loss of topsoil. No additional impacts would occur during operations and maintenance. Therefore, impacts would be less than significant (Class III).

Impact GS-3 **Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?**

Refer to Sections D.7.3.3(a)(iii) and 7.3.3(a)(iv), which address the potential for earthquake-related ground shaking, liquefaction, landslides and soil settlement. The Geologic Hazard and Feasibility Evaluation found that the potential for lateral spreading is low within the proposed project study area, and the standard measures and APMs previously discussed would be equally effective at addressing unstable soil issues such as lateral spread, subsidence, and/or collapse. Furthermore, trenching operations and work in confined spaces during construction could present a life-safety issue if pre-existing soils are weak or unstable. PG&E would comply with all applicable California Division of Occupational Safety and Health safety requirements, which include provisions for appropriate shoring of temporary trenches and slopes to protect worker safety. For these reasons, impacts with regard to unstable geologic units or soils would be less than significant (Class III).

Impact GS-4 **Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?**

Expansive soils contain significant amounts of clay particles that have the ability to shrink and swell, depending on the water content. These soils are generally found in areas that were

historically floodplains or lake areas, but such soils can also occur in hillside areas. When these soils swell, the change in volume can exert significant pressure on overlying or adjacent loads, such as buildings or underground utilities, and can result in structural distress and/or damage. When devoid of moisture, the soil will contract, often leaving fissures or cracks. Excessive drying and wetting of the soil can progressively deteriorate structures over the years by leading to differential settlement beneath or within buildings and other improvements. Review of U.S. Natural Resource Conservation Service soils data indicates that the project site is underlain by surface soils with a low shrink-swell potential, where rated (USDA 2018). Implementation of APM GS-1, which requires completion of a final, site-specific geotechnical investigation and associated design measures, and APM GS-2, which requires implementing appropriate soil stability measures during design studies or construction, would reduce any potential impacts related to expansive soils. Therefore, impacts would be less than significant (Class III).

Impact GS-5 Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

The proposed project does not include a wastewater disposal system; therefore, no impact would occur during construction, operation, or maintenance (No Impact).

Impact GS-6 Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The proposed project would involve ground-disturbing activities and excavations below grade. The proposed switching station, transmission lines along Egbert Avenue, and approximately half of the length of the proposed Jefferson-Egbert transmission line are within areas within sedimentary deposits (Qu) of likely Holocene, but potentially Pleistocene age, that are assigned PFYC Class 3a and considered to have a moderate/unknown potential to contain paleontological resources (Appendix D.7-2). Construction of project components could disturb or destroy previously unknown paleontological resources or unique geologic features. However, as shown in Table D.7-3, fossils within this area are rare at shallow depths, and excavation depths within these areas are unlikely to impact paleontological resources. The remaining areas of the project site have a low or very low potential to contain paleontological resources. Furthermore, the proposed project does not occur on or near a unique geologic feature.

Implementation of APM PR-1 would ensure that all workers on the project site would be educated about laws protecting paleontological resources, recognition of paleontological resources in the field and types of fossils that could be encountered on the project site, and procedures to be followed if a paleontological resource is discovered. In addition, APM PR-2 sets forth identification and evaluation protocols to be implemented in the event of inadvertent

discovery of paleontological resources, including the temporary halt of ground-disturbing work within the immediate vicinity and the evaluation of the find by a qualified paleontologist. With these measures, the proposed project would not cause a substantial adverse change in the significance of paleontological resources; impacts would be less than significant (Class III).

Project operation and maintenance activities would be conducted in areas previously disturbed during construction and would occur within city streets or facilities. Future maintenance operations would involve routine maintenance and inspection activities at the proposed Egbert Switching Station site. The proposed project operation and maintenance activities would not have an adverse effect on unique paleontological resource or site or unique geologic feature, any potential impacts would be considered less than significant (Class III).

D.7.4 Project Alternatives

D.7.4.1 Bayshore Switching Station Alternative

Environmental Setting

The Bayshore Switching Station Alternative site lies along the northeastern edge of the San Francisco Peninsula, passing through the Cities of Brisbane and Daly City, within San Mateo County. The regional setting for the San Francisco Peninsula is described in Section D.7.1.1.

The alternative switching station site lies east of the historic-era bay shoreline, within an area of land created by extending the natural shoreline outward through placement of artificial fill to raise the natural land surface above the water. The alternative switching station site was filled after the 1906 San Francisco Earthquake; fill was primarily composed of mixtures of clay, silt, sand, rock fragments, organic matter, and other man-made debris. Artificial fill, ranging from 6 to 22 feet in thickness, is present at the surface of the alternative switching station site and the alternative Jefferson-Bayshore and Martin-Bayshore transmission line segments, underlain by the bay mud (City of Brisbane 2013).

The San Andreas Fault runs approximately 5 miles southwest of the site, and the Hayward Fault runs approximately 13 miles to the northwest, across the San Francisco Bay. Additional nearby active faults include the San Gorgonio Fault, approximately 11 miles southwest, and Sierra Fault, approximately 4.8 miles west of the alternative site. The northwest-trending City College Fault is mapped approximately 0.7 miles north of the alternative switching station site, but is considered not active. A detailed discussion of faults and seismicity within the San Francisco Bay is described in Section D.7.1.4.

Geologic Hazards:

Seismic Ground Shaking: The soil classifications present within the alternative switching station site are expected to amplify strong ground shaking. Maximum ground shaking would be expected to result from a large earthquake on the nearby San Andreas Fault, although strong ground shaking may also occur as a result of moderate or large earthquakes on other faults in the San Francisco Bay region. The predicted maximum earthquake intensity for the alternative switching station site is characterized as "very violent" by the USGS and "very strong" by the Association of Bay Area Governments (City of Brisbane 2013).

Liquefaction: The liquefaction hazard at the alternative switching station site is very high, due to presence of sandy layers in historic fill and sand within native deposits beneath the area. The underlying soils are capable of producing from 0 to 4 inches generally, and up to 8 inches of liquefaction-related settlement (City of Brisbane 2013).

Landslides: Moderate to locally steep relief is present in the vicinity of Icehouse Hill, where elevations range from approximately 20 feet above mean sea level at the alternative switching station site to approximately 200 feet above mean sea level at the peak of Icehouse Hill. No landslides have been documented for this area (City of Brisbane 2013). The west side of Icehouse Hill has had some noted rock fall, which the City has addressed through placement of concrete K-rail barriers and metal mesh netting to prevent falling rocks and soil from reaching Bayshore Boulevard travel lanes. The alternative Bayshore-Embarcadero transmission line segment would be installed along Bayshore Boulevard, adjacent to the rock fall area.

Expansive Soils: Bay mud and other clay-rich deposits within the alternative site, east of Bayshore Drive, are located primarily beneath the groundwater level and, therefore, have a relatively low corresponding potential for shrink-swell (City of Brisbane 2013). The remainder of the alternative Bayshore-Embarcadero transmission line segment is underlain by surface soils with a low shrink-swell potential, where rated (USDA 2018).

Soil Corrosivity: Corrosive subsurface soils may exist in places within the alternative project site east of Bayshore Boulevard, where Bay Mud is present beneath the fill. Corrosive soils could have a detrimental effect on concrete and metals. Several key factors that influence the severity and rate of corrosion include: the amount of moisture in the soil, the conductivity of the solution, the pH of the solution, and the oxygen concentration within the soil (aeration). Depending on the degree of corrosivity of subsurface soils, concrete and reinforcing steel in concrete structures and bare-metal structures exposed to these soils could deteriorate, eventually leading to structural failures.

Soil Erosion: The alternative switching station site is mainly covered with undocumented fill materials, and thus, fill is the most likely deposit at risk of soil erosion. Icehouse Hill, north of the alternative switching station, is the only portion of the alternative project site with native

soils that overlie bedrock, but the Bayshore Switching Station Alternative would not require construction within Icehouse Hill.

Paleontological Resources

Vertebrate fossils in San Mateo County are limited to sedimentary rock formations of Pleistocene and Tertiary age (i.e., bedrock formations), particularly along the Pacific coastline and inland stream-banks (City of Brisbane 2013). The artificial fill material within the alternative project site, east of Bayshore Drive does not contain significant paleontological deposits or unique geologic features. The younger bay mud that underlies the artificial fill is not considered a unique geologic feature and is not sensitive for paleontological resources because of its young age and lack of consolidation (City of Brisbane 2013). The alternative Bayshore-Embarcadero transmission line segment east of Bayshore Drive is in an area with low sensitivity for paleontological resources (Appendix D.7-2).

Environmental Impacts and Avoidance Measures

Impact GS-1

(i) Fault Rupture (Alquist Priolo): No known active fault traces through the alternative switching station site or transmission line segments, and the Bayshore Switching Station Alternative is not located in an Alquist Priolo Earthquake Fault Zone (No Impact).

(ii) Strong Seismic Ground Shaking: The Bayshore Switching Station Alternative would be developed in a seismically active area. The seismic risk would be the same as that described in the Section D.7.1.4 of the geologic setting. Because the proposed project does not include structures for human occupancy, the structures to be replaced would have the same or greater load-bearing characteristics, and the proposed work would be collocated with existing infrastructure, the Bayshore Switching Station Alternative would not increase existing levels of public exposure to strong seismic ground shaking. The Bayshore Switching Station Alternative must comply with strength requirements and safety factors for construction and maintenance found in CPUC GO 128, and would be designed and constructed in accordance with appropriate IEEE standards. Consistent with the proposed project, a site-specific geotechnical investigation would be performed to assess soil conditions for final design, through implementation of APM GS-1. Based on the results of the site-specific geotechnical investigation, PG&E would implement APM GS-2 where soft, loose, or liquefiable soils are present, to avoid, accommodate, replace, or improve soil conditions. Although the proposed project could be subject to strong seismic ground shaking, it would not appreciably increase public exposure to such risks and would be designed and constructed in accordance with applicable industry standards and APM GS-1 and APM GS-2. Therefore, impacts associated with strong seismic ground shaking would be less than significant (Class III).

(iii) Seismic related ground failure, including liquefaction: As described in the environmental setting, the alternative switching station site and the north end of the alternative Jefferson-Bayshore and Martin-Bayshore transmission line segment east of Bayshore Boulevard has a very high susceptibility for liquefaction. Additionally, the Martin Substation and the northern end of the alternative Bayshore-Embarcadero transmission line segment are in an area with low susceptibility to liquefaction. Seismically induced liquefaction could result in lateral spreading, seismically induced settlement, and ultimately result in structural damage.

Design of the alternative switching station would include excavation of soft, loose, and wet soils and replacement with imported structural fill materials, as required by APM GS-2. Replacement of existing soils with properly compacted fill materials would avoid and/or substantially reduce the liquefaction potential within the alternative project site. Furthermore, in accordance with APM GS-1, a final site-specific geotechnical investigation would be required, as well as adherence to all recommendations and design conclusions during final design. Therefore, potential impacts from seismic-related ground failure, including liquefaction, would be less than significant during construction, operation, and maintenance phases (Class III).

(iv) Landslides: As described in the environmental setting, moderate to locally steep relief is present in the vicinity of Icehouse Hill, north of the alternative switching station site, but no landslides have been documented in this area. The Bayshore Switching Station Alternative site is not at risk of landslides because it is located on flat baylands. However, the alternative Bayshore-Embarcadero transmission line segment would be installed adjacent to the west side of Icehouse Hill, along Bayshore Boulevard, in an area where rock fall has been documented. The transmission line would be installed underground; therefore, potential impacts associated with rock fall would be limited to construction activities in the vicinity of Icehouse Hill along Bayshore Boulevard. The City installed K-rails along the eastern edge of Bayshore Boulevard and metal mesh netting on the hill adjacent to the roadway to prevent falling rock or soil from reaching Bayshore Boulevard. Existing improvements installed by the City would reduce the likelihood that construction workers would be affected during installation of the alternative Bayshore-Embarcadero transmission line segment on Bayshore Boulevard. Therefore, impacts associated with landslides would be less than significant (Class III). PG&E would comply with all applicable California Division of Occupational Safety and Health safety requirements, which include provisions for appropriate shoring of temporary trenches and slopes to protect worker safety.

Impact GS-2: The alternative project site east of Bayshore Boulevard is undeveloped, consisting primarily of soils, grasslands, and ruderal vegetation. The remainder of the alternative Bayshore-Embarcadero transmission line segment would be constructed within urbanized and paved areas. Construction activities required to develop the Bayshore Switching Station Alternative would expose areas of loose soil. If not properly protected or stabilized, loose soils and fills could be subjected to soil loss and erosion by wind and stormwater runoff. The soil erosion potential would be temporary,

reduced once the soil is graded and covered with concrete, structures, asphalt, or vegetated with landscaping. No additional impacts would occur during operations and maintenance.

In accordance with APM WQ-1, a stormwater pollution prevention plan would be implemented during proposed project construction to control potential erosion of temporarily disturbed areas. Furthermore, under APM WQ-2, a worker environmental awareness program would be developed and provided for all field personnel to train workers on spill prevention, response measures, and proper best management practice implementation. Due to the limited and temporary nature of ground disturbances in any one place, and the implementation of standard erosion control best management practices, the Bayshore Switching Station Alternative would not result in substantial soil erosion, and impacts would be less than significant (Class III).

Impact GS-3: Refer to Impact GS-1(iii) and Impact GS-1(iv) above, which address potential for seismic-related ground failure and landslides. This impact criterion addresses the more generalized risk of landslide (i.e., not just seismically induced). However, the standard measures and APMs previously discussed would be equally effective at addressing unstable soil issues such as lateral spread, subsidence, and/or collapse. Like the proposed project, construction of main facilities would occur outside of areas at risk of landslide, and linear construction would occur underground within road rights-of-way, minimizing project-related impacts on landslide and/or rock fall areas. PG&E would comply with all applicable California Division of Occupational Safety and Health safety requirements, which include provisions for appropriate shoring of temporary trenches and slopes to protect worker safety. For these reasons, impacts with regard to unstable geologic units or soils would be less than significant (Class III).

Impact GS-4: As described in the environmental setting, expansive soils are not anticipated to be present within the alternative project site. Implementation of APM GS-1 and APM GS-2 would verify soil conditions prior to final design and ensure that appropriate soil stability measures are incorporated to the alternative design. Therefore, potential impacts related to expansive soils would be less than significant (Class III).

Impact GS-5: The Bayshore Switching Station Alternative does not include a wastewater disposal system; therefore, no impact would occur during construction, operation, or maintenance (No Impact).

Impact GS-6: As described in the environmental setting, the Bayshore Switching Station Alternative would be developed in an area with low to very low potential for presence of paleontological resources. Implementation of APM PR-1 and APM PR-2 would provide worker education regarding paleontological resources and establish protocols for identification and evaluation of inadvertent discoveries during ground disturbing activities. With implementation of

these measures, the Bayshore Switching Station Alternative would not have an adverse effect on paleontological resources, and impacts would be less than significant (Class III).

Comparison to the Proposed Project

The Bayshore Switching Station Alternative would result in a larger area of permanent disturbance than the proposed project, because the alternative switching station would be 4.9 acres larger than the proposed Egbert Switching Station. Overall, existing soil conditions within the alternative project site have a greater likelihood to encounter geologic hazards, liquefaction in particular, than the proposed project. This alternative would occur over areas that have a lower paleontological sensitivity but would still involve disturbance of Holocene alluvium, which has a moderate/unknown sensitivity. Implementation of APMs would ensure that both Bayshore Switching Station Alternative and the proposed project are designed and constructed to address any existing hazardous geologic conditions and paleontological resources. It is important to note that anticipated excavation and replacement of artificial fill necessary to avoid geotechnical hazards within the alternative site could result in temporary indirect construction-related impacts associated with air quality, energy, GHG emissions and transportation.

D.7.4.2 Geneva Switching Station Alternative

Environmental Setting

The Geneva Switching Station Alternative site lies along the northeastern edge of the San Francisco Peninsula, passing through the City of Daly City and the City and County of San Francisco. The regional setting for the San Francisco Peninsula is described in Section D.7.1.1.

The alternative switching station site and transmission lines are primarily located within areas of urban land and artificial fill. Soils within the alternative project site are generally well drained with low soil shrink-swell potential. Soil classifications are illustrated on Figure D.7-1 and described in Table D.7-1.

The San Andreas Fault runs approximately 5 miles southwest of the site, and the Hayward Fault runs approximately 13 miles to the northwest, across the San Francisco Bay. The northwest-trending City College Fault crosses the alternative Geneva-Embarcadero and Martin-Geneva transmission lines but is considered not active. A detailed discussion of faults and seismicity within the San Francisco Bay is described in Section D.7.1.4.

Geologic Hazards:

The Geneva Switching Station Alternative would be developed in the same area as the southern portion of the proposed project; potential geologic hazards are described in Section D.7.1.4.

Paleontological Resources

The alternative switching station and transmission lines were included in the project study area for the Paleontological Inventory Report prepared for the proposed project (Appendix D.7-2). No known fossil locations were identified within the alternative project site or vicinity. Paleontological sensitivity of the soils underlying the alternative project site range from "very low" to "moderate" (Appendix D.7-2). Sedimentary deposits are present along Geneva Avenue at the east end of the alternative Geneva-Embarcadero and Martin-Geneva transmission lines, as well as within the Martin Substation.

Environmental Impacts and Avoidance Measures

Impact GS-1

(i) Fault Rupture (Alquist Priolo): The Geneva Switching Station Alternative is not located in an Alquist Priolo Earthquake Fault Zone or near any other known active fault. Therefore, the risk of earthquake fault rupture is negligible (No Impact).

(ii) Strong Seismic Ground Shaking: The Geneva Switching Station Alternative would be developed in a seismically active area. The seismic risk is the same as that described in the Section D.7.1.4 of the geologic setting. The Geneva Switching Station Alternative must comply with strength requirements and safety factors for construction and maintenance found in CPUC GO 128, and would be designed and constructed in accordance with appropriate IEEE standards. Consistent with the proposed project, a site-specific geotechnical investigation would be performed to assess soil conditions for final design through implementation of APM GS-1. Based on the results of the site-specific geotechnical investigation, this alternative would implement APM GS-2 where soft, loose, or liquefiable soils are present, to avoid, accommodate, replace, or improve soil conditions. Although the Geneva Switching Station Alternative could be subject to strong seismic ground shaking, it would not appreciably increase public exposure to such risks and would be designed and constructed in accordance with applicable industry standards and APM GS-1 and APM GS-2. Therefore, impacts associated with strong seismic ground shaking would be less than significant (Class III).

(iii) Seismic related ground failure, including liquefaction: The alternative switching station site and transmission lines would be developed in an area of low susceptibility for liquefaction. To ensure that unknown areas with potential for seismic-related ground failure are addressed during project design and construction, this alternative would be required to perform a final site-specific geotechnical investigation and adhere to all recommendations and design conclusions during final design through implementation of APM GS-1. If any soils susceptible to seismic-related ground failure are encountered, affected soils would be replaced with properly compacted fill materials, as required by APM GS-2. Therefore, with implementation of APMs, potential

impacts from seismic-related ground failure, including liquefaction, would be less than significant during construction, operation, and maintenance phases (Class III).

(iv) Landslides: Approximately 0.27 miles of the alternative Jefferson-Geneva transmission line along Carter Street is located within a potential debris flow source area (Appendix D.7-1). The alternative transmission line segment in this area would be constructed underground within the existing street right-of-way and is located downslope of (rather than on) potential debris source areas and, thus, would not likely be significantly damaged in the event of a landslide or debris flow. Nevertheless, with incorporation of APM GS-1, a final, site-specific geotechnical investigation would be performed, and appropriate design criteria and measures would be implemented to address potentially unstable soil conditions within this area. Accordingly, impacts associated with potential debris flows would be less than significant (Class III).

Impact GS-2: The Geneva Switching Station Alternative is predominantly in urbanized and paved areas, and susceptibility of underlying soil erosion is low. Construction activities required to develop the Geneva Switching Station Alternative, such as grading, trenching, and soil stockpiling, would temporarily expose areas of loose soils. As required under APM WQ-1, a stormwater pollution prevention plan would be implemented during proposed project construction to control potential erosion of temporarily disturbed areas. Furthermore, under APM WQ-2, a worker environmental awareness program would be developed and provided for all field personnel to train workers on spill prevention, response measures, and proper best management practice implementation. Due to the limited and temporary nature of ground disturbances in any one place, and the implementation of standard erosion control best management practices, the Geneva Switching Station Alternative would not result in substantial soil erosion, and impacts would be less than significant (Class III).

Impact GS-3: Refer to Impact GS-1(iii) and Impact GS-1(iv) above, which address potential for seismic-related ground failure and landslides. The standard measures and APMs previously discussed would be equally effective at addressing unstable soil issues such as lateral spread, subsidence, and/or collapse. PG&E would comply with all applicable California Division of Occupational Safety and Health safety requirements, which include provisions for appropriate shoring of temporary trenches and slopes to protect worker safety. For these reasons, impacts with regard to unstable geologic units or soils would be less than significant (Class III).

Impact GS-4: Soil data indicates that the alternative project site is underlain by surface soils with a low shrink-swell potential. Implementation of APM GS-1 and APM GS-2 would verify soil conditions prior to final design and ensure that appropriate soil stability measures are incorporated to the alternative design. Therefore, potential impacts related to expansive soils would be less than significant (Class III).

Impact GS-5: The Geneva Switching Station Alternative does not include a wastewater disposal system; therefore, no impact would occur during construction, operation, or maintenance (No Impact.

Impact GS-6: The Geneva Switching Station Alternative would be developed in an area with "very low" to "moderate" potential for presence of paleontological resources. Sedimentary deposits (Qu) that are assigned PFYC Class 3a and considered to have moderate/unknown potential to contain paleontological resources are present along Geneva Avenue at the east end of the alternative Geneva-Embarcadero and Martin-Geneva transmission lines, within the Martin Substation (Appendix D.7-2). Construction activities within this area could disturb or destroy previously unknown paleontological resources or unique geologic features; however, fossils within this area are rare at shallow depths, and excavation depths are unlikely to impact paleontological resources (Appendix D.7-2). Implementation of APM PR-1 and APM PR-2 would provide worker education regarding paleontological resources and establish protocols for identification and evaluation of inadvertent discoveries during ground-disturbing activities. With implementation of these measures, the Geneva Switching Station Alternative would not have an adverse effect on paleontological resources, and impacts would be less than significant (Class III).

Comparison to the Proposed Project

The Geneva Switching Station Alternative would result in a larger area of permanent disturbance than the proposed project, because the alternative switching station is 9.4 acres larger than the proposed Egbert Switching Station. Overall, existing soil conditions within the alternative project site have a reduced likelihood to encounter geologic hazards and paleontological resources than the proposed project. Implementation of APMs would ensure that both Geneva Switching Station Alternative and the proposed project are designed and constructed to address any existing hazardous geologic conditions.

D.7.4.3 Sunnydale HOPE SF Avoidance Line Alternative Option A

Environmental Setting

The Sunnydale HOPE SF Avoidance Line Alternative Option A (Sunnydale Option A Alternative) would be developed in the same area as the southern portion of the proposed project. Existing soil conditions, potential geologic hazards, and paleontological sensitivity are described in Section D.7.1.

The Sunnydale Option A Alternative is limited to the alternative line segment. Existing conditions and environmental impacts would remain unchanged for the Egbert Switching Station, Martin-Egbert transmission line, Egbert-Embarcadero transmission line, Martin Substation, and the remainder of the Jefferson-Egbert transmission line.

Environmental Impacts and Avoidance Measures

Impact GS-1

(i) Fault Rupture (Alquist Priolo): The Sunnydale Option A Alternative is not located in an Alquist Priolo Earthquake Fault Zone or near any other known active fault. The City College Fault crosses the alternative transmission line near the intersection of Sawyer Street and Velasco Road, but the fault is considered not active (Appendix D.7-1). Therefore, the risk of earthquake fault rupture is negligible (No Impact).

(ii) Strong Seismic Ground Shaking: The Sunnydale Option A Alternative would be developed in a seismically active area. The seismic risk would be the same as that described in the Section D.7.1.4 of the geologic setting. Consistent with the proposed project, the Sunnydale Option A Alternative would be designed and constructed in accordance with applicable industry standards, and would implement APM GS-1 and APM GS-2. Therefore, impacts associated with strong seismic ground shaking would be less than significant (Class III).

(iii) Seismic related ground failure, including liquefaction: The alternative transmission lines would be developed in an area of low susceptibility for liquefaction. To ensure that unknown areas with potential for seismic-related ground failure are addressed during project design and construction, PG&E would implement APM GS-1. If any soils susceptible to seismic-related ground failure are encountered, affected soils would be replaced with properly compacted fill materials, as required by APM GS-2. Therefore, with implementation of APMs, potential impacts from seismic-related ground failure, including liquefaction, would be less than significant during construction, operation, and maintenance phases (Class III).

(iv) Landslides: The Sunnydale Option A Alternative is not located within an area of high landslide hazard (Appendix D.7-1). The Sunnydale Option A Alternative would be developed within the paved right-of-way of existing roadways, surrounded by residential and commercial development. Therefore, the alternative transmission alignment would not be impacted by landslides (No Impact).

Impact GS-2: The Sunnydale Option A Alternative is located within an urbanized area. Construction would occur in paved areas, and susceptibility of underlying soil erosion is low. Construction activities required to install underground transmission line, such as trenching and soil stockpiling, would temporarily expose areas of loose soils. As required under APM WQ-1, a stormwater pollution prevention plan would be implemented during proposed project construction to control potential erosion of temporarily disturbed areas. Furthermore, under APM WQ-2, a worker environmental awareness program would be developed and provided for all field personnel to train workers on spill prevention, response measures, and proper best management practice implementation. Due to the limited and temporary nature of ground

disturbances in any one place and the implementation of standard erosion control best management practices, the Sunnydale Option A Alternative would not result in substantial soil erosion, and impacts would be less than significant (Class III).

Impact GS-3: Refer to Impact GS-1(iii) and Impact GS-1(iv) above, which address potential for seismic-related ground failure and landslides. Existing soil characteristics are not likely to exhibit lateral spread, subsidence, and/or collapse. Nonetheless, PG&E would comply with all applicable California Division of Occupational Safety and Health safety requirements, which include provisions for appropriate shoring of temporary trenches and slopes to protect worker safety. For these reasons, impacts with regard to unstable geologic units or soils would be less than significant (Class III).

Impact GS-4: Soil data indicates that the alternative project site is underlain by surface soils with a low shrink-swell potential. Implementation of APM GS-1 and APM GS-2 would verify soil conditions prior to final design and ensure that appropriate soil stability measures are incorporated to the alternative design. Therefore, potential impacts related to expansive soils would be less than significant (Class III).

Impact GS-5: The Sunnydale Option A Alternative does not include a wastewater disposal system; therefore, no impact would occur during construction, operation, or maintenance (No Impact).

Impact GS-6: The Sunnydale Option A Alternative would be developed in an area with "low" to "moderate" potential for presence of paleontological resources. Sedimentary deposits (Qu) that are assigned PFYC Class 3a and considered to have moderate/unknown potential to contain paleontological resources, are present along approximately 0.29 miles at the north end of the alternative transmission line segment (Appendix D.7-2). Construction activities within this area could disturb or destroy previously unknown paleontological resources or unique geologic features; however, fossils within this area are rare at shallow depths, and excavation depths are unlikely to impact paleontological resources (Appendix D.7-2). Implementation of APM PR-1 and APM PR-2 would provide worker education regarding paleontological resources and establish protocols for identification and evaluation of inadvertent discoveries during ground disturbing activities. With implementation of these measures, impacts from the Sunnydale Option A Alternative would be less than significant (Class III).

Comparison to the Proposed Project

Overall, existing soil conditions within the Sunnydale Option A Alternative have a reduced likelihood to encounter geologic hazards than the proposed project. The transmission line segment that would be bypassed by the Sunnydale Option A Alternative includes a small area with potential for liquefaction and landslides along Brookdale Avenue, north of Geneva Avenue. Implementation of APMs would ensure that both Geneva Switching Station Alternative and the

proposed project are designed and constructed to address any existing hazardous geologic conditions. Additionally, the Sunnydale Option A Alternative would affect a similar area of soil with moderate paleontological sensitivity as the proposed Jefferson-Egbert transmission line segment it would bypass; therefore, impacts to paleontological impacts would be similar.

D.7.4.4 No Project Alternative

Under the No Project Alternative, none of the facilities associated with the proposed project or alternatives would be constructed, and therefore, none of the impacts described in this section would occur.

D.7.5 Mitigation Monitoring, Compliance, and Reporting

Table D.7-5 shows the mitigation monitoring, compliance, and reporting program for geology and soils. The CPUC is responsible for ensuring compliance with provisions of the monitoring program. The APMs that are incorporated as part of the proposed project are listed in the following table.

Table D.7-5
Mitigation Monitoring, Compliance, and Reporting Program for Geology and Soils

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
Impact GS-1 Potentially susceptible to seismic hazards Impact GS-2 Construction would temporarily expose soils to erosive forces Impact GS-3 Minimal potential to be located on unstable soil Impact GS-4 minimal potential to be located on expansive soil	—	APM GS-1	Appropriate Design Measures Implementation. A site-specific geotechnical investigation will be performed to develop appropriate conclusions and recommendations for final design.	PG&E to implement measure as defined and incorporate recommendation and findings (if necessary) on construction plans. PG&E to provide copies of the geotechnical evaluation to the CPUC.	CPUC to verify incorporation of recommendations and findings on pre-construction plans (if necessary).	Prior to construction. This measure applies to all components of the proposed project.
Impact GS-1 Potentially susceptible to seismic hazards Impact GS-2 Construction would temporarily expose soils to erosive forces Impact GS-3 Minimal potential to	—	APM GS-2	Appropriate Soil Stability Measures Implementation. Based on available references, bedrock, artificial fills, loam, sandy loam, and clay loam are the primary subsurface materials expected to be encountered in the excavated areas as project construction proceeds. Potentially problematic subsurface conditions may include soft or loose soils. Where soft, loose, or liquefiable soils are encountered during design studies or construction, appropriate measures will be implemented to avoid, accommodate, replace, or improve soft or loose soils and liquefaction hazards.	PG&E to implement measure as defined and incorporate recommendation and findings (if necessary) on construction plans. PG&E to provide copies of the geotechnical evaluation to the CPUC.	CPUC to verify incorporation of recommendations and findings on pre-construction plans (if necessary).	Prior to construction. This measure applies to all components of the proposed project constructed at alternative site locations.

Table D.7-5
Mitigation Monitoring, Compliance, and Reporting Program for Geology and Soils

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
be located on unstable soil Impact GS-4 minimal potential to be located on expansive soil			Such measures may include the following: • Locating construction staging and operations away from areas of soft and loose soil • Over excavating soft or loose soils and replacing them with suitable non-expansive engineered fill • Increasing the density and strength of soft or loose soils through mechanical vibration and/or compaction • Treating soft or loose soils in place with binding or cementing agents • Adding physical ground improvement such as in situ soil mixing, drain piles, or sheet piles • Deepening of trench and/or using trenchless technology to place the transmission line beneath liquefiable fills and/or potential for lateral spreading, where feasible			
Impact GS-6 Potential to inadvertently impact unknown paleontological resources during construction	—	APM PR-1	Worker's Environmental Training Awareness Program - Paleontological Module. The project's worker environmental awareness program, which all workers will complete prior to beginning work on the project site, will include a module on paleontological resources (fossils). The module will discuss the laws protecting paleontological resources, recognition in the field and types of paleontological resources that could be encountered on the project, and the procedures to be followed if a paleontological resource is discovered. A copy of the project's worker environmental awareness training will be provided to CPUC for recordkeeping prior to the start of construction.	PG&E to conduct training program as described.	PG&E to provide CPUC documentation demonstrating implementation of the training program.	Prior to ground-disturbing activities in all construction areas.

Table D.7-5
Mitigation Monitoring, Compliance, and Reporting Program for Geology and Soils

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
Impact GS-6 Potential to inadvertently impact unknown paleontological resources during construction	—	APM PR-2	Unanticipated Paleontological Resource Discovery. If fossils are observed during excavation, work in the immediate vicinity of a paleontological find will be halted or redirected to avoid additional impact to the specimen(s) and to allow a professional paleontologist to assess the scientific importance of the find and determine appropriate treatment. If the discovery is significant, the qualified paleontologist will implement data recovery excavation (with the landowner's permission) to scientifically recover and curate the specimen.	PG&E to implement measure as defined and incorporate commitments into construction contracts. PG&E to provide qualified paleontologist, if workers encounter suspected paleontological resources.	CPUC and PG&E monitor to ensure work is suspended upon discovery of resources to ensure avoidance of all significant cultural resources. PG&E to provide summary report of mitigation program to CPUC.	During construction in all work areas where fossils are encountered.

Notes: APM = applicant proposed measure PG&E = Pacific Gas & Electric Company; CPUC = California Public Utilities Commission.

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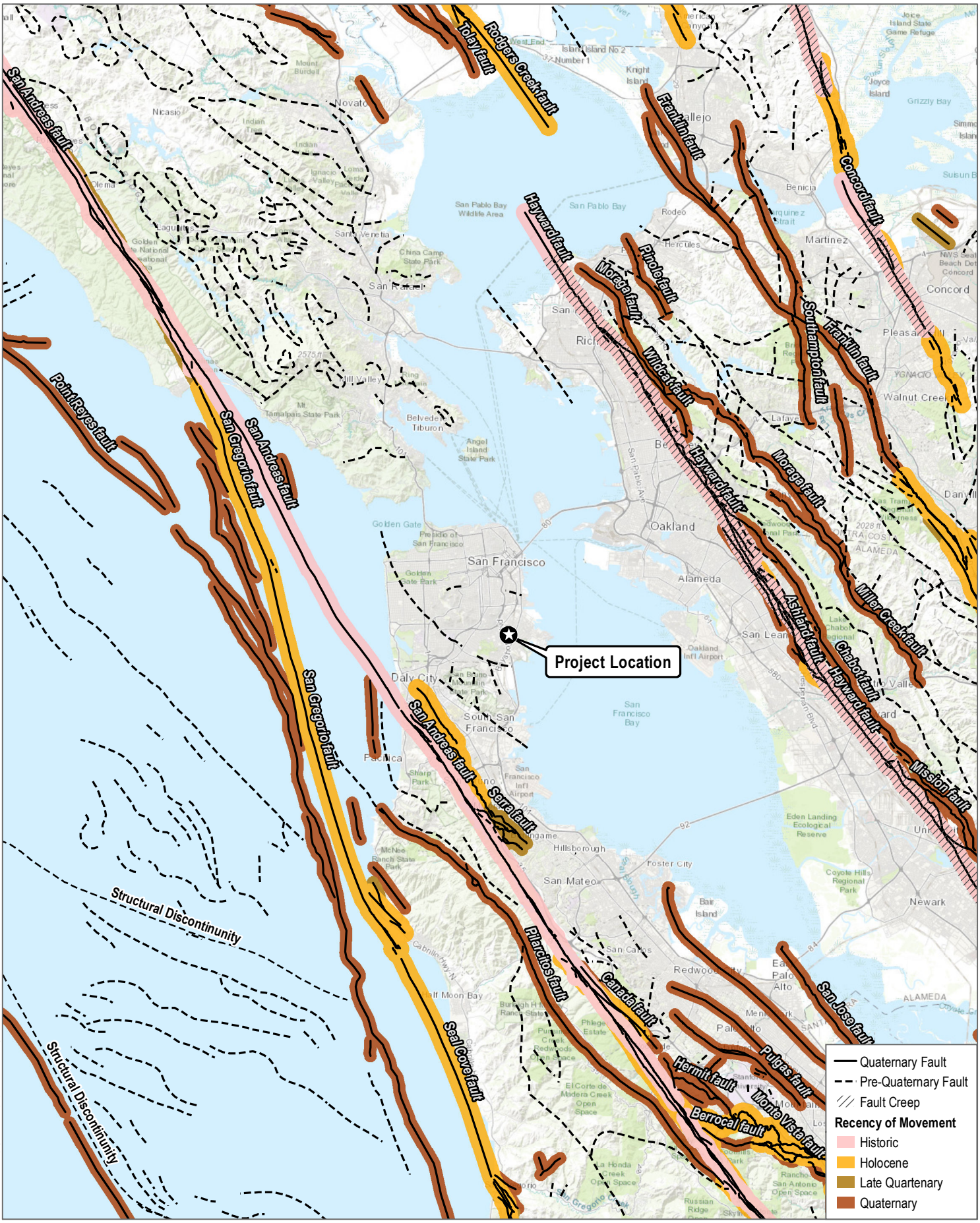
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SOURCE: PG&E 2017; ESRI 2019

DUDEK

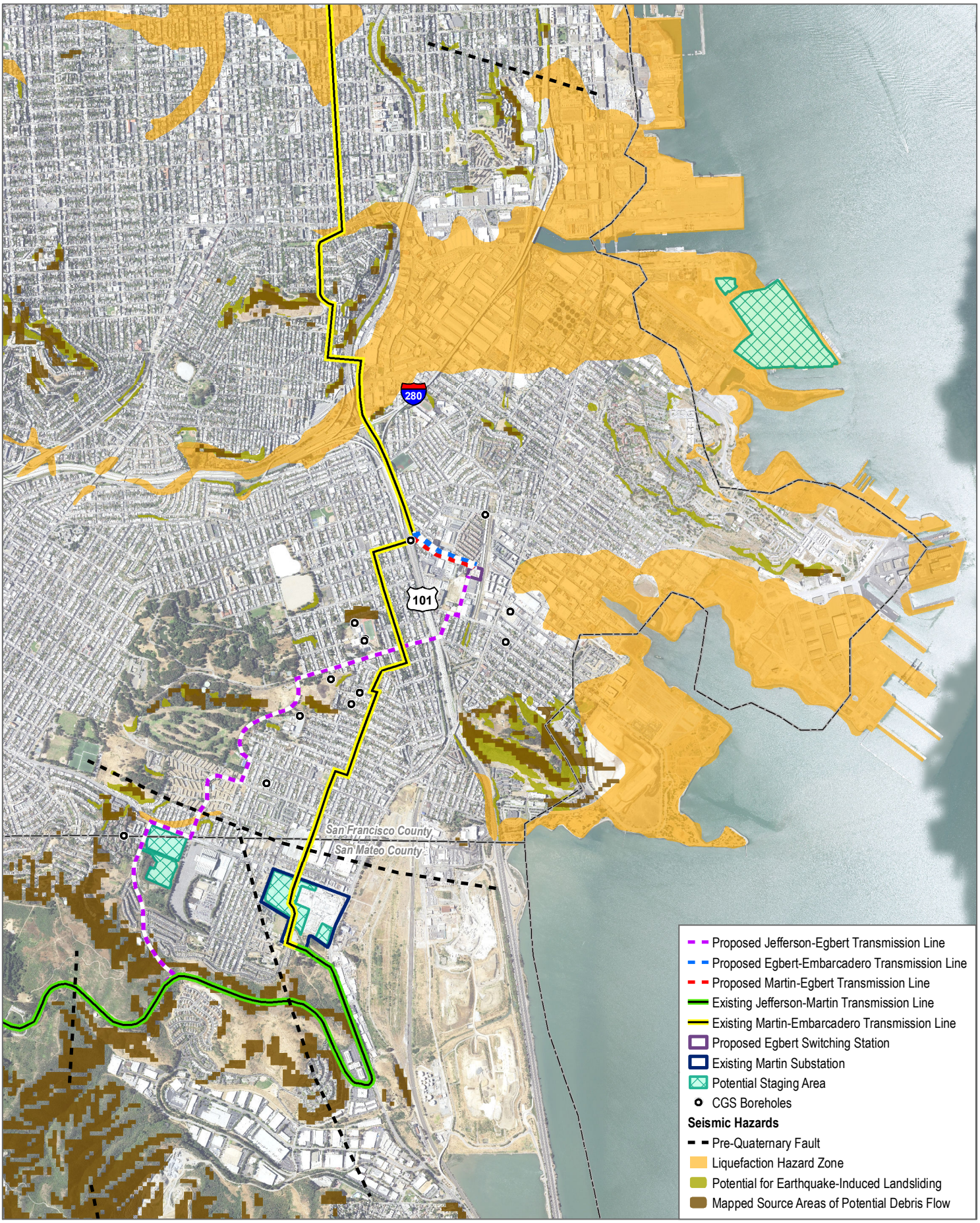
0 5 10 Miles

FIGURE D.7-1

Faults Map

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: CA Department of Conservation 2000; USDA 2016; PG&E 2017

DUDEK

0 1,500 3,000 Feet

FIGURE D.7-2

Seismic Hazards

Egbert Switching Station (Martin Substation Extension) Project

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D.8 GREENHOUSE GAS EMISSIONS

This section evaluates the potential for the Egbert Switching Station (Martin Substation Extension) Project (proposed project) to impact climate in the project site. Sections D.8.1 and D.8.2 describe the environmental and regulatory climate change settings for the proposed project, respectively. Section D.8.3 includes analysis and discussion of climate change impacts resulting from the proposed project, while Section D.8.4 presents impact analysis for the alternatives. Section D.8.5 provides information about mitigation monitoring and reporting. Cumulative effects are analyzed in Section F.5.2.7 of this EIR.

D.8.1 Environmental Setting for the Proposed Project

This section provides a description of existing conditions, including a description of the greenhouse effect, effects of climate change globally and in California, and a summary of greenhouse gas (GHG) emissions in California. Baseline information reviewed for this section includes the Pacific Gas & Electric Company (PG&E) Proponent's Environmental Assessment for the proposed project.

D.8.1.1 Climate Change Overview

Climate change refers to any significant change in measures of Earth's climate, such as temperature, precipitation, and wind patterns, lasting for an extended period of time (decades or longer). Earth's temperature depends on the balance between energy entering and leaving the planet's system. Many factors, both natural and human caused, can cause changes in Earth's energy balance, including variations in the Sun's energy reaching Earth, changes in the reflectivity of Earth's atmosphere and surface, and changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere (EPA 2017a).

The greenhouse effect is the trapping and buildup of heat in the atmosphere (troposphere) near Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process, as follows: Short-wave radiation emitted by the Sun is absorbed by Earth, Earth emits a portion of this energy in the form of long-wave radiation, and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward Earth. The greenhouse effect is a natural process that contributes to regulating Earth's temperature and creates a pleasant, livable environment on the planet. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that is absorbed before escaping into space, enhancing the greenhouse effect and causing Earth's surface temperature to rise.

The scientific record of Earth's climate shows that the climate system varies naturally over a range of time scales, and that, in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by natural causes, such as changes in solar energy, volcanic eruptions, and natural

changes in GHG concentrations. Recent climate changes, the warming observed over the past century in particular, however, cannot be explained by natural causes alone. Rather, it is extremely likely that human activities have been the dominant cause of that warming since the mid-20th century and are the most significant driver of observed climate change (EPA 2017a; IPCC 2013). Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, positive radiative forcing, observed warming, and improved understanding of the climate system (IPCC 2013). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions and secondarily from emissions associated with land use changes (IPCC 2013). Continued emissions of GHGs will cause further warming and changes in all components of the climate system, which is discussed further in Section D.8.1.5, Potential Effects of Climate Change.

D.8.1.2 Greenhouse Gases

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. As defined in California Health and Safety Code, Section 38505(g), for the purposes of administering many of the state's primary GHG emissions reduction programs, GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (see also California Environmental Quality Act (CEQA) Guidelines, Section 15364.5).[1] Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted into the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as HFCs, PFCs, and SF_6, which are associated with certain industrial products and processes. The following paragraphs provide a summary of the most common GHGs and their sources.[2]

Carbon Dioxide. CO_2 is a naturally occurring gas and a by-product of human activities and is the principal anthropogenic GHG that affects Earth's radiative balance. Natural sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic outgassing; and decomposition of dead organic matter. Human activities that generate CO_2 are the combustion of fuels, such as coal, oil, natural gas, and wood, and changes in land use.

Methane. CH_4 is produced through natural and human activities. CH_4 is a flammable gas and is the main component of natural gas. CH_4 is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal

[1] Climate-forcing substances include GHGs and other substances, such as black carbon and aerosols. This discussion focuses on the seven GHGs identified in California Health and Safety Code, Section 38505. Impacts associated with other climate-forcing substances are not evaluated herein.

[2] The descriptions of GHGs are summarized from IPCC 1995; IPCC 2007; "Glossary of Terms Used in GHG Inventories" (CARB 2017a); and "Glossary of Climate Change Terms" (EPA 2017b).

wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide. N_2O is produced through natural and human activities, mainly through agricultural activities and natural biological processes, although fuel burning and other processes also create N_2O. Sources of N_2O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers; manure management; industrial processes, such as in nitric acid production, nylon production, and fossil-fuel-fired power plants; vehicle emissions; and use of N_2O as a propellant (such as in rockets, race cars, and aerosol sprays).

Fluorinated Gases. Fluorinated gases are powerful synthetic GHGs emitted from many industrial processes. Fluorinated gases are commonly used as substitutes for stratospheric ozone-depleting substances (e.g., chlorofluorocarbons (CFCs), hydrochlorofluorocarbons **(**HCFCs), and halons). The most prevalent fluorinated gases are the following:

- Hydrofluorocarbons: HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals used as alternatives to ozone-depleting substances for many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are used in manufacturing.
- Perfluorocarbons: PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, with HFCs, to the ozone-depleting substances. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.
- Sulfur Hexafluoride: SF6 is a colorless gas soluble in alcohol and ether and slightly soluble in water. SF6 is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.
- Nitrogen Trifluoride: Nitrogen trifluoride is used in the manufacture of a variety of electronics, including semiconductors and flat-panel displays.

Chlorofluorocarbons. CFCs are synthetic chemicals that have been used as cleaning solvents, refrigerants, and aerosol propellants. CFCs are chemically unreactive in the lower atmosphere (troposphere), and the production of CFCs was prohibited in 1987 due to the chemical destruction of stratospheric ozone.

Hydrochlorofluorocarbons. HCFCs are a large group of compounds whose structure is very close to that of CFCs—they contain hydrogen, fluorine, chlorine, and carbon atoms—but include one or

more hydrogen atoms. Like CFCs, HCFCs are used in refrigerants and propellants. HCFCs were also used in place of CFCs for some applications; however, their use in general is being phased out.

Black Carbon. Black carbon is a component of fine particulate matter, which has been identified as a leading environmental risk factor for premature death. It is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influences cloud formation, and darkens the surface of snow and ice, which accelerates heat absorption and melting. Black carbon is short-lived and varies spatially, which makes it difficult to quantify its global-warming potential (GWP). Diesel particulate matter emissions are a major source of black carbon and are toxic air contaminants that have been regulated and controlled in California for several decades to protect public health. Because of regulations by the California Air Resources Board (CARB) pertaining to diesel engines, diesel fuels, and burning activities, CARB estimates that annual black carbon emissions in California were reduced by 70% between 1990 and 2010, with 95% control expected by 2020 (CARB 2014).

Water Vapor. The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere and maintains a climate that is necessary for life.

Ozone. Tropospheric ozone, which is created by photochemical reactions involving gases from natural sources and human activities, acts as a GHG. Stratospheric ozone, which is created by the interaction between solar ultraviolet radiation and molecular oxygen (O_2), plays a decisive role in the stratospheric radiative balance. Depletion of stratospheric ozone due to chemical reactions that may be enhanced by climate change results in an increased ground-level flux of ultraviolet-B radiation.

Aerosols. Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

D.8.1.3 Global-Warming Potential

Gases in the atmosphere can contribute to climate change directly and indirectly. Direct effects occur when a gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of a substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and when a gas affects atmospheric processes that alter the radiative balance of Earth (e.g., affect cloud formation or albedo (i.e., the reflection of radiation)) (EPA 2017b). The Intergovernmental Panel on Climate Change (IPCC) developed the GWP concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous

release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons (MT) of CO_2 equivalent (CO_2e).

The current version of the California Emissions Estimator Model (CalEEMod) (Version 2016.3.2) assumes that the GWP for CH_4 is 25 (i.e., emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the IPCC's "Summary for Policymakers" (IPCC 2007). The GWP values identified in CalEEMod were applied to the proposed project.

D.8.1.4 Sources of GHG Emissions

Global Inventory

Anthropogenic GHG emissions worldwide in 2016 (the most recent year for which data is available) totaled approximately 49,300 million metric tons (MMT) of CO_2e, excluding land use change and forestry (PBL 2017). Six countries—China, the United States, the Russian Federation, India, Japan, and Brazil—and the European community accounted for approximately 65% of the total global emissions, or approximately 32,255 MMT CO_2e (PBL 2017). Table D.8-1 presents the top GHG emissions–producing countries.

Table D.8-1
Top Six Greenhouse Gas–Producing Countries and the European Union

Emitting Countries (listed in order of emissions)	GHG Emissions (MMT CO_2e)
China	13,010
United States	6,430
European Union	4,430
India	3,650
Russian Federation	2,220
Japan	1,400
Brazil	1,115
Total	**32,255**

Source: PBL 2017.
Note: GHG = greenhouse gas; MMT CO_2e = million metric tons of carbon dioxide equivalent.

National and State Inventories

Per the U.S. Environmental Protection Agency (EPA) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2016 (EPA 2018), total U.S. GHG emissions were approximately 6,511.3 MMT CO_2e in 2016. The primary GHG emitted by human activities in the United States was CO_2, which represented approximately 81.6% of total GHG emissions (5,310.9 MMT CO_2e). The largest source of CO_2, and of overall GHG emissions, was fossil fuel combustion, which accounted for approximately 93.5% of CO_2 emissions in 2016 (4,966.0 MMT CO_2e). Relative to

1990, gross United States GHG emissions in 2016 are higher by 2.4% but down from a high of 15.7% above 1990 levels in 2007. GHG emissions decreased from 2015 to 2016 by 1.9% (126.8 MMT CO_2e), and overall, net emissions in 2016 were 11.1% below 2005 levels (EPA 2018).

According to California's 2000–2016 GHG emissions inventory (2018 edition), California emitted 429.40 MMT CO2e in 2016, including emissions resulting from out-of-state electrical generation (CARB 2018). The sources of GHG emissions in California include transportation, industrial uses, electric power production from in-state and out-of-state sources, commercial and residential uses, agriculture, high GWP substances, and recycling and waste. The California GHG emissions source categories (as defined in CARB's 2008 Climate Change Scoping Plan: A Framework for Change (Scoping Plan) (CARB 2008)) and their relative contributions in 2016 are presented in Table D.8-2.

Table D.8-2
Greenhouse Gas Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO_2e)	Percent of Total[a]
Transportation	169.38	39
Industrial uses[b]	89.61	21
Electricity generation[c]	68.58	16
Residential and commercial uses	39.36	9
Agriculture	33.84	8
High GWP substances	19.78	5
Recycling and waste	8.81	2
Totals	**429.40**	**100**

Source: CARB 2018.
Notes: GHG = greenhouse gas; MMT CO_2e = million metric tons of carbon dioxide equivalent; GWP = global warming potential. Emissions reflect 2016 California GHG inventory.

[a] Percentage of total has been rounded and total may not sum due to rounding.

[b] The Aliso Canyon natural gas leak event released 1.96 MMT CO_2e of unanticipated emissions in 2015 and 0.53 MMT CO_2e in 2016. These leak emissions will be fully mitigated according to legal settlement and are tracked separately from routine inventory emissions.

[c] Includes emissions associated with imported electricity, which account for 26.28 MMT CO_2e.

Between 2000 and 2016, per capita GHG emissions in California dropped from a peak of 14.0 MT per person in 2001 to 10.8 MT per person in 2016, representing a 23% decrease. In addition, total GHG emissions in 2016 were approximately 12 MMT CO_2e less than 2015 emissions. The declining trend in GHG emissions, coupled with programs that will continue to provide additional GHG reductions going forward, demonstrates that California will continue to reduce emissions below the 2020 target of 431 MT CO_2e (CARB 2018).

The proposed project is within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD), which has prepared a GHG emissions inventory to support BAAQMD's climate protection activities. Table D.8-3 presents the 2011 GHG emissions inventory for the Bay Area, which is the most recently available inventory (BAAQMD 2015). In the Bay Area, CO_2 emissions represented approximately 90.3% of total GHG emissions in 2011. These emissions

are mainly associated with combustion of carbon-bearing fossil fuels such as gasoline, diesel, and natural gas used in mobile sources and energy generation–related activities. Other activities that produce CO_2 emissions include oil refining processes, cement manufacturing, waste combustion, and land use and forestry changes. CH_4 emissions represented 3% of the total GHG emissions in 2011. Major sources of these emissions include municipal solid waste landfills, raising of livestock and other agricultural activities, stationary and mobile fuel combustion, gas and oil production fields, and natural gas distribution systems. N_2O emissions represented 1.7% of the total GHG emissions in 2011. Major sources of these emissions include municipal wastewater treatment facilities, fuel combustion, and agricultural soil and manure management. Emissions from high GWP gases such as HFCs, PFCs, and SF_6 made up about 4.9% of the total GHG emissions in 2011. Major sources of these emissions include industrial processes such as semiconductor/electronic industry manufacturing, use as refrigerants and other products, and electric power distribution systems (BAAQMD 2015).

Table D.8-3
Bay Area 2011 Greenhouse Gas Emissions Inventory

End-Use Sector	Percent of Total Emissions	CO_2e Emissions (MMT/year)
Industrial/commercial	35.7	31.0
Residential fuel usage	7.7	6.6
Electricity/co-generation	14.0	12.1
Off-road equipment	1.5	1.3
Transportation	39.7	34.3
Agriculture/farming	1.5	1.3
Total	**100**	**86.6**

Source: BAAQMD 2015.
Notes: CO_2e = carbon dioxide equivalent; MMT/year = million metric ton per year.

D.8.1.5 Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The 2014 Intergovernmental Panel on Climate Change synthesis report (IPCC 2014) indicated that warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, rising sea levels, and ocean acidification (IPCC 2014).

In California, climate change impacts have the potential to affect sea-level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, frequency of severe weather events, and electricity demand and supply. The primary effect of global climate change has been a 0.36°F rise in average global tropospheric temperature per decade, determined from meteorological measurements

worldwide between 1990 and 2005. Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. A warming of approximately 0.36°F per decade is projected, and there are identifiable signs that global warming could take place.

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The average temperatures in California have increased, leading to more extreme hot days and fewer cold nights. Shifts in the water cycle have been observed, with less winter precipitation falling as snow and both snowmelt and rainwater running off earlier in the year. Sea levels have risen, and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (CAT 2010).

An increase in annual average temperature is a reasonably foreseeable effect of climate change. Observed changes over the last several decades across the western United States reveal clear signals of climate change. Statewide average temperatures increased by approximately 1.7°F from 1895 to 2011, with warming the greatest in the Sierra Nevada (CCCC 2012). By 2050, California is projected to warm by approximately 2.7°F above 2000 averages, a threefold increase in the rate of warming over the last century. By 2100, average temperatures could increase by 4.1°F to 8.6°F, depending on emissions levels. Springtime warming—a critical influence on snowmelt—will be particularly pronounced. Summer temperatures will rise more than winter temperatures, and the increases will be greater in inland California compared to the coast. Heat waves will be more frequent, hotter, and longer. There will be fewer extremely cold nights (CCCC 2012). A decline in the Sierra Nevada snowpack, which accounts for approximately half of the surface water storage in California, by 30% to as much as 90% is predicted over the next 100 years (CAT 2006).

Model projections for precipitation over California continue to show the Mediterranean pattern of wet winters and dry summers, with seasonal, year-to-year, and decade-to-decade variability. For the first time, however, several of the improved climate models shift toward drier conditions by the mid- to late-21st century in central, and most notably, Southern California. By the late century, all projections show drying, and half of them suggest that 30-year average precipitation will decline by more than 10% below the historical average (CCCC 2012).

A summary of current and future climate change impacts to resource areas in California, as discussed in Safeguarding California: Reducing Climate Risk (CNRA 2014) is provided below.

Agriculture. The impacts of climate change on the agricultural sector are far more severe than the typical variability in weather and precipitation patterns that occur year to year. Some of the specific challenges faced by the agricultural sector and farmers include more drastic and unpredictable precipitation and weather patterns; extreme weather events that range from severe flooding to

extreme drought to destructive storm events; significant shifts in water availably and water quality; changes in pollinator lifecycles; temperature fluctuations, including extreme heat stress and decreased chill hours; increased risks from invasive species and weeds, agricultural pests, and plant diseases; and disruptions to the transportation and energy infrastructure supporting agricultural production. These challenges and associated short-term and long-term impacts can have positive and negative effects on agricultural production. Nonetheless, it is predicted that current crop and livestock production will suffer long-term negative effects resulting in a substantial decrease in the agricultural sector if not managed or mitigated (CNRA 2014).

Biodiversity and Habitat. The state's extensive biodiversity stems from its varied climate and assorted landscapes, which have resulted in numerous habitats where species have evolved and adapted over time. Specific climate change challenges to biodiversity and habitat include species migration in response to climatic changes, range shifts, and novel combinations of species; pathogens, parasites, and disease; invasive species; extinction risks; changes in the timing of seasonal life-cycle events; food-web disruptions; and threshold effects (i.e., a change in the ecosystem that results in a "tipping point" beyond which there is irreversible damage or loss cannot be recouped). Habitat restoration, conservation, and resource management across California and through collaborative efforts among public, private, and nonprofit agencies have assisted in the effort to fight climate change impacts on biodiversity and habitat. One of the key measures in these efforts is ensuring species' ability to relocate as temperature and water availability fluctuate due to climate change (CNRA 2014).

Energy. The energy sector provides California residents with a supply of reliable and affordable energy through a complex, integrated system. Specific climate change challenges for the energy sector include temperature rise, fluctuating precipitation patterns, increasing extreme weather events, and sea-level rise. Increasing temperatures and reduced snowpack negatively impact the availability of a steady flow of snowmelt to feed hydroelectric reservoirs. Higher temperatures also reduce the capacity of thermal power plants, since power plant cooling is less efficient at higher ambient temperatures. Increased temperatures will also increase electricity demand associated with air conditioning. Natural gas infrastructure in coastal California is threatened by sea-level rise and extreme storm events (CNRA 2014).

Forestry. Forests occupy approximately 33% of California's 100 million acres and provide key benefits such as wildlife habitat, absorption of CO_2, renewable energy, and building materials. The most significant climate change–related risk to forests is accelerated risk of wildfire and more frequent and severe droughts. Droughts have resulted in more large-scale vegetation mortality and, combined with increasing temperatures, have led to an overall increase in wildfire risks. Increased wildfire intensity subsequently increases public safety risks, property damage, fire suppression and emergency response costs, watershed and water quality impacts, and vegetation conversions. These factors contribute to decreased forest growth, geographic shifts in tree distribution, loss

of fish and wildlife habitat, and decreased carbon absorption. Climate change may result in increased establishment of non-native species, particularly in rangelands where invasive species are already a problem. Invasive species may be able to exploit temperature or precipitation changes, or quickly occupy areas denuded by fire, insect mortality, or other climate change effects on vegetation (CNRA 2014).

Ocean and Coastal Ecosystems and Resources. Sea-level rise, changing ocean conditions, and other climate-change stressors are likely to exacerbate long-standing challenges related to ocean and coastal ecosystems, in addition to threatening people and infrastructure located along the California coastline and in coastal communities. Sea-level rise, in addition to more frequent and severe coastal storms and erosion, is threatening vital infrastructure, such as roads, bridges, power plants, ports, airports, gasoline pipes, and emergency facilities, as well as negatively impacting coastal recreational assets, such as beaches and tidal wetlands. Water quality and ocean acidification threaten the abundance of seafood and other plant and wildlife habitats throughout California and globally (CNRA 2014).

Public Health. Climate change can impact public health through various environmental changes and is the largest threat to human health in the 21st century. Changes in precipitation patterns affect public health primarily through potential for altered water supplies and extreme events, such as heat, floods, droughts, and wildfires. Increased frequency, intensity, and duration of extreme heat and heat waves are likely to increase the risk of mortality due to heat-related illness and exacerbate existing chronic health conditions. Other extreme weather events are likely to negatively impact air quality and increase or intensify respiratory illness, such as asthma and allergies. Additional health effects that may be impacted by climate change include cardiovascular disease, vector-borne diseases, mental health impacts, and malnutrition. Increased frequency of these ailments is likely to subsequently increase the direct risk of injury and mortality (CNRA 2014).

Transportation. Residents of California rely on airports, seaports, public transportation, and an extensive roadway network to gain access to destinations, goods, and services. Although the transportation industry is a source of GHG emissions, it is also vulnerable to climate change risks. Particularly, sea-level rise and erosion threaten many coastal California roadways, airports, seaports, transit systems, and bridge supports and energy and fueling infrastructure. Increasing temperatures and extended periods of extreme heat threaten the integrity of the roadways and rail lines. High temperatures cause road surfaces to expand, which leads to increased pressure and pavement buckling. High temperatures can also cause rail breakages, which could lead to train derailment. Other forms of extreme weather events, such as extreme storm events, can negatively impact infrastructure, which can impair movement of people and goods and potentially block evacuation routes and emergency access roads. Increased wildfires, flooding, erosion, landslides, mudslides, and rockslides can profoundly impact the transportation system and pose a serious risk to public safety (CNRA 2014).

Water. Water resources in California support residences, plants, wildlife, farmland, landscapes, and ecosystems and bring trillions of dollars in economic activity. Climate change could seriously impact the timing, form, and amount of precipitation; runoff patterns; and the frequency and severity of precipitation events. Higher temperatures reduce the amount of snowpack and lead to earlier snowmelt, which can impact water supply availability, natural ecosystems, and winter recreation. Water supply availability during the intense dry summer months is heavily dependent on the snowpack accumulated during winter. Increased risk of flooding has a variety of public health concerns, including water quality, public safety, property damage, displacement, and post-disaster mental health problems. Prolonged and intensified droughts can also negatively impact groundwater reserves and result in increased overdraft and subsidence. Droughts can also negatively impact agriculture and farmland throughout the state. The higher risk of wildfires can lead to increased erosion, which can negatively impact watersheds and result in poor water quality. Water temperatures are also prone to increase, which can negatively impact wildlife that rely on a specific range of temperatures for suitable habitat (CNRA 2014).

In March 2016, the California Natural Resources Agency (CNRA) released Safeguarding California: Implementation Action Plans, a document that shows how California is acting to convert the recommendations contained in the 2014 safeguarding California plan into action (CNRA 2016). Additionally, in May 2017, the CNRA released the Draft Report Safeguarding California Plan: 2017 Update, which is a survey of current programmatic responses for climate change and contains recommendations for further actions (CNRA 2017). The CNRA released its Safeguarding California Plan: 2018 Update in January 2018, which provides a roadmap for state agencies to protect communities, infrastructure, services, and the natural environment from climate change impacts. The 2018 update includes 69 recommendations across 11 sectors and more than 1,000 ongoing actions and next steps developed by scientific and policy experts across 38 state agencies (CNRA 2018). As with previous state adaptation plans, the 2018 update addresses acceleration of warming across the state; more intense and frequent heat waves; greater riverine flows; accelerating sea-level rise; more intense and frequent drought; more severe and frequent wildfires; more severe storms and extreme weather events; shrinking snowpack and less overall precipitation; and ocean acidification, hypoxia, and warming.

D.8.2 Applicable Regulations, Plans, and Standards

Federal Regulations, Plans, and Standards

***Massachusetts v. Environmental Protection Agency*.** On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497, the Supreme Court found that GHGs are air pollutants covered by the Clean Air Act (CAA). The court held that the EPA administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the administrator is required to follow the language of Section

202(a) of the CAA. On December 7, 2009, the administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the CAA:

- The administrator found that elevated concentrations of GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the endangerment finding.
- The administrator further found that combined emissions of GHGs (CO_2, CH_4, N_2O, and HFCs) from new motor vehicles and new motor vehicle engines contribute to GHG air pollution that endangers public health and welfare. This is referred to as the cause or contribute finding.

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the CAA.

Energy Independence and Security Act. On December 19, 2007, President Bush signed the Energy Independence and Security Act of 2007 (EPA 2007). Among other key measures, the act would do the following, which would aid in the reduction of national GHG emissions:

1. Increase the supply of alternative fuel sources by setting a mandatory renewable fuel standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
2. Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020, direct National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks, and create a separate fuel economy standard for work trucks.
3. Prescribe or revise standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

Federal Vehicle Standards. In response to the U.S. Supreme Court ruling discussed above, the Bush administration issued Executive Order (EO) 13432 in 2007 directing the EPA, the U.S. Department of Transportation, and the U.S. Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011, and in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016.

In 2010, President Barack Obama issued a memorandum directing the U.S. Department of Transportation, U.S. Department of Energy, EPA, and NHTSA to establish additional standards

regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams per mile of CO_2 by model year 2025 on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021. On January 12, 2017, the EPA finalized its decision to maintain the current GHG emissions standards for model years 2022–2025 cars and light trucks (EPA 2017c).

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6%–23% over the 2010 baselines.

In August 2016, EPA and NHTSA announced the adoption of phase two of the program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model years 2018–2027 for certain trailers and model years 2021–2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks. The final standards are expected to lower CO_2 emissions by approximately 1.1 billion MT and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program (EPA and NHTSA 2016).

State Regulations, Plans, and Standards

The statewide GHG emissions regulatory framework is summarized below by category: state climate change targets, building energy, mobile sources, solid waste, renewable energy and energy procurement, and other state regulations and goals. The following text describes EOs, legislation, regulations, and other plans and policies that would directly or indirectly reduce GHG emissions and address climate change issues.

State Climate Change Targets

EO S-3-05. EO S-3-05 (June 2005) established the following statewide goals: GHG emissions should be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050.

Assembly Bill (AB) 32 and CARB's Scoping Plan. In furtherance of the goals established in EO S-3-05, the Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020.

Under AB 32, CARB is responsible for and is recognized as having the expertise needed for carrying out and developing the programs and requirements necessary to achieve the GHG emissions reduction mandate of AB 32. Under AB 32, CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions from specified sources. This program is used to monitor and enforce compliance with established standards. CARB also is required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions. AB 32 relatedly authorized CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emissions limitation, emissions reduction measure, or market-based compliance mechanism adopted.

In 2007, CARB approved a limit on the statewide GHG emissions level for 2020, consistent with the determined 1990 baseline (427 MMT CO_2e). CARB's adoption of this limit is in accordance with California Health and Safety Code, Section 38550.

Further, in 2008, CARB adopted the Scoping Plan in accordance with California Health and Safety Code, Section 38561. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates CARB and Climate Action Team early actions and additional GHG reduction features by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. The key elements of the Scoping Plan are the following (CARB 2008):

- Expanding and strengthening existing energy efficiency programs and building and appliance standards.
- Achieving a statewide renewable energy mix of 33%.
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions.
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets.
- Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard.
- Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the state's long-term commitment to AB 32 implementation.

In the Scoping Plan, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 28.5% from the otherwise projected 2020 emissions level (i.e., those emissions that would occur in 2020 absent GHG-reducing laws and regulations, referred to as "business-as-usual"). To calculate this percent reduction, CARB assumed that new electricity generation would be supplied by natural gas plants, that no further regulatory action would impact vehicle fuel efficiency, and that building energy efficiency codes would be held at 2005 standards.

In the 2011 Final Supplement to the Scoping Plan's Functional Equivalent Document, CARB revised its estimates of the projected 2020 emissions level in light of the economic recession and the availability of updated information about GHG reduction regulations. Based on the new economic data, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7% (down from 28.5%) from the business-as-usual conditions (CARB 2011). When the 2020 emissions level projection was updated to account for newly implemented regulatory measures, including Pavley I (model years 2009–2016) and the Renewables Portfolio Standard (RPS) (12% to 20%), CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of 16% (down from 28.5%) from the business-as-usual conditions.

In 2014, CARB adopted the First Update to the Climate Change Scoping Plan: Building on the Framework Pursuant to AB 32 – The California Global Warming Solutions Act of 2006 (First Update). The stated purpose of the First Update is to "highlight California's success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80% below 1990 levels by 2050" (CARB 2014). The First Update found that California is on track to meet the 2020 emissions reduction mandate established by AB 32, and noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80% below 1990 levels by 2050 if the state realizes the expected benefits of existing policy goals.

In conjunction with the First Update, CARB identified "six key focus areas comprising major components of the state's economy to evaluate and describe the larger transformative actions that will be needed to meet the state's more expansive emission reduction needs by 2050" (CARB 2014). Those six areas are energy, transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure), agriculture, water, waste management, and natural and working lands. The First Update identified key recommended actions for each sector that will facilitate achievement of EO S-3-05's 2050 reduction goal.

CARB's research efforts presented in the First Update indicate that it has a "strong sense of the mix of technologies needed to reduce emissions through 2050" (CARB 2014). Those technologies include energy demand reduction through efficiency and activity changes; large-scale electrification of on-

road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and the rapid market penetration of efficient and clean energy technologies.

As part of the First Update, CARB recalculated the state's 1990 emissions level using more recent GWPs identified by IPCC. Using the recalculated 1990 emissions level (431 MMT CO_2e) and the revised 2020 emissions level projection identified in the 2011 Final Supplement (CARB 2011), CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 15% (instead of 28.5% or 16%) from the business-as-usual conditions (CARB 2014).

On January 20, 2017, CARB released its 2017 Climate Change Scoping Plan Update: The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target (Second Update) for public review and comment (CARB 2017b). This update presents CARB's strategy for achieving the state's 2030 GHG target as established in Senate Bill (SB) 32 (discussed below), including continuing the cap-and-trade program through 2030, and includes a new approach to reduce GHGs from refineries by 20%. The Second Update incorporates approaches to cutting short-lived climate pollutants (SLCPs) under the Short-Lived Climate Pollutant Reduction Strategy (SLCP Reduction Strategy) (a planning document adopted by CARB in March 2017), acknowledges the need for reducing emissions in agriculture, and highlights the work underway to ensure that California's natural and working lands increasingly sequester carbon. During development of the Second Update, CARB held a number of public workshops in the natural and working lands, agriculture, energy, and transportation sectors to inform development of the Second Update. When discussing project-level GHG emissions reduction actions and thresholds, the Second Update states, "achieving no net increase in GHG emissions is the correct overall objective, but it may not be appropriate or feasible for every development project. An inability to mitigate a project's GHG emissions to zero does not necessarily imply a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA" (CARB 2017b). The Second Update was approved by CARB's Governing Board on December 14, 2017.

EO B-30-15. EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under EO S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing statewide GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing statewide GHG emissions to 80% below 1990 levels by 2050, as set forth in EO S-3-05. To facilitate achievement of this goal, EO B-30-15 calls for an update to CARB's Scoping Plan to express the 2030 target in terms of MMT CO_2e. The EO also calls for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. EO B-30-15 does not require local agencies to take action to meet the new interim GHG reduction target.

SB 32 and AB 197. SB 32 and AB 197 (enacted in 2016) are companion bills that set a new statewide GHG reduction target, make changes to CARB's membership, increase legislative oversight of CARB's climate change–based activities, and expand dissemination of GHG and other air quality–related emissions data to enhance transparency and accountability. More specifically, SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the senate and three members of the assembly, to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the legislature to CARB as nonvoting members; requires CARB to make available and update (at least annually through its website) emissions data for GHGs, criteria air pollutants, and toxic air contaminants from reporting facilities; and requires CARB to identify specific information for GHG emissions reduction measures when updating the Scoping Plan.

SB 605 and SB 1383. SB 605 (2014) requires CARB to complete a comprehensive strategy to reduce emissions of SLCPs in the state, and SB 1383 (2016) requires CARB to approve and implement that strategy by January 1, 2018. SB 1383 also establishes specific targets for the reduction of SLCPs (40% below 2013 levels by 2030 for CH_4 and HFCs, and 50% below 2013 levels by 2030 for anthropogenic black carbon) and provides direction for reductions from dairy and livestock operations and landfills. Accordingly, and as mentioned previously, CARB adopted its SLCP Reduction Strategy in March 2017. The SLCP Reduction Strategy establishes a framework for the statewide reduction of emissions of black carbon, CH_4, and fluorinated gases.

Building Energy

Title 24, Part 6. Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically established Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy efficiency standards are reviewed every few years by the Building Standards Commission and the California Energy Commission (CEC) and revised if necessary (California Public Resources Code, Section 25402(b)(1)). The regulations receive input from members of industry, as well as the public, with the goal of "reducing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (California Public Resources Code, Section 25402). These regulations are carefully scrutinized and analyzed for technological and economic feasibility (California Public Resources Code, Section 25402(d)) and cost effectiveness (California Public Resources Code, Sections 25402(b)(2) and (b)(3)). As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The 2019 Title 24 standards were approved and adopted by the California Building Standards Commission in December 2018. The 2019 standards will become effective January 1, 2020. The standards would require that all low-rise residential buildings shall have a photovoltaic system meeting the minimum qualification requirements such that annual electrical output is equal to or greater than the dwelling's annual electrical usage. Notably, net energy metering rules limit residential rooftop solar generation to produce no more electricity than the home is expected to consume on an annual basis. Single-family homes built with the 2019 standards will use about 7% less energy due to energy efficiency measures versus those built under the 2016 standards, while new nonresidential buildings will use about 30% less energy.

The California Public Utilities Commission (CPUC), CEC, and CARB previously established a goal of achieving zero net energy (ZNE) for new construction in California. The key policy timelines include (1) all new residential construction in California will be ZNE by 2020, and (2) all new commercial construction in California will be ZNE by 2030 (CPUC 2013). As most recently defined by the CEC in its 2015 Integrated Energy Policy Report, a ZNE code building is "one where the value of the energy produced by on-site renewable energy resources is equal to the value of the energy consumed annually by the building" using the CEC's Time Dependent Valuation metric (CEC 2015).

The 2019 Title 24 standards take a significant step towards the state's ZNE goal. However, as explained by the CEC, California's energy landscape has changed since the ZNE target was set. Electricity produced for the grid now comes substantially from renewables, and 60% renewable electricity generation is required by 2030. Further, new net energy metering rules also limit the amount of residential rooftop solar generation to no more electricity production than the home is annually expected to consume.

The 2019 Title 24 standards therefore focus on building energy efficiency and ensuring solar electricity generated on site is used on site. "Looking beyond the 2019 standards, the most important energy characteristic for a building will be that it produces and consumes energy at times that are appropriate and responds to the needs of the grid, which reduces the building's emissions" (CEC 2018). In furtherance of that characteristic, the 2019 standards require that new homes include solar photovoltaic to meet the home's expected annual electric needs, and also encourage demand-responsive technologies including battery storage, heat-pump water heaters, and improving buildings' thermal envelopes through high performance attics, walls, and windows. These smarter homes perform better and affect the grid less, which reduces the buildings' GHG emissions.

Title 24, Part 11. In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CALGreen, and establishes

minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial and low-rise residential and state-owned buildings and schools and hospitals. The CALGreen 2016 standards became effective January 1, 2017. The mandatory standards require the following (24 CCR Part 11):

- Mandatory reduction in indoor water use through compliance with specified flow rates for plumbing fixtures and fittings.
- Mandatory reduction in outdoor water use through compliance with a local water efficient landscaping ordinance or the California Department of Water Resources' Model Water Efficient Landscape Ordinance.
- 65% of construction and demolition waste must be diverted from landfills.
- Mandatory inspections of energy systems to ensure optimal working efficiency.
- Inclusion of electric vehicle charging stations or designated spaces capable of supporting future charging stations.
- Low-pollutant-emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle boards.

The CALGreen standards also include voluntary efficiency measures that are provided at two separate tiers and implemented at the discretion of local agencies and applicants. CALGreen's Tier 1 standards call for a 15% improvement in energy requirements, stricter water conservation, 65% diversion of construction and demolition waste, 10% recycled content in building materials, 20% permeable paving, 20% cement reduction, and cool/solar-reflective roofs. CALGreen's more rigorous Tier 2 standards call for a 30% improvement in energy requirements, stricter water conservation, 80% diversion of construction and demolition waste, 15% recycled content in building materials, 30% permeable paving, 25% cement reduction, and cool/solar-reflective roofs.

SB 1. SB 1 (2006) established a $3 billion rebate program to support the goal of the state to install rooftop solar energy systems with a generation capacity of 3,000 megawatts through 2016. SB 1 added sections to the Public Resources Code, including Chapter 8.8 (California Solar Initiative), that require building proposed projects applying for ratepayer-funded incentives for photovoltaic systems to meet minimum energy efficiency levels and performance requirements. Section 25780 established that it is a goal of the state to establish a self-sufficient solar industry in which solar energy systems are a viable mainstream option for both homes and businesses within 10 years of adoption, and to place solar energy systems on 50% of new homes within 13 years of adoption. SB 1, also termed "GoSolarCalifornia," was previously titled "Million Solar Roofs."

AB 1470. This bill established the Solar Water Heating and Efficiency Act of 2007. The bill outlines findings and declarations of the legislature relating to the promotion of solar water heating systems and other technologies that reduce natural gas demand. The bill defined several terms for purposes of the act. The bill required the commission to evaluate the data available from a specified pilot program and, if it made a specified determination, to design and implement a program of incentives for the installation of 200,000 solar water heating systems in homes and businesses throughout the state by 2017.

AB 1109. Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general-purpose lighting and to reduce electricity consumption 50% for indoor residential lighting and 25% for indoor commercial lighting.

Mobile Sources

AB 1493. In a response to the transportation sector accounting for more than half of California's CO_2 emissions, AB 1493 was enacted in July 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. From 2009 to 2012, standards resulted in a reduction of approximately 22% in GHG emissions compared to emissions from the 2002 fleet, and from 2013 to 2016, standards resulted in a reduction of approximately 30%.

EO S-1-07. Issued on January 18, 2007, EO S 1-07 sets a declining low-carbon fuel standard for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The target of the low-carbon fuel standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. Carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources, such as algae, wood, and agricultural waste.

SB 375. SB 375 (2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 required CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035. Regional metropolitan planning organizations are responsible for preparing a Sustainable Communities Strategy within their Regional Transportation Plan. The goal of the Sustainable Communities Strategy is to establish a forecasted development pattern for the region that, after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets. If a

Sustainable Communities Strategy is unable to achieve the GHG reduction targets, a metropolitan planning organization must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

Pursuant to California Government Code, Section 65080(b)(2)(K), a Sustainable Communities Strategy does not regulate the use of land; supersede the land-use authority of cities and counties; or require that a city's or county's land-use policies and regulations, including those in a general plan, be consistent with the strategy. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process.

In September 2010, CARB adopted the SB 375 targets for the regional metropolitan planning organizations. CARB set a target of 7% per capita reduction by 2020 and a 15% per capita reduction by 2035 for the Bay Area. The Association of Bay Area Governments and the Metropolitan Transportation Commission, which is the metropolitan planning organization for the Bay Area, adopted the Plan Bay Area: Regional Transportation Plan and Sustainable Communities Strategy for the San Francisco Bay Area 2017–2040 (Plan Bay Area) in July 2017 (ABAG and MTC 2017). The Plan Bay Area is a long-range plan for transportation projects within the planning area and established 13 performance targets covering three broad areas (the environment, equity, and the economy) to achieve the following goals/outcomes: climate protection, adequate housing, healthy and safe communities, open space and agricultural preservation, equitable access, economic vitality, and transportation system effectiveness. Two of these targets are mandatory to comply with SB 375, and the Plan Bay Area established strategies to achieve 16% reduction per capita in GHG emissions from light trucks and cars by 2035 (climate protection goal), and plans to house 100% of the region's projected growth (from a 2010 baseline year) by income level without displacing current low-income residents (adequate housing goal).

Advanced Clean Cars Program. In January 2012, CARB approved the Advanced Clean Cars Program, an emissions-control program for model years 2015–2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single, coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide fuels for clean cars (CARB 2012). To improve air quality, CARB implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that, by 2025, cars will emit 75% less smog-forming pollution than the average new car sold before 2012. To reduce GHG emissions, CARB, in conjunction with EPA and NHTSA, adopted new GHG standards for model years 2017–2025 vehicles; the new standards are estimated to reduce GHG emissions by 34% by 2025. The Zero Emissions Vehicle (ZEV) Program will act as the focused technology of the Advanced Clean Cars

Program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles in 2018–2025 model years. The Clean Fuels Outlet Regulation will ensure that fuels such as electricity and hydrogen are available to meet the fueling needs of the new advanced technology vehicles as they come to the market.

EO B-16-12. EO B-16-12 (2012) directs state entities under the governor's direction and control to support and facilitate development and distribution of ZEVs. This EO set a long-term target of reaching 1.5 million ZEVs on California's roadways by 2025. On a statewide basis, EO B-16-12 established a GHG emissions reduction target from the transportation sector equaling 80% less than 1990 levels by 2050. In furtherance of this EO, the governor convened an Interagency Working Group on ZEVs that has published multiple reports regarding the progress made on the penetration of ZEVs in the statewide vehicle fleet.

AB 1236. AB 1236 (2015), as enacted in California's Planning and Zoning Law, requires local land use jurisdictions to approve applications for the installation of electric vehicle charging stations, as defined, through the issuance of specified permits, unless there is substantial evidence in the record that the proposed installation would have a specific, adverse impact on public health or safety, and there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact. The bill provides for appeal of that decision to the planning commission. The bill required local land-use jurisdictions with a population of 200,000 or more residents to adopt an ordinance by September 30, 2016, to create an expedited and streamlined permitting process for electric vehicle charging stations.

SB 350. In 2015, SB 350, the Clean Energy and Pollution Reduction Act, was enacted into law. As one of its elements, SB 350 established a statewide policy for widespread electrification of the transportation sector, recognizing that such electrification is required for achievement of the state's 2030 and 2050 reduction targets (see California Public Utilities Code, Section 740.12).

Solid Waste

AB 939 and AB 341. In 1989, AB 939, known as the Integrated Waste Management Act (PRC Section 40000 et seq.), was passed because of the increase in waste stream and decrease in landfill capacity. The statute established the California Integrated Waste Management Board, which oversees a disposal reporting system. AB 939 mandated a reduction of waste being disposed of, and jurisdictions were required to meet diversion goals of 25% of all solid waste through source reduction, recycling, and composting activities by 1995, and 50% by 2000.

AB 341 (2011) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75% of solid waste generated be source reduced, recycled, or composted by 2020 and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle)

to develop strategies to achieve the state's policy goal. CalRecycle has conducted multiple workshops and published documents that identify priority strategies that CalRecycle believes will assist the state in reaching the 75% goal by 2020.

Renewable Energy and Energy Procurement

Senate Bill 1078. SB 1078 (2002) established the RPS program, which requires an annual increase in renewable generation by the utilities equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20% of their power from renewable sources by 2010.

SB 1368. SB 1368 (2006) requires the CEC to develop and adopt regulations for GHG emission performance standards for the long-term procurement of electricity by local, publicly owned utilities. These standards must be consistent with the standards adopted by the CPUC. This effort will help protect energy customers from financial risks associated with investments in carbon-intensive generation by allowing new capital investments in power plants whose GHG emissions are as low as or lower than new combined-cycle natural gas plants by requiring imported electricity to meet GHG performance standards in California and by requiring that the standards be developed and adopted in a public process.

SB X1 2. SB X1 2 (2011) expanded the RPS by establishing that 20% of the total electricity sold to retail customers in California per year by December 31, 2013, and 33% by December 31, 2020, and in subsequent years be secured from qualifying renewable energy sources. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location. In addition to the retail sellers previously covered by the RPS, SB X1 2 added local, publicly owned electric utilities to the RPS.

SB 350. SB 350 (2015) further expanded the RPS by establishing that 50% of the total electricity sold to retail customers in California per year by December 31, 2030, be secured from qualifying renewable energy sources. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (e.g., heating, cooling, lighting, or class of energy uses on which an energy-efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the CPUC, in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal.

SB 100. SB 100 (2018) increased the standards set forth in SB 350 establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030, be secured from qualifying renewable energy sources.

SB 100 states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California. This bill requires that the achievement of 100% zero-carbon electricity resources does not increase the carbon emissions elsewhere in the western grid and that the achievement not be achieved through resource shuffling.

Other State Regulations and Goals

SB 97. SB 97 (Dutton) (August 2007) directed the Governor's Office of Planning and Research to develop guidelines under CEQA for the mitigation of GHG emissions. In 2008, the Governor's Office of Planning and Research issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents. The advisory indicated that the lead agency should identify and estimate a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities (OPR 2008). The advisory further recommended that the lead agency determine significance of the impacts and impose mitigation measures necessary to reduce GHG emissions to a level that is less than significant. The CNRA adopted the CEQA Guidelines amendments in December 2009, and they became effective in March 2010.

Under the amended CEQA Guidelines in the California Code of Regulations, a lead agency has the discretion to determine whether to use a quantitative or qualitative analysis or apply performance standards to determine the significance of GHG emissions resulting from a particular project (14 CCR 15064.4(a)). The CEQA Guidelines require a lead agency to consider the extent to which a project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)). The CEQA Guidelines also allow a lead agency to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through implementation of project features or off-site measures. The adopted amendments do not establish a GHG emissions threshold but allow a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts. CNRA also acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions (CNRA 2009a).

With respect to GHG emissions, the CEQA Guidelines state in the California Code of Regulations, Section 15064.4(a), that lead agencies should "make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions (14 CCR 15064.4(a)). The CEQA Guidelines note that an agency may identify emissions by either selecting a "model or methodology" to quantify the emissions or by relying on "qualitative analysis or other performance based standards" (14 CCR 15064.4(a)). Section 15064.4(b) of the CEQA Guidelines states that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment: the extent a project may increase or reduce

GHG emissions compared to the existing environmental setting; whether project emissions exceed a threshold of significance that the lead agency determines applies to the project; and the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

EO S-13-08. EO S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. Therefore, the EO directs state agencies to take specified actions to assess and plan for such impacts. The final 2009 California Climate Adaptation Strategy report was issued in December 2009 (CNRA 2009a), and an update, Safeguarding California: Reducing Climate Risk, followed in July 2014 (CNRA 2014). To assess the state's vulnerability to climate change, the updated report summarizes key climate change impacts to the state for the following areas: agriculture, biodiversity and habitat, emergency management, energy, forestry, ocean and coastal ecosystems and resources, public health, transportation, and water. Issuance of the Safeguarding California: Implementation Action Plans followed in March 2016 (CNRA 2016). A draft of the Safeguarding California Plan: 2017 Update was prepared to communicate current and needed actions that state government should take to build climate change resiliency (CNRA 2017).

Regional Regulations, Plans, and Standards

Local air districts act under state law and their discretionary requirements apply to PG&E utility projects. The proposed project is located within the jurisdiction of BAAQMD, which is the local agency responsible for preparing, adopting, and implementing emission control measures and standards for stationary sources of air pollution. Because the proposed project would not involve construction of new stationary sources, there are no permitting regulations relevant to the proposed project.

Local Regulations, Plans, and Standards

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the proposed project would not be subject to local (i.e., city and county) discretionary regulations.

San Francisco Climate Action Strategy

In October 2013, the City and County of San Francisco adopted the Climate Action Strategy (CAS), which represents an update to the initial Climate Action Plan developed in 2004. The CAS presents the potential effects of climate change on San Francisco based on scientific research and develops an inventory of San Francisco's contribution to GHG emissions. The CAS provides an overview of policies and programs to reach zero waste, 50% sustainable transportation, and 100% renewable energy. Overall, the CAS includes 35 climate actions to project future GHG emissions in San Francisco (San Francisco Department of Environment 2013). The CAS sets GHG emissions

reduction targets of 25% by 2017 and 40% by 2025, all against a 1990 baseline (San Francisco Department of the Environment 2013).

D.8.3 Environmental Impacts and Mitigation Measures

D.8.3.1 Definition and Use of Significance Criteria

The CNRA adopted amendments to the CEQA Guidelines on December 30, 2009, which became effective on March 18, 2010. With respect to GHG emissions, the amended CEQA Guidelines state in Section 15064.4(a) that lead agencies should "make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions. The CEQA Guidelines note that an agency may identify emissions by either selecting a "model or methodology" to quantify the emissions or by relying on "qualitative analysis or other performance based standards" (14 CCR 15064.4(a)). In accordance with Appendix G, the proposed project's GHG emissions effects would be considered significant if the project would:

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

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

In addition, Section 15064.7(c) of the CEQA Guidelines specifies that "[w]hen adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence." Similarly, the revisions to Appendix G, which is often used as a basis for lead agencies' selection of significance thresholds, do not prescribe specific thresholds.

Rather, the CEQA Guidelines establish two CEQA thresholds related to GHGs, and these will be used to discuss the significance of project impacts (14 CCR 15000 et seq.):

1. Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
2. Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

Regarding impacts from GHGs, both BAAQMD and the California Air Pollution Control Officers Association consider GHG impacts to be exclusively cumulative impacts (BAAQMD 2017; CAPCOA 2008); therefore, assessment of significance is based on a determination of whether the GHG emissions from a project represent a cumulatively considerable contribution to the global atmosphere. This analysis uses both a quantitative and a qualitative approach. The quantitative

approach is used to address the first significance criterion: "Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?" This analysis considers that, because the quantifiable thresholds developed by BAAQMD were formulated based on AB 32 and California Climate Change Scoping Plan reduction targets, developed to reduce GHG emissions statewide, a project cannot exceed a numeric BAAQMD threshold without also conflicting with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Therefore, if a project exceeds a numeric threshold and results in a significant cumulative impact, it would also result in a significant cumulative impact with respect to plan, policy, or regulation consistency, even though the project may incorporate measures and have features that would reduce its contribution to cumulative GHG emissions.

Separate thresholds of significance have been established by the BAAQMD for operational emissions from stationary sources (such as generators, furnaces, and boilers) and nonstationary sources (such as on-road vehicles) (BAAQMD 2017). The threshold for stationary sources is 10,000 MT CO_2e per year (i.e., emissions above this level may be considered significant). For nonstationary sources, the following three separate thresholds have been established:

- Compliance with a Qualified Greenhouse Gas Reduction Strategy (i.e., if a project is found to be out of compliance with a Qualified Greenhouse Gas Reduction Strategy, its GHG emissions may be considered significant).
- 1,100 MT CO_2e per year (i.e., emissions above this level may be considered significant).
- 4.6 MT CO_2e per service population per year (i.e., emissions above this level may be considered significant). (Service population is the sum of residents plus employees expected for a development project.)

The quantitative threshold of 10,000 MT CO_2e annually is applied to this analysis, per other recent CPUC assessments (as described further under Impact GHG-1). If the proposed project GHG emissions would exceed this threshold then, consistent with BAAQMD Guidelines, it would be considered to have a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact on climate change.

D.8.3.2 Applicant Proposed Measures

Table D.8-4 shows the applicant proposed measures (APMs) proposed by PG&E to avoid climate change impacts associated with construction and operation.

Table D.8-4
Applicant Proposed Measures for Climate Change

APM No.	Description
APM GHG-1	Minimize GHG Emissions 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 foremen will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use. Maintain construction equipment in proper working conditions in accordance with PG&E standards.
APM GHG-2	Minimize SF6 Emissions Incorporate Egbert Switching Station into PG&E's system-wide SF6 emission reduction program. CARB has adopted the Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear sections 95350 to 95359, Title 17, CCR, which requires that company-wide SF6 emission rate not exceed 1 percent by 2020. Since 1998, PG&E has implemented a programmatic plan to inventory, track, and recycle SF6 inputs, and inventory and monitor system-wide SF6 leakage rates to facilitate timely replacement of leaking breakers. PG&E has improved its leak detection procedures and increased awareness of SF6 issues within the company. X-ray technology is now used to inspect internal circuit breaker components to eliminate dismantling of breakers, reducing SF6 handling and accidental releases. As an active member of USEPA's SF6 Emission Reduction Partnership for Electrical Power Systems, PG&E has focused on reducing SF6 emissions from its transmission and distribution operations and has reduced the SF6 leak rate by 89 percent and absolute SF6 emissions by 83 percent. Require that the breakers at Egbert Switching Station 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 these policies become effective.

D.8.3.3 Impact Discussion

Impact GHG-1 Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction

GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective (CAPCOA 2008). BAAQMD has not established a quantitative threshold to assess the impact of GHG emissions from project construction. In recent CEQA documents, the CPUC has elected to use an approach to determining significance of GHG construction emissions based on guidance developed by the South Coast Air Quality Management District (SCAQMD). For construction-related GHGs, SCAQMD recommends that total emissions from construction be amortized over 30 years and added to operational emissions in order to account for the short-term construction emissions in the operational impact analysis (SCAQMD 2008). The CPUC has also used a GHG significance threshold of 10,000 MT CO_2e per year, which has been adopted or recommended for adoption to assess GHG emissions impacts for long-term operations of stationary sources by a number of

California air districts, including BAAQMD and SCAQMD. This threshold is based on complying with the EO S-3-05 GHG emissions reductions goal of 80% below 1990 levels by 2050 and represents a capture rate of 90% of new and modified projects. A 90% emissions capture rate means 90% of total emissions from new or modified stationary source projects would be subject to a CEQA analysis, including analysis of feasible alternatives and imposition of feasible mitigation measures (SCAQMD 2008).

The proposed project consists of minor modifications to the existing Martin Substation, construction of the new Egbert Switching Station, and extensions to two existing 230-kilovolt transmission lines. The proposed project would reroute two existing underground transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero transmission lines) to Egbert Switching Station. An underground transmission line extension would connect the Jefferson-Martin transmission line to the Egbert Switching Station, creating a Jefferson-Egbert transmission line. The existing Martin-Embarcadero transmission line would be bisected and extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert transmission line and an Egbert-Embarcadero transmission line. Operation and maintenance activities would be supported by existing PG&E staff as part of their scheduled work in the area with routine inspections at the switching station (monthly) and detailed inspections (annually) at the switching station and vault locations along the transmission lines.

Short-term construction GHG emissions were estimated using a spreadsheet model, which incorporated emission factors from the CalEEMod and from EMFAC2014. Complete assumptions and calculations are presented in Appendix D.3-1, Construction Emissions Summary. Table D.8-5 depicts total and amortized construction GHG emissions with and without APM GHG-1. Amortized GHG emissions associated with project construction would result in annualized generation of approximately 42 MT CO_2e.

Table D.8-5
Greenhouse Gas Emissions from Project Construction

Construction Year	CO_2e Emissions without APM GHG-1 (MT/year)	CO_2e Emissions with APM GHG-1 (MT/year)
Construction Year 2020[a]	903.56	742.80
Construction Year 2021[b]	661.56	525.25
Construction Year 2022[c]	5.62	5.14
Total construction emissions (2020–2022)	1,570.73	1,273.19
30-year amortized construction emissions[d]	52.36	42.44

Notes: CO_2e = carbon dioxide equivalent; APM = applicant proposed measure; MT = metric ton.

[a] Construction activities currently anticipated to occur in 2020 include transmission line construction – installation (mobilization, manholes, trenching, inspectors, and truck drivers), transmission line construction – trenchless installation (bore pit excavation, stage equipment and bore, pull-in casing and duct bundle, grouting space between casing and ducts, restoration, and truck drivers), and switching station

construction (general construction; civil site preparation; building foundations, excavation, and install; remaining equipment foundations; ground grid and conduits; building delivery and erection; truck drivers; and inspectors).

[b] Construction activities currently anticipated to occur in 2021 include transmission line construction – installation (trenching, cable installation and splicing, inspectors, and truck drivers), switching station construction (general construction; building delivery and erection; set series and shunt reactors on pads; screen walls; install geographic information system equipment and wire; control room and battery room equipment; 230-kilovolt bus work; 230-kilovolt cable installation/tie-in; dress/test/wire equipment; install and test oil pump house and station service voltage transformers; testing and commissioning; exterior walls, final grading, and paving; cleaning and landscaping; and inspectors), and substation – remote ends construction (general construction; Martin series and shunt reactor removal; Jefferson, Martin, and Embarcadero indoor work; inspectors; and truck drivers).

[c] Construction activities currently anticipated to occur in 2022 include substation – remote ends construction (general construction, Martin series and shunt reactor removal, inspectors, and truck drivers).

[d] Amortized emissions represent the proposed project's total construction emissions divided by 30 years.

Operations

Regarding operations, emissions associated with inspections and ongoing maintenance activities (primarily associated with periodic maintenance vehicle travel) would be negligible because these activities are part of PG&E's ongoing baseline operations at the existing Embarcadero, Jefferson, and Martin Substations and are expected to be infrequent and minimal. However, installation of new circuit breakers at the new Egbert Switching Station may result in a very small increase of SF_6 emissions. These potential SF_6 emissions were estimated using a conservative leakage rate of 1% and are presented in Table D.8-6. With implementation of APM GHG-2, these potential SF_6 emissions would be further reduced.

Table D.8-6
Stationary Source Greenhouse Gas Emissions

Applicable APM	Number of Circuit Breakers	Leakage Rate	SF_6 Emissions (MT/year)[a]	CO_2e Emissions (MT/year)[b]
Without APM GHG-2	7	1%	0.0056	126.69
With APM GHG-2		0.5%	0.0028	63.34

Notes: APM = applicant proposed measure; SF_6 = sulfur hexafluoride; MT = metric ton; CO_2e = carbon dioxide equivalent.

[a] Assumed each circuit breaker would contain 175 pounds of SF_6.

[b] A global-warming potential of 22,800 was used to estimate CO_2e emissions per Title 40, Part 98, Subpart A, of the Code of Federal Regulations.

The estimated operational project-generated GHG emissions associated with the SF_6-insulated breakers and annualized construction emissions are shown in Table D.8-7. Detailed results are included in Appendix D.3-1.

Table D.8-7
Summary of Greenhouse Gas Emissions from Construction and Operations

Source	CO_2e Emissions without APM GHG-1 or APM GHG-2 (MT/year)	CO_2e Emissions with APM GHG-1 and APM GHG-2 (MT/year)
Stationary source circuit breakers	126.69	63.34

Table D.8-7
Summary of Greenhouse Gas Emissions from Construction and Operations

Source	CO_2e Emissions without APM GHG-1 or APM GHG-2 (MT/year)	CO_2e Emissions with APM GHG-1 and APM GHG-2 (MT/year)
30-year amortized construction emissions	52.36	42.44
Total annual GHG emissions (operations + amortized construction)	**179.05**	**105.78**
Significance threshold	*10,000*	*10,000*
Significant? (Yes or No)	*No*	*No*

Source: Appendix D.3-1.
Note: CO_2e = carbon dioxide equivalent; APM = applicant proposed measure; MT = metric ton; GHG = greenhouse gas.

In summary, as shown in Table D.8-7, the GHG emissions from construction and operation of the proposed project with and without APM GHG-1 and APM GHG-2 would be below the threshold of 10,000 MT of CO_2e per year. GHG emissions would result in a less-than-significant, short-term impact to climate change (Class III).

Impact GHG-2 Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Consistency with San Francisco Climate Action Strategy

As previously discussed, the Department of the Environment published the CAS Update in 2013, which represents an update to the 2004 Climate Action Plan. The CAS includes updated statistics of potential environmental impacts to the City and County of San Francisco from climate change and an updated baseline GHG emissions inventory. The CAS indicates that moving to 100% renewable electricity and shifting 50% of all trips within the region to non-automobile trips are key strategies the City and County of San Francisco can implement to help reduce GHG emissions. Other GHG reduction strategies include driving investments toward energy efficiency in buildings, efforts to achieve zero waste to landfills, protection and expansion of the urban forest, and a focus on GHG emissions reductions in municipal operations by moving to 100% renewable fuels, specifically in government buildings and fleet vehicles (including Muni buses). The proposed project entails short-term construction activity (approximately 2 years) and operations would be limited to periodic maintenance work that would be incorporated into existing PG&E activities, and thus would be negligible. As such, the proposed project would not conflict with CAS (San Francisco Department of the Environment 2013).

Consistency with SB 32 and EO S-3-05

The Scoping Plan approved by CARB on December 12, 2008, provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. As such, the Scoping Plan is not directly applicable to specific projects. Moreover, the Final Statement of Reasons for Regulatory Action: Amendments to the CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB 97 reiterates the statement in the Initial Statement of Reasons that "the Scoping Plan may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA 2009b). Under the Scoping Plan, however, there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy use, high-GWP GHGs in consumer products) and changes to the vehicle fleet (hybrid, electric, and more fuel-efficient vehicles) and associated fuels, among others. To the extent that these regulations are applicable to the proposed project, the proposed project would comply with regulations adopted in furtherance of the Scoping Plan to the extent required by law.

Regarding consistency with SB 32 (goal of reducing GHG emissions to 40% below 1990 levels by 2030) and EO S-3-05 (goal of reducing GHG emissions to 80% below 1990 levels by 2050), there are no established protocols or thresholds of significance for that future-year analysis. However, CARB has expressed optimism regarding the 2030 and 2050 goals. It states in the First Update that "California is on track to meet the near-term 2020 GHG emissions limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32" (CARB 2014). Regarding the 2050 target for reducing GHG emissions to 80% below 1990 levels, the First Update states the following (CARB 2014):

> "This level of reduction is achievable in California. In fact, if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under Assembly Bill 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80% below 1990 levels by 2050. Additional measures, including locally driven measures and those necessary to meet federal air quality standards in 2032, could lead to even greater emission reductions."

In other words, CARB believes that the state is on a trajectory to meet the 2030 and 2050 GHG reduction targets set forth in AB 32, SB 32, and EO S-3-05. This is confirmed in the Second Update, which states, "This Plan draws from the experiences in developing and implementing previous plans to present a path to reaching California's 2030 GHG reduction target. The Plan is

a package of economically viable and technologically feasible actions to not just keep California on track to achieve its 2030 target, but stay on track for a low- to zero-carbon economy by involving every part of the state" (CARB 2017b). The Second Update also states that although "the Scoping Plan charts the path to achieving the 2030 GHG emissions reduction target, we also need momentum to propel us to the 2050 statewide GHG target (80% below 1990 levels). In developing this Scoping Plan, we considered what policies are needed to meet our mid-term and long-term goals" (CARB 2017b).

The proposed project would not interfere with implementation of any of the previously mentioned GHG reduction goals for 2030 or 2050 because the proposed project would result in minimal short-term construction GHG emissions, and operation and maintenance of the proposed project are assumed to be incorporated into existing PG&E activities such that GHG emissions from operation and maintenance activities are not anticipated to increase as a result of the proposed project. While Egbert Switching Station circuit breakers may emit a minor amount of SF_6 attributable to leakage during project operations, these emissions would be tracked annually per CARB's Regulation for Reducing SF_6 Emissions from Gas Insulated Switchgear and would generate a minor and insignificant amount of CO_2e emissions. Additionally, as presented in Table D.8-7, the proposed project would not exceed the GHG threshold of 10,000 MT CO_2e per year, which was established based on the goal of AB 32 to reduce statewide GHG emissions to 1990 levels by 2020. This analysis provides support for the conclusion that the proposed project would not impede the state's trajectory toward the previously mentioned statewide GHG reduction goals for 2030 or 2050.

As discussed previously, the proposed project would be consistent with the GHG emission reduction measures in the Scoping Plan and would not conflict with the state's trajectory toward future GHG reductions. Since the specific path to compliance for the state in regards to the long-term goals would likely require development of technology or other changes that are not currently known or available, specific additional mitigation measures for the proposed project would be speculative and cannot be identified at this time. With respect to future GHG targets under SB 32 and EO S-3-05, CARB made clear its legal interpretation that it has the requisite authority to adopt whatever regulations are necessary, beyond the AB 32 horizon year of 2020, to meet SB 32's 40% reduction target by 2030 and EO S-3-05's 80% reduction target by 2050; this legal interpretation by an expert agency provides evidence that future regulations would be adopted to continue the state on its trajectory toward meeting these future GHG targets.

Based on the preceding considerations, the proposed project would not conflict with an applicable plan, policy, or regulation adopted to reduce the emissions of GHGs, and no mitigation is required. This impact would be less than significant (Class III).

D.8.4 Project Alternatives

D.8.4.1 Bayshore Switching Station Alternative

Environmental Setting

Section D.8.1 describes the greenhouse gas emissions characteristics of the region. Because PG&E's Bayshore Switching Station Alternative would occur in the same region as the proposed project, the existing conditions would be the same as described in Section D.8.1.

This switching station would be developed in the City of Brisbane, which adopted a Climate Action Plan (CAP) in 2015 (City of Brisbane 2015). The City's CAP outlines a long-term plan to meet GHG emission reduction goals set in Senate Bill 32. Strategies include, but are not limited to, reduction in energy consumption, energy efficiency improvements, water conservation, solid waste reduction and diversion, and transportation emissions reduction.

Environmental Impacts and Avoidance Measures

Impact GHG-1: The Bayshore Switching Station Alternative would require construction of a 6.6-acre switching station site and installation of approximately 2.6 miles of underground transmission lines to connect to the existing system. Because the switching station proposed for this alternative is the same capacity as the proposed project, operational emissions of SF_6 due to leakage during replacement of circuit breakers is anticipated to be equivalent to the proposed project, and APM GHG-2 would apply to this alternative for reduction of SF_6 emissions. Other operation and maintenance activities would be negligible, consistent with the proposed project.

The alternative transmission lines (approximately 2.6 linear miles) would be shorter than the proposed project transmission lines, resulting in a shorter construction schedule. PG&E anticipates installation of approximately 40 linear feet of underground transmission lines per day during construction; therefore, the shorter route associated with this alternative would reduce the total construction schedule for the transmission infrastructure by up to 171 days. However, the alternative switching station site is larger than the proposed project (approximately 6.6 acres), and based on conclusions described in Section D.7.4.1, construction within the alternative switching station site is anticipated to require over-excavation and replacement of an unknown amount of artificial fill to avoid potential geologic hazards. Truck trips required for over-excavation and replacement of soils within the alternative switching station site would result in an increase in GHG emissions, even when factoring in the shorter construction schedule for the alternative transmission lines. Although GHG emission are anticipated to be increased during construction activities, GHG emissions are not expected to exceed the threshold of 10,000 MT of CO_2e per year. Impacts would be less than significant (Class III).

Impact GHG-2: This alternative would not conflict with the CAP approved by the City, because GHG emissions generated would result in short-term impacts during construction activities, and operational impacts would be minimal. APM GHG-1 and APM GHG-2 would further reduce GHG emissions associated with this alternative. Compliance with the CAP would ensure compliance with SB 32; therefore, impacts would be less than significant (Class III).

Comparison to the Proposed Project

GHG emissions impacts resulting from the Bayshore Switching Station Alternative would be greater when compared to the proposed project due to increased haul trips required for over-excavation and replacement of artificial fill within the alternative switching station site, even when factoring in the shorter construction schedule for the alternative transmission lines. Operational impacts would not be substantially different, and this alternative would be required to comply with the CAP. Overall, GHG emissions associated with this alternative would be greater than the proposed project.

D.8.4.2 Geneva Switching Station Alternative

Environmental Setting

Section D.8.1 describes the GHG emissions characteristics of the region. Because PG&E's Geneva Switching Station Alternative would occur in the same area as the proposed project, the existing conditions would be the same as described in Section D.8.1.

This switching station would be developed in the City of Daly City, which adopted a CAP, *Daly City's Green Vision*, in 2011 (City of Daly City 2011). The City's CAP outlines a long-term plan to meet GHG emission reduction goals set for in AB 32, but it has not been updated since the adoption of SB 32, which established more stringent GHG emissions goals for the State of California by 2030. The CAP identifies 10 goals achieved through cost-effective strategies in order to reduce municipal and communitywide GHG emissions by 2020.

Environmental Impacts and Avoidance Measures

Impact GHG-1: The Geneva Switching Station Alternative would require construction of an 11.1-acre switching station site and installation of approximately 2.3 miles of underground transmission lines to connect to the existing system. Because the switching station proposed for this alternative is the same capacity as the proposed project, operational emissions of SF_6, due to leakage during replacement of circuit breakers, is anticipated to be equivalent to the proposed project and APM GHG-2 would apply to this alternative for reduction of SF_6 emissions (Class III). Other operation and maintenance activities would be negligible.

Although the alternative switching station site is larger than the proposed project switching station, the capacity of the switching stations would be the same; therefore, construction of the alternative switching station would have a similar construction schedule as the proposed project. The alternative transmission lines would be shorter than the proposed project, which would reduce the overall construction schedule. PG&E anticipates installation of approximately 40 linear feet of underground transmission lines per day during construction; therefore, the shorter route associated with this alternative would reduce the total construction schedule for the transmission infrastructure by up to 211 days. A shorter construction schedule would result in a reduction of GHG emissions produced during construction activities, resulting in an overall decrease in GHG emission associated with the Geneva Switching Station Alternative. Impacts would be less than significant (Class III).

Impact GHG-2: This alternative would not interfere with implementation of adopted GHG reduction goals for 2030 or 2050, because the proposed project would result in minimal short-term construction GHG emissions, and operational impact would be considered negligible. Compliance with SB 32 would ensure that the Geneva Switching Station Alternative would also comply with the City's adopted CAP, because GHG emission reduction targets adopted under SB 32 are more stringent than targets established in the CAP consistent with AB 32 (2020 Target); therefore, impacts would be less than significant (Class III).

Comparison to the Proposed Project

GHG emissions impacts resulting from PG&E's Geneva Switching Station Alternative would be reduced compared to the proposed project due to a shorter construction schedule for transmission line infrastructure. Operational impacts would not be substantially different. Both this alternative and the segment that it would replace would be required to comply with the CAP. Overall, GHG emissions associated with this alternative would be less than the proposed project.

D.8.4.3 Sunnydale HOPE SF Avoidance Line Alternative Option A

Environmental Setting

Section D.8.1 describes the GHG emissions characteristics of the region. Because the Sunnydale HOPE SF Avoidance Line Alternative Option A (Sunnydale Option A Alternative) would occur in the same area as the proposed project, the existing conditions would be the same as described in Section D.8.1.

The proposed Egbert Switching Station, Martin-Egbert transmission line, Egbert-Embarcadero transmission line, and the existing Martin Substation would remain unchanged under this alternative. Therefore, the impact analysis for the Sunnydale Option A Alternative will only

compare the alternative line option to the segment of the proposed Jefferson-Egbert transmission line it would replace.

Environmental Impacts and Avoidance Measures

Impact GHG-1: The Sunnydale Option A Alternative would require construction of 0.6 miles of underground transmission lines, which is 0.14 miles more than the proposed alignment. The longer transmission line associated with this alternative would require approximately 19 additional days of construction (assuming installation of 40 feet of underground transmission line per day). The longer construction schedule would result in an overall increase in construction-related GHG emissions. The increased GHG emissions would be minimal and would not result exceed GHG emissions thresholds; therefore, impacts would be less than significant (Class III).

Impact GHG-2: The Sunnydale Option A Alternative would not conflict with the CAP approved within the City, because GHG emissions generated would result in short-term impacts during construction activities, and operational impacts would be negligible. APM GHG-1 and APM GHG-2 would reduce GHG emissions associated with this alternative. Compliance with the CAP would ensure compliance with SB 32; therefore, the impacts would be less than significant (Class III).

Comparison to the Proposed Project

GHG emissions resulting from the Sunnydale Option A Alternative would be greater than the proposed project due to a longer construction schedule for transmission line infrastructure. Operational impacts would not be substantially different. Both this alternative and the segment that it would replace would be required to comply with the CAP. Overall, GHG emissions associated with this alternative would be greater as compared to the proposed project.

D.8.4.4 No Project Alternative

Under the No Project Alternative, none of the facilities associated with the proposed project would be constructed, and therefore, none of the impacts in this section would occur.

D.8.5 Mitigation Monitoring, Compliance, and Reporting

Table D.8-8 shows the mitigation monitoring, compliance, and reporting program for GHG emissions. The CPUC is responsible for ensuring compliance with provisions of the monitoring program. The APMs that are incorporated as part of the proposed project are listed in the following table.

Table D.8-8
Mitigation Monitoring, Compliance, and Reporting Program for Geology and Soils

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
Impact GHG-1 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment	—	APM GHG-1	**Minimize GHG Emissions** • 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 foremen will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use. • Maintain construction equipment in proper working conditions in accordance with PG&E standards.	PG&E to provide Documentation verifying color of screening materials used at Warnock and Santa Ysabel staging yards	CPUC monitor regularly to verify compliance	Prior to and during construction.
Impact GHG-2 Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing	—	APM GHG-2	**Minimize SF6 Emissions** • Incorporate Egbert Switching Station into PG&E's system-wide SF_6 emission reduction program. CARB has adopted the Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear sections 95350 to 95359, Title 17, CCR, which requires that company-wide SF_6 emission rate	PG&E to Documentation of pre-construction conditions. PG&E to submit documentation to CPUC	CPUC monitor regularly to verify compliance and review/verify documentation submitted	Prior to and during construction

Table D.8-8
Mitigation Monitoring, Compliance, and Reporting Program for Geology and Soils

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
the emissions of greenhouse gases			not exceed 1 percent by 2020. Since 1998, PG&E has implemented a programmatic plan to inventory, track, and recycle SF_6 inputs, and inventory and monitor system-wide SF_6 leakage rates to facilitate timely replacement of leaking breakers. PG&E has improved its leak detection procedures and increased awareness of SF_6 issues within the company. X-ray technology is now used to inspect internal circuit breaker components to eliminate dismantling of breakers, reducing SF_6 handling and accidental releases. As an active member of EPA's SF_6 Emission Reduction Partnership for Electrical Power Systems, PG&E has focused on reducing SF_6 emissions from its transmission and distribution operations and has reduced the SF_6 leak rate by 89 percent and absolute SF_6 emissions by 83 percent. • Require that the breakers at Egbert Switching Station 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 these policies become effective.	demonstrating that disturbed areas have been restored in accordance with the guidelines provided in section 7.2, "Habitat Enhancement Measures," of the NCCP.		

Notes: APM = applicant proposed measure; GHG = greenhouse gas; PG&E = Pacific Gas & Electric Company; CPUC = California Public Utilities Commission; SF_6 = sulfur hexafluoride; CARB = California Air Resources Board; EPA = U.S. Environmental Protection Agency; NCCP = natural community conservation plan.

D.8.6 References Cited

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D.9 HAZARDS AND HAZARDOUS MATERIALS

This section evaluates the potential impacts associated with hazards and hazardous materials for the Egbert Switching Station (Martin Substation Extension) Project (proposed project). Section D.9.1 describes the environmental setting and Section D.9.2 describes the regulatory conditions related to hazards and hazardous materials associated with the proposed project. Section D.9.3 includes an analysis and discussion of environmental contamination and hazardous materials impacts resulting from the proposed project, and Section D.9.4 presents an impact analysis for the alternatives. Mitigation, monitoring, compliance and reporting are discussed in Section D.9.5 and Section D.9.6 lists the references cited in this section. Cumulative effects are analyzed in Section F.5.2.8 of this Environmental Impact Report (EIR).

The discussion of hazards and hazardous materials presented in this draft EIR and the evaluation of potential impacts as a result of proposed project implementation is based on the following technical reports and incorporated herein:

- DataMap Corridor Study, Martin Kv Bus Extension PEA, Environmental Data Resources Inc., April 2017 (Appendix D.9-1)
- Limited Phase II Site Investigation, Martin Extension Property, Environmental Resources Management, November 2016 (Appendix D.9-2)

D.9.1 Environmental Setting for the Proposed Project

This section provides environmental setting information specific to hazards and hazardous materials in the vicinity of the proposed project. This section describes the environmental conditions within the project site with respect to the potential presence of hazardous materials (storage, use, transport, and/or release), aviation safety, emergency response, and fire hazards. The following analysis is based on review of the Pacific Gas & Electric Company (PG&E) Proponent's Environmental Assessment (PEA; PG&E 2017), the Environmental Data Resources Inc. (EDR) DataMap Corridor Study prepared for the proposed project (Appendix D.9-1), the Limited Phase II Site Investigation prepared for the Egbert Switching Station site (Appendix D.9-2) and a review of relevant state and local plans and policies regarding hazards and hazardous materials.

Hazardous Materials Definition

The term "hazardous materials" refers to both hazardous substances and wastes. Under federal and state laws, any material, including wastes, may be considered hazardous if it is specifically listed by statute as such or if it is toxic (known to cause adverse human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), or reactive (causes

explosions or generates toxic gases). The term "hazardous material" is defined as any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released (California Health and Safety Code, Chapter 6.95, Section 25501[o]).

In some cases, past industrial or commercial activities on a site may have resulted in spills or leaks of hazardous materials to the ground, resulting in soil and/or groundwater contamination. If improperly handled, hazardous materials and wastes can cause public health hazards when released to the soil, groundwater, or air. The four basic exposure pathways through which an individual can be exposed to a chemical agent include inhalation, ingestion, bodily contact, and injection. Exposure can result from an accidental release during transportation, storage, or handling of hazardous materials. Disturbance of subsurface soil during construction can also lead to exposure of workers or the public from stockpiling, handling, or transportation of soils contaminated by hazardous materials from previous spills or leaks.

Review of Existing/Known Hazardous Material Releases

The proposed project would be located primarily within existing paved areas in the urbanized areas of the City and County of San Francisco, City of Daly City, and City of Brisbane. The project site is primarily surrounded by residential uses, with commercial, public, industrial, and open space uses also occurring along the proposed transmission line routes and near the Egbert Switching Station site. The proposed transmission line routes do not cross any areas engaged in heavy industrial uses, manufacturing, or permitted disposal of solid wastes or hazardous materials. However, two potential staging areas in the City and County of San Francisco are located in the Port of San Francisco's Southern Waterfront off Amador Street, a heavily industrialized area (San Francisco Planning Department 2017).

The 1.7-acre Egbert Switching Station site currently supports an open lumberyard. Soil and groundwater sampling were conducted within the Egbert Switching Station site in November 2016 (Appendix D.9-2). Five soil borings were completed on-site, with boring depths ranging from 15 to 19 feet below ground surface. Fuel compounds, VOCs, semivolatile organic compounds, polychlorinated biphenyls, pesticides, and metals in the soils samples were either not detected or generally detected at low concentrations below applicable environmental screening levels (ESLs). Groundwater samples indicated that on-site groundwater is impacted with fuel-related compounds and metals exceeding applicable ESLs (Appendix D.9-2). The lack of exceedance of these compounds in on-site soil samples suggests that the elevated occurrence of these compounds in on-site groundwater is caused by off-site sources (Appendix D.9-2).

The site of the proposed Egbert Switching Station, portions of the proposed Egbert-Embarcadero and Martin-Egbert transmission lines, and portions of the northeastern section of the proposed

Jefferson-Egbert transmission line are within the mapped boundary of areas in the City of County of San Francisco subject to the City and County of San Francisco's Maher Ordinance (San Francisco Public Works Code, Article 22A) (San Francisco Planning Department 2015). The Maher Ordinance covers areas of the City and County of San Francisco where there is an assumed potential to encounter hazardous waste in the subsurface based on the land use history of a site or the surrounding area. Examples include sites currently or previously with industrial land uses, within 100 feet of an underground storage tank (UST), with historic bay fill, within 100 feet of known hazardous waste sites, or close to freeways. "Historic bay fill" is a heterogeneous combination of human-made debris, sand, silt, and clay. In some cases, the fill material contains contaminants, such as petroleum-based chemicals and/or heavy metals. One section of the proposed Jefferson-Egbert transmission line approximately 300 feet in length, along Visitacion Avenue directly west of Campbell Avenue, would cross an area mapped as serpentine bedrock. Serpentine rock can be a source of naturally occurring asbestos.

The California Environmental Quality Act (CEQA) requires review of Section 65962.5 of the California Government Code, also known as the "Cortese List," to identify whether the proposed project would cross or be close to a site known to have had a hazardous materials release or to represent a threat to human health and the environment. Because this statute was enacted more than 20 years ago, some of the provisions refer to agency activities that were conducted many years ago and are no longer being implemented, and in some cases the information to be included in the Cortese List does not exist. While California Government Code, Section 65962.5, makes reference to the preparation of a "list," many changes have occurred related to web-based information access since 1992 and this information is now largely available on the internet sites of the responsible organizations. The following sources, databases, and lists comprise the Cortese List:

- **Hazardous waste and substance sites from the Department of Toxic Substances Control (DTSC) EnviroStor database.** The EnviroStor database is an online search and geographic information system tool for identifying sites that have known contamination or sites for which there may be reasons to investigate further. The EnviroStor database includes the following site types: Federal Superfund sites (National Priorities List); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. As discussed below, this list was reviewed by EDR (2017) (Appendix D.9-1).
- **List of leaking underground storage tank (LUST) sites from the State Water Resources Control Board (SWRCB) GeoTracker database.** GeoTracker is SWRCB's online search and geographic information system tool for sites that impact groundwater or have the potential to impact groundwater. GeoTracker contains sites that require groundwater cleanup (LUSTs, Department of Defense, and Site Cleanup Program), as well as permitted facilities that could impact groundwater (Irrigated Lands, Oil and Gas

Production, Operating USTs, and Land Disposal sites.) As discussed below, this database was reviewed by EDR (2017) (Appendix D.9-1).

- **List of solid waste disposal sites identified by SWRCB with waste constituents higher than hazardous waste levels outside the waste management unit.** The project site does not intersect any of the solid waste disposal sites identified by SWRCB, the closest of which is in Richmond (CalEPA 2019).
- **List of active cease-and-desist orders and cleanup and abatement orders from SWRCB.** The project site does not intersect any of the sites that have active cease-and-desist orders and cleanup and abatement orders from SWRCB (CalEPA 2019).
- **List of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the California Health and Safety Code, as identified by DTSC.** There are only two sites in California that are on this list, neither of which is near the project site (CalEPA 2019).

EDR (2017) conducted a review of information on sites within 0.25 miles of the proposed Egbert-Embarcadero, Martin-Egbert, and Jefferson-Egbert transmission lines and the proposed Egbert Switching Station site that were identified in federal, state, and local databases related to hazardous materials and wastes. The database review conducted by EDR (2017) is more expansive than the Cortese List and includes numerous local, state, and federal databases in addition to the EnviroStor and GeoTracker databases. The locations of EDR records are shown on Figure D.9-1, Potential Hazardous Material Sites.

The EDR review concluded that several hazardous materials sites are located along or within 0.25 miles of the proposed transmission line alignments. The GeoTracker database identified one active contamination site located within 0.25 miles of the project site. In addition, 24 LUST cleanup sites that have undergone regulatory closure under the San Francisco Bay Regional Water Quality Control Board (RWQCB) and local agencies were identified within this area, and one additional LUST cleanup site was identified that is eligible for closure pending decommissioning of monitoring wells. Four of the closed LUST cleanup sites are located adjacent to the proposed routes and switching station. The EnviroStor database indicates that DTSC has records of two hazardous materials sites located adjacent to the project site that are active or certified with operation and maintenance of remedial measures, as well as two sites that have undergone regulatory closure (Appendix D.9-1).

In addition, the PG&E Martin Service Center, located at 731 Schwerin Street in the City of Daly City (see Figure D.9-1), is a 49-acre EnviroStor-listed State Response site located to the west and south of Martin Substation. Two potential staging areas are also identified within the Martin Service Center. This site is certified with land use controls and ongoing operation and maintenance of remedial measures. A manufactured gas plant operated at the current site of

Martin Service Center from 1906 to 1916, when it was dismantled. Investigations and remediation began in the 1980s, and in 1993 the site was divided into two operable units for assessment, OU-1 and OU-2. Former manufactured gas plant wastes consisted of tars and lampblack (a powdered carbon), with associated polynuclear aromatic hydrocarbons (PAHs), phenol, volatile organic compounds (VOCs), and cyanide identified as chemicals of concern in soil and/or groundwater (Haley & Aldrich 2015).

OU-1 encompasses the Daly City Yard area on the western portion of the site, where the former manufactured gas plant operated. Redevelopment and remediation of OU-1 included soil excavation and removal, paving the majority of the yard, installation and ongoing maintenance of caps over a strip of land, and a berm bordering the yard (Haley & Aldrich 2015). OU-1 has been identified as one of the potential project staging areas. OU-2 encompasses the eastern portion of the site, which includes the Brisbane Yard, Brisbane Yard Annex, former Pacific Service Employees Association Clubhouse, and Levinson North Parcel. The Brisbane Yard and the Levinson North Parcel have also been identified as potential project staging areas. Remediation at OU-2 included installation and management of a groundwater interceptor trench; management, grading, and disposal of soil; installation and management of chip seal (a moisture barrier) and pavement caps; and additional asphalt paving (Haley & Aldrich 2015).

Current uses of the Martin Service Center site at OU-1 include offices, aboveground vehicle gasoline and compressed natural gas fueling stations, a vehicle maintenance center and wash rack, a vehicle equipment and storage area, and a warehouse; uses of the Martin Service Center site at OU-2 include storage of material, equipment, and records; parking; and wetlands preservation. Contamination remains in subsurface soils and shallow groundwater on the site. A land use covenant established in 1995 and updated in 2002 included limitations of land use on the site to non-residential; restrictions on groundwater extraction; and prohibition of disturbance of caps, soil below the caps, or the groundwater interceptor trench without DTSC approval.

The two potential staging areas along Amador Street are located partly or entirely on the Pier 94 Landfill, an RWQCB-regulated Class III solid waste landfill inland of Pier 94 (GeoTracker ID L10008948177; see site 16 on Figure D.9-1). The smaller northwest staging area is located entirely within the landfill boundary, and a limited 15,000-foot section of the northwestern corner of the larger staging area is within the landfill. The landfill was constructed within a diked bayside area filled with dredge spoils and construction debris and was in operation from the 1960s to 1975, after which a soil cap was installed. The Pier 94 land disposal site has an open status as of 2001.

These potential Amador Street staging areas are also located adjacent to the proposed San Francisco Energy Cogeneration Plant (EnviroStor ID 38490010; site 17 on Figure D.9-1), a voluntary cleanup

site overseen by DTSC. A proposed removal action and capping of fill material at the site has not been implemented because the cogeneration project has not been approved.

Historic Conditions

Of the sites located adjacent to the proposed routes and switching station, those identified as both having historical recognized environmental conditions and being included in SWRCB's GeoTracker or DTSC's EnviroStor databases are shown on Figure D.9-1 and in Table D.9-1.

Table D.9-1
Historical Environmental Release Sites Proximal to the Proposed Project

Site Name (Figure Reference)	Location/Address (EnviroStor/GeoTracker ID No.)	Description
Metten and Gebhard (Site 1)	1775 Egbert Avenue, San Francisco (EnviroStor ID 38310001)	The site is listed in the EnviroStor database as a State Response site. Chromium was identified as a chemical of concern and the site was remediated by removal of soils and sediments and steam cleaning the concrete subfloor. The site was certified in 1984 as closed and recommended again for no further action in 2003. Descriptions of past investigations and remedial actions suggest that former soil/sediment contamination could have extended up to the property boundary along Egbert Avenue. Although the site was certified as closed, there is a potential for residual contamination to be present below the sidewalk and street.
Cow Palace (Site 2)	Geneva Avenue and Santos Street, Daly City (EnviroStor ID 41070008)	The Cow Palace fairgrounds site is listed in the EnviroStor database as a voluntary cleanup site referred to the oversight of the San Francisco Bay RWQCB and San Mateo County Environmental Health Department. A former UST containing gasoline leaked to soil and groundwater. A voluntary cleanup agreement was created in 1994 and completed in 1997. The UST and associated contaminated soil were removed, and a final investigation was conducted. The specific location of the UST is not documented in EnviroStor or the EDR report, and it is unknown whether any residual contamination associated with the UST could extend near the proposed Jefferson-Egbert route or the potential Cow Palace and Carter Street staging areas.
Cow Palace (Site 3)	Geneva Avenue, Daly City (GeoTracker ID T0608100352)	This Cow Palace site is listed in the GeoTracker database as a LUST cleanup site under the oversight of the San Francisco Bay RWQCB and San Mateo County LOP. A leak of gasoline from a former UST to soil was reported in November 1988. No cleanup actions are documented in GeoTracker and the case was closed in January 1995. The specific location of the UST is not documented in GeoTracker or the EDR report, and it is unknown whether any residual contamination associated with the UST could extend near the proposed Jefferson-Egbert route or the potential Cow Palace and Carter Street staging areas.
Hillside Village / Schindel Property (Site 4)	Carter Street at Martin Street, San Francisco (GeoTracker ID T0608130089)	This site is listed in the GeoTracker database as a Cleanup Program site under the oversight of the San Francisco Bay RWQCB and San Mateo County LOP. A leak of waste/motor/hydraulic/lubricating oil from a UST to soil was reported in January 1993. A cleanup action including soil excavation was conducted, and the case was closed in March 1993. The specific location of the UST is not documented in GeoTracker or the EDR report, and it is unknown whether any residual contamination associated with the UST could extend near the proposed Jefferson-Egbert route.

Table D.9-1
Historical Environmental Release Sites Proximal to the Proposed Project

Site Name (Figure Reference)	Location/Address (EnviroStor/GeoTracker ID No.)	Description
S.F. Public Housing Authority (Site 5	1815 Egbert Avenue (GeoTracker ID T0607500262)	This city-owned site is listed in the GeoTracker database as a LUST cleanup site under the oversight of the San Francisco Bay RWQCB and San Francisco County LOP. A leak of kerosene from a UST to groundwater was discovered in September 1987. No cleanup actions are documented in GeoTracker, and the case was closed with no further action in June 1997. The specific location of the UST is not documented in GeoTracker or the EDR report, and it is unknown whether any residual contamination associated with the UST could extend near the project route. According to the EDR report, as of May 2010 the Housing Authority Maintenance Yard is also a large-quantity generator of RCRA waste including mercury, ignitable waste, corrosive waste, benzene, chloroform, and methyl ethyl ketone.
Woodrow Wilson High (Site 6)	400 Mansell Street, San Francisco (GeoTracker ID T0607500578)	This site, currently known as Phillip and Sala Burton High School, is listed in the GeoTracker database as a LUST cleanup site under the oversight of the San Francisco Bay RWQCB and San Francisco County LOP. A leak of diesel from a UST to groundwater was discovered in August 1995. No cleanup actions are documented in GeoTracker, and the case was closed in March 1996. The specific location of the UST is not documented in GeoTracker or the EDR report, and it is unknown whether any residual contamination associated with the UST could extend to the proposed Jefferson-Egbert route.
Spill Incident	607 Carter Street, San Francisco	This site is listed in the California Hazardous Material Incident Report System as the location of a chemical release. A total of 100 gallons of transformer oil indicated as "unknown PCB" were released when three transformers were vandalized by being removed from the poles and set on fire in a wooded area in August 2007. PG&E contained and cleaned up the spill. The specific location of the release is not documented in the EDR report, and it is unknown whether any residual contamination associated with the incident, including potential PCBs, could be present along the proposed Jefferson-Egbert route.

Source: Appendix D.9-1; PG&E 2017.
Notes: RWQCB = Regional Water Quality Control Board; UST = underground storage tank; EDR = Environmental Data Resources Inc.; LUST = leaking underground storage tank; LOP = local oversight program; RCRA = Resource Conservation and Recovery Act; PCB = polychlorinated biphenyl; PG&E = Pacific Gas & Electric Company.

In addition to these known historic conditions adjacent to the proposed routes and switching station, the EDR report identified six potential historical gas station/filling station/service station sites and two historical dry cleaner or laundry facilities adjacent to the project site. There are no documented records of releases of hazardous materials or investigations at these sites.

However, historical auto service stations are commonly associated with leaks from fuel or waste oil USTs, and historical 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. These sites are shown on Figure D.9-1. In addition to these sites located adjacent to the proposed routes and switching station, the EDR

report identified 53 more historical auto service sites and 44 more current or historical dry cleaner sites located within 0.25 miles of the project alignment (Appendix D.9-1).

Superfund Sites

No Superfund sites are located within 0.25 miles of the project routes or switching station. The closest portion of the Hunter's Point Naval Shipyard, which is a large Superfund site, is located approximately 1 mile east of the project site (NAVFAC 2012). The U.S. Navy is responsible for the cleanup of the site, and the cleanup is overseen by a number of state and federal agencies, including the U.S. Environmental Protection Agency (EPA), DTSC, and RWQCB. Intense controversy remains regarding the effectiveness of the cleanup to date, and the degree to which residual contamination, radiological contamination in particular, remains on portions of the site. This issue was raised in several comment letters on the project project's notice of preparation. However, because the direction of groundwater flow and prevailing wind direction is toward the San Francisco Bay, and because residual soil contamination issues are confined to the site itself, there is no evidence to suggest that contaminants of concern associated with the disposal and reuse of the Hunter's Point Naval Shipyard would be relevant to the impacts of the proposed project on hazards and hazardous materials.

Airports

No public airports or private airstrips are located within 2 miles of the project site (Google Maps 2018).

Schools

There are 13 schools within 0.25 miles of the project site (Table D.9-2), including 10 schools in the City and County of San Francisco and 3 schools in the City of Daly City (PG&E 2017). There are no City of Brisbane schools within 0.25 miles of the project site. In addition, there are 11 preschools and daycare centers within 0.25 miles of the project site in the City and County of San Francisco. There are no preschools or daycare centers within 0.25 miles of the project site in the Cities of Brisbane or Daly City (PG&E 2017).

Table D.9-2
Schools within 0.25 Miles of the Proposed Project

School Name	Address	Distance from the Proposed Project
Martin Luther King Jr. Academic Middle School	350 Girard Street, San Francisco	Adjacent to the proposed Martin-Egbert transmission line (work location on Bacon Street near Brussels Street)
Mt. Vernon Christian Academy	310 Ottilia Street, Daly City	0.1 miles from the existing Martin Substation and the potential staging areas within the substation

Table D.9-2
Schools within 0.25 Miles of the Proposed Project

School Name	Address	Distance from the Proposed Project
Garnet J. Robertson Intermediate School	1 Martin Street, Daly City	0.1 miles from the existing Martin Substation and the potential staging areas within the substation
Wu Yee New Generation Child Development Center	700 Velasco Avenue, San Francisco	0.1 miles from the proposed Jefferson-Egbert transmission line and 0.2 miles from the potential staging areas along Carter Street
KIPP Bayview Academy	1060 Key Avenue, San Francisco	0.2 miles from the proposed Jefferson-Egbert transmission line
John McLaren Early Education School	2055 Sunnydale Avenue, San Francisco	0.2 miles from the proposed Jefferson-Egbert transmission line
Our Lady of the Visitacion School	785 Sunnydale Avenue, San Francisco	0.2 miles from the existing Martin Substation
Edward Robeson Taylor Elementary School	423 Burrows Street, San Francisco	0.1 miles from the proposed Egbert-Embarcadero and Martin-Egbert transmission lines
Alta Vista School	450 Somerset Street, San Francisco	0.1 miles from the proposed Egbert-Embarcadero and Martin-Egbert transmission lines
El Dorado Elementary School	70 Delta Street, San Francisco	0.1 miles from the proposed Jefferson-Egbert transmission line
Phillip and Sala Burton Academic High School	400 Mansell Street, San Francisco	Adjacent to the proposed Jefferson-Egbert transmission line
Visitacion Valley Middle School	450 Raymond Avenue, San Francisco (main entrance on Visitacion Avenue)	Adjacent to the proposed Jefferson-Egbert transmission line
Bayshore Elementary School	155 Oriente Street, Daly City	Across Schwerin Street from the existing Martin Substation and the potential staging areas within the substation

Fire Hazards

The California Department of Forestry and Fire Protection (CAL FIRE) uses Fire Hazard Severity Zones (FHSZs) to classify anticipated fire-related hazards for the entire state and includes classifications for State Responsibility Areas (SRAs), Local Responsibility Areas (LRAs), and Federal Responsibility Areas (FRAs). Fire hazard measures physical fire behavior based on vegetation type (fuel), topography, and weather conditions and considers fire spread rate, fire heat production, and production of embers that facilitate fire growth. Fire hazard severity represents the potential of an area to burn and the severity with which it may burn. The entire project site is within the LRAs for San Francisco and San Mateo County.

Based on CAL FIRE's 2008 FHSZ map update for the County of San Francisco, the County has no Very High Fire Hazard Severity Zones (VH FHSZ) remaining in the LRA, so the project site within the City and County of San Francisco is unzoned (CAL FIRE 2008a).

The Southern end of the Jefferson Egbert transmission line is located in San Mateo County within a LRA, designated as Non-VH FHSZ (CAL FIRE. 2008b). The southernmost approximately 0.1-mile portion of the proposed Jefferson-Egbert transmission line is located adjacent to the San Bruno Mountain State Park. The park is a SRA, designated as a High FHSZ. Fire Hazard Severity Zones near the project site are shown in Figure D.15-1.

Fire protection services that serve the project site are provided by the following agencies: San Francisco Fire Department and North County Fire Authority. Locations of the nearest stations to the project site are listed in Table D.9-3.

Table D.9-3
Fire Protection Services

Station	Address	Distance from the Proposed Project
San Francisco Fire Department		
Fire Station 17	1295 Shafter Avenue, San Francisco	0.7 miles from the proposed Egbert Switching Station
Fire Station 25	3305 3rd Street, San Francisco	0.5 miles from the potential staging areas on Amador Street
Fire Station 42	2430 San Bruno Avenue, San Francisco	0.3 miles from the proposed Egbert-Embarcadero and Martin-Egbert transmission lines
Fire Station 43	720 Moscow Street, San Francisco	0.8 miles from the proposed Jefferson-Egbert transmission line
Fire Station 44	1298 Girard Street, San Francisco	0.4 miles from the proposed Jefferson-Egbert transmission line
Fire Station 49	1415 Evans Avenue, San Francisco	0.5 miles from the potential staging areas on Amador Street
North County Fire Authority		
Fire Station 81	3445 Bayshore Boulevard, Brisbane	1.0 miles from the existing Martin Substation and potential staging areas within the substation
Fire Station 93	464 Martin Street, Daly City	0.2 miles from the proposed Jefferson-Egbert transmission line

D.9.2 Applicable Regulations, Plans, and Standards

Hazardous materials and wastes are subject to federal, state, and local regulations for the purpose of protecting public health and the environment. These regulations define hazardous materials; establish

reporting requirements; set guidelines for handling, storage, transport, remediation, and disposal of hazardous wastes; and require health and safety provisions for workers and the public.

Hazardous materials contain certain chemical, physical, or infectious properties that cause them to be considered hazardous. Hazardous wastes are defined in the Code of Federal Regulations (CFR) Title 40, Parts 260–265, and in the California Code of Regulations (CCR), Title 22, Section 66261. Over the years, these laws and regulations have evolved to deal with different aspects of the handling, treatment, storage, and disposal of hazardous substances. The major federal, state, and regional agencies enforcing these regulations include EPA, the Occupational Safety and Health Administration (OSHA), and the U.S. Department of Transportation (DOT) at the federal level; DTSC, SWRCB, and the San Francisco Bay RWQCB at the state level; and the air district and local oversight programs at the regional level. Various agencies and departments of the City and County of San Francisco implement and enforce these requirements as well as specific requirements of the City and County of San Francisco, as discussed below.

Federal

Federal Toxic Substances Control Act and RCRA (1976)

Under the Resource Conservation and Recovery Act of 1976 (RCRA; 42 U.S.C Section 6901 et seq.), individual states may implement their own hazardous waste programs in lieu of RCRA as long as the state program is at least as stringent as the federal RCRA requirements. The federal government approved California's RCRA program, called the Hazardous Waste Control Law, in 1992. EPA Risk Management Program

Ammonia is an example of an acutely hazardous material that EPA regulates under the Risk Management Program contained in the Clean Air Act (42 USC 7401 et seq.). Although a federal program, the Risk Management Program is intended to reduce hazards at the local level. The program requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program that includes detailed safety precautions and maintenance plans and an adequate emergency response program. The information required is intended to help local fire, police, and emergency response personnel (first responders) in the event of an accidental spill or exposure event.

Clean Air Act

Under the authority of Section 112(r) of the Clean Air Act, the Chemical Accident Prevention Provisions require facilities that produce, handle, process, distribute, or store more than a "threshold quantity" of any extremely hazardous toxic and flammable substance listed at 40 CFR, Part 68.130, to develop and implement a Risk Management Program, prepare a risk management plan, and submit the risk management plan to EPA. Although required under a federal program,

the Risk Management Program is intended to reduce hazards at the local level. The program is applicable to companies of all sizes that use certain flammable and toxic substances. The Risk Management Program is intended to help local fire, police, and emergency response personnel (first responders) in the event of an accidental spill or exposure event. The Risk Management Program requirements are contained in the Clean Air Act (42 USC 7401 et seq.).

Uniform Building Code and Uniform Fire Code

The Uniform Building Code and Uniform Fire Code contain building standards and federal fire protection codes. The Uniform Building Code addresses proper building materials, spacing, and siting in order to minimize the potential for damage from fires. The Uniform Fire Code addresses applicable water pressure, fire hydrants, automatic fire sprinkler systems, fire alarm systems, explosion hazards, safety measures, and additional building-specific information.

OSHA Process Safety Management of Highly Hazardous Chemicals

The Process Safety Management of Highly Hazardous Chemicals (29 CFR 1910.119) is intended to prevent or minimize the consequences of catastrophic releases of toxic, reactive, flammable, or explosive highly hazardous chemicals by regulating their use, storage, manufacturing, and handling. The standard intends to accomplish its goal by requiring a comprehensive management program integrating technologies, procedures, and management practices. The standard does not apply to gas well drilling and servicing activities.

DOT Office of Hazardous Materials Safety

Transportation of hazardous materials is regulated by DOT's Office of Hazardous Materials Safety. The Office of Hazardous Materials Safety formulates, issues, and revises hazardous materials regulations under the federal Hazardous Materials Transportation Law (49 CFR 100–185). These regulations cover hazardous materials definitions and classifications, hazard communications, shipper and carrier operations, training and security requirements, and packaging and container specifications.

The hazardous materials transportation regulations require carriers transporting hazardous materials to receive training in the handling and transportation of hazardous materials. Training requirements include pre-trip safety inspections; use of vehicle controls and equipment, including emergency equipment; procedures for safe operation of the transport vehicle; training on the properties of the hazardous material being transported; and loading and unloading procedures. All drivers must possess a commercial driver's license (49 CFR 383). Vehicles transporting hazardous materials must be properly placarded. In addition, the carrier is responsible for the safe unloading of hazardous materials at the site, and operators must follow

specific procedures during unloading to minimize the potential for an accidental release of hazardous materials.

National Fire Protection Association Codes, Standards, Practices, and Guides

National Fire Protection Association codes, standards, recommended practices, and guides are developed through a consensus standards development process approved by the American National Standards Institute (ANSI). This process brings together professionals representing varied viewpoints and interests to achieve consensus on fire and other safety issues. National Fire Protection Association standards are recommended guidelines and nationally accepted good practices in fire protection but are not laws or "codes" unless adopted as such or referenced as such by the California Fire Code or the local fire agency.

International Fire Code

Created by the International Code Council, the International Fire Code addresses a wide array of conditions hazardous to life and property, including fire, explosions, and hazardous materials handling or usage (it is not a federal regulation). The International Fire Code places an emphasis on prescriptive and performance-based approaches to fire prevention and fire protection systems. Updated every 3 years, the International Fire Code uses a hazards classification system to determine the appropriate measures to be incorporated in order to protect life and property (often these measures include construction standards and specialized equipment). The International Fire Code uses a permit system (based on hazard classification) to ensure that required measures are instituted.

DOT Hazardous Materials Regulations

The DOT Hazardous Materials Regulations (49 CFR, Parts 100–185) cover all aspects of hazardous materials packaging, handling, and transportation.

State

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

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a plan that describes business

facilities, inventories, emergency response plans, and training programs. "Hazardous materials" are defined as raw or unused materials that are part of a process or manufacturing step. They are not considered to be hazardous waste. Health concerns pertaining to the release of hazardous materials, however, are similar to those relating to hazardous waste.

Hazardous Waste Control Act

The Hazardous Waste Control Act created the State Hazardous Waste Management Program, which is similar to, but more stringent than, the federal RCRA program. The act defines "hazardous wastes" as waste products with properties that make them dangerous or potentially harmful to human health or the environment. Hazardous wastes can be the by-products of manufacturing processes or simply discarded commercial products, such as cleaning fluids or pesticides. The act is implemented by regulations set forth in CCR Title 26, which describes the following required parameters for the proper management of hazardous waste:

- Identification and classification
- Generation and transport
- Design and permitting of recycling, treatment, storage, and disposal facilities
- Treatment standards
- Operation of facilities and staff training
- Closure of facilities and liability requirements

These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of them. Under this act and CCR Title 26, a generator of hazardous waste must complete a manifest that accompanies the waste from the generator to the transporter to the ultimate disposal location. Copies of the manifest must be filed with the California DTSC.

Cal/OSHA Standards

The California Occupational Safety and Health Administration (Cal/OSHA) is the primary agency responsible for worker safety in the handling and use of chemicals in the work place. Cal/OSHA standards are generally more stringent than federal regulations. Worker exposure to contaminated soils, vapors that could be inhaled, or groundwater containing hazardous constituents is subject to the monitoring and personal safety equipment requirements established in Title 8 of the Cal/OSHA regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR 337–340). The regulations specify requirements for employee training, availability of safety equipment, accident prevention programs, and hazardous substance exposure warnings. The primary intent of the Title 8

requirements is to protect workers, but compliance with some of these regulations also reduces potential hazards to non-construction workers and project vicinity occupants through required controls related to site monitoring, reporting, and other activities.

California Environmental Protection Agency

The California Environmental Protection Agency implements and enforces a statewide hazardous materials program established by Senate Bill 1802 to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities for the following environmental and emergency management programs for hazardous materials:

- Hazardous Materials Release Response Plans and Inventories (Business Plans)
- California Accidental Release Prevention Program
- Underground Storage Tank Program
- Aboveground Petroleum Storage Act Requirements for Spill Prevention, Control, and Countermeasure Plans
- Hazardous Waste Generator and On-Site Hazardous Waste Treatment Programs
- California Uniform Fire Code, Hazardous Materials Management Plans, and Hazardous Material Inventory Statements

California Fire Code

The California Fire Code is contained within Title 24, Part 9, of the CCR. Based on the International Fire Code, the California Fire Code is created by the California Buildings Standards Commission and regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. Similar to the International Fire Code, the California Fire Code and the California Building Code use a hazards classification system to determine the appropriate measures to incorporate to protect life and property.

California Code of Regulations

CCR Title 8, Sections 2700–2989, High-Voltage Electrical Safety Orders, establish essential requirements and minimum standards for the installation, operation, and maintenance of electrical installations and equipment to provide practical safety.

CCR Title 14, Sections 1250–1258, Fire Prevention Standards for Electric Utilities, provides specific exemptions from electric pole and tower firebreak and electric conductor clearance standards, and it specifies when and where standards apply. Section 1254 of Title 14 presents guidelines for minimum clearance requirements around utility poles.

Article 8 of CCR Title 14, Chapter 4 (California Forest Practice Rules), Fire Protection, provides guidelines for fire prevention on forested landscapes, including requirements for fire suppression resources, smoking and matches, lunch/warming fires, blasting and welding, posting, and inspections.

California Health and Safety Code

State fire regulations are established in Section 13000 of the California Health and Safety Code. The section establishes building standards, fire protection device equipment standards, high-rise building and childcare facility standards, interagency support protocols, and emergency procedures. Section 13027 states that the state fire marshal shall notify industrial establishments and property owners having equipment for fire protective purposes of the changes necessary to bring their equipment into conformity with, and shall render them such assistance as may be available in converting their equipment to, standard requirements.

California Department of Forestry and Fire Protection

CAL FIRE is tasked with reducing wildfire-related impacts and enhancing California's resources. CAL FIRE responds to all types of emergencies including wildland fires and residential/commercial structure fires. In addition, CAL FIRE is responsible for the protection of approximately 31 million acres of private land within the state and, at the local level, is responsible for inspecting defensible space around private residences. CAL FIRE is responsible for enforcing State of California fire safety codes included in the CCR and the California Public Resources Code. CCR Title 14, Section 1254, identifies minimum clearance requirements required around utility poles.

CAL FIRE also inspects utility facilities and makes recommendations regarding improvements in facility design and infrastructure. Joint inspections of facilities by CAL FIRE and the utility owner are recommended by CAL FIRE so that each entity may assess the current state of the facility and successfully implement fire prevention techniques and policies. Violations of state fire codes discovered during inspections are required to be brought into compliance with the established codes. If a CAL FIRE investigation reveals that a wildfire occurred as a result of a violation of a law or negligence, the responsible party could face criminal and/or misdemeanor charges (CAL FIRE 2008c). For cases where a violation of a law or negligence has occurred, CAL FIRE has established the Civil Cost Recovery Program, which requires parties liable for wildfires to pay for wildfire-related damages.

More detailed descriptions of the applicable codes and regulations and images of exempt and non-exempt power line structures may be found in the CAL FIRE Power Line Fire Prevention Field Guide (CAL FIRE 2008c).

These regulations are discussed in further detail as follows:

- **California Public Resources Code 4292** states that a minimum firebreak of 10 feet in all directions from the outer circumference of a pole or tower be established around any pole that supports a switch, transformer, lightning arrester, line junction, or end or corner pole. All vegetation shall be cleared within the firebreak.
- **California Public Resources Code 4293** establishes the minimum vegetation clearance distances (between vegetation and energized conductors) required for overhead transmission line construction. Minimum clearances are discussed as follows:
    - A minimum radial clearance of 4 feet shall be established for any conductor of a line operating at 2,400 or more volts but less than 72,000 volts.
    - A minimum radial clearance of 6 feet shall be established for any conductor of a line operating at 72,000 or more volts but less than 110,000 volts.
    - A minimum radial clearance of 10 feet shall be established for any conductor of a line operating at 110,000 or more volts but less than 300,000 volts.
    - A minimum radial clearance of 15 feet shall be established for any conductor of a line operating at 300,000 or more volts.

Specific requirements applicable to the construction and operation of the proposed project include those from California Public Resources Code, Division 4, Chapter 6:

- **Section 4427 –** Operation of fire-causing equipment
- **Section 4428** – Use of hydrocarbon-powered engines near forest, brush, or grass-covered lands without maintaining firefighting tools
- **Section 4431** – Gasoline-powered saws and firefighting tools
- **Section 4442** – Spark arrestors of fire prevention measures, requirements, exemptions

Fire Hazard Severity Zones

CAL FIRE mapped FHSZs in California based on fuel loading, slope, fire weather, and other relevant factors as directed by California Public Resources Code, Sections 4201–4204, and California Government Code, Sections 51175–51189. FHSZs are ranked from moderate to very high and are categorized for fire protection within an FRA, SRA, or LRA under the jurisdiction of a federal agency, CAL FIRE, or local agency, respectively. The proposed project is located in the LRAs for San Francisco and San Mateo counties.

California Public Utilities Commission General Orders

PG&E, as the applicant, is required to comply with all applicable California Public Utilities Commission (CPUC) General Orders (GOs), which establish regulatory requirements for the design, construction, and operation of electrical systems. Applicable GOs include:

- **GO 128 –** Rules for construction of underground electric supply and communication systems
- **GO 165 –** Inspection requirements for electric distribution and transmission facilities

Among the many requirements of GO 128 is the stipulation that project elements (e.g., handholes, manholes, vaults, and trenches) provide sufficient strength to sustain, with a suitable margin of safety, the loads that may reasonably be imposed on them.

California Code of Regulations – Electrical Utilities

The CCR is a catalog of state laws and regulations adopted by state agencies, including the following:

- CCR Title 8, Section 2700 et seq., High Voltage Electrical Safety Orders, establishes essential requirements and minimum standards for installation, operation, and maintenance of electrical equipment to provide practical safety and freedom from danger.
- CCR Title 14, Sections 1250–1258, Fire Prevention Standards for Electric Utilities, provides specific exemptions from electric pole and tower firebreak and electric conductor clearance standards, and specifies when and where standards apply.

Hazardous Substance Account Act

The Hazardous Substance Account Act (California Health and Safety Code, Chapter 6.8, Section 25300 et seq.) is California's equivalent to the federal Comprehensive Environmental Response, Compensation, and Liability Act. It addresses hazardous waste sites and apportions liability for them. The Hazardous Substance Account Act 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 for responding to hazardous materials transportation emergencies are the California Highway Patrol and the California Department of Transportation (Caltrans), respectively.

Local

Because CPUC has exclusive jurisdiction over the siting, design, and construction of the proposed project, the proposed project is not subject to local discretionary regulations. This section provides information on adopted airport land use plans and adopted emergency response plans or evacuation plans for informational purposes and to assist with CEQA review.

Airport Land Use Plans

The Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport establishes a two-tier Airport Influence Area (Area A and Area B) for airport land use compatibility planning near the San Francisco International Airport (C/CAG 2012). Area A, the larger of the two Airport Influence Areas, which encompasses all of the County of San Mateo, is a zone in which state law requires the disclosure of the airport and related annoyances or inconveniences for property sales or leases. Area B lies within Area A and consists of land exposed to aircraft noise above a community noise equivalent level of 65 A-weighted decibels or lying below critical airspace (i.e., including portions of Daly City, Colma, San Bruno, South San Francisco, Millbrae, and Burlingame). Within Area B, the Airport Land Use Commission shall review proposed land use policy actions, including new general plans, specific plans, zoning ordinances, plan amendments, and rezonings, as well as land development proposals. The real estate disclosure requirements in Area A also apply in Area B. The southern portion of the project site in the County of San Mateo is located within Area A, but no portions of the project site are located within Area B.

Adopted Emergency Response Plans/Evacuation Plans

City and County of San Francisco Emergency Management Program

The City and County of San Francisco Emergency Management Program is part of a jurisdiction-wide system that provides emergency management guidance related to prevention, preparedness, response, and recovery. The City and County of San Francisco's Emergency Response Plan uses an all-hazards approach to emergency planning; therefore, it encompasses all hazards that are applicable to the City and the County, both natural and man-made, ranging from planned events to large-scale disasters (City and County of San Francisco 2010). The plan describes the coordination, roles, and responsibilities of responding agencies and how the City and County of San Francisco works with state and federal partners during an emergency.

Different types of emergencies, such as fires, a release of hazardous materials, or other incidents, may require evacuation actions. In the event of an emergency evacuation, accessible routes would be established by the San Francisco Police Department in collaboration with the San Francisco Department of Public Works, San Francisco Municipal Transportation Authority, Caltrans, and California Highway Patrol (City and County of San Francisco 2010).

County of San Mateo Emergency Operations Plan

The County of San Mateo Emergency Operations Plan (EOP) is the base plan that governs the roles and responsibilities of the County of San Mateo in times of extraordinary emergency or disaster (County of San Mateo 2015). The EOP establishes policies and procedures and assigns responsibilities to ensure the effective management of emergency operations within the San

Mateo County Operational Area. The EOP provides information on the County's emergency management structure regarding how and when the Emergency Operations Center staff are activated. The EOP also describes the County's coordination and support for law enforcement, public safety, and security capabilities and resources during an emergency or disaster situation, including evacuation and movement of the public away from a hazard area and enforcing limited access to hazardous or isolation areas.

Maher Ordinance

The 1986 Maher Ordinance No. 258-86 (San Francisco Public Health Code 22A), as amended, requires an investigation of hazardous materials in soil at certain construction sites as a prerequisite for any building permit (San Francisco Public Works Code). Figure D.9-2 shows the Maher Area, encompassing sites with known or suspected soil and/or groundwater contamination in San Francisco, subject to the Maher Ordinance. The Maher Area encompasses the area of San Francisco from a historic, pre-1906 earthquake high tide line to the San Francisco Bay (San Francisco Planning Department 2015). As discussed below, this area of San Francisco was largely created by landfill material where past industrial land uses and debris fill associated with the 1906 earthquake and Bay reclamation often left hazardous residue in local soils and groundwater. The Maher Ordinance was developed to protect workers and citizens from exposure to potential hazardous waste during project construction. The Maher Ordinance requires that if more than 50 cubic yards of soil are to be disturbed and the proposed project is on fill or is at a location designated for investigation by the San Francisco Department of Public Health (SFDPH), Hazardous Materials and Waste Program, then applicants for building permits must, among other things, analyze the site's soil for hazardous materials, including radioactive soils.

An applicant must submit site history documentation to the SFDPH to determine whether the site complies with the Maher Ordinance (per PG&E's commitment to adhere to a process consistent with this Ordinance) or if additional documentation is necessary. If further documentation is necessary, the SFDPH may request subsurface analyses of hazardous substances including, but not limited to, metals, VOCs, total petroleum hydrocarbons (TPH), semi-volatile organic compounds (SVOCs), PCBs, pH levels, cyanides, methane and other flammable gases, and naturally occurring asbestos. The results must be reported in a subsurface investigation report and the analytical results must be compared to state and federal guidelines and standards. If health-based or environmental screening criteria are exceeded, then a site mitigation plan (SMP) is required in order to obtain development approvals.

The SMP must describe procedures, methods and devices to mitigate or remove contaminated soil, groundwater, and soil vapor. The SMP should include figures and drawings showing soil waste classifications, areas and depths of soil excavation or treatment, and any mitigating measures such as visual indicator barriers over contaminated soil, vapor venting systems, etc. An SMP includes environmental contingency procedures, post-excavation confirmation sampling,

and a commitment to prepare and certify a final project report. The SMP should also reference and briefly describe construction-related documents (dust, stormwater, odor, and noise control plans). SFDPH then reviews and provides additional guidance, comments, and/or requests for clarification regarding the SMP upon review of the subsurface investigation report. SFDPH reviews the SMP and replies with a letter commenting and requesting clarifications or accepting the SMP. The project applicant has the responsibility to implement and complete the mitigation measures in an approved SMP. Sites 0.5 acres or larger must submit a dust control plan that complies with the San Francisco Health Code Article 22B (Construction Dust Control Program).

The CPUC is not subject to local discretionary regulations, including the Maher Ordinance. However, per PG&E's commitment to implement a sampling/testing process that is consistent with the Maher Ordinance, this EIR proposes Mitigation Measure (MM) HM-1 to ensure potential contaminated soil and/or groundwater within proposed work areas are adequately handled in compliance with the Maher Ordinance.

D.9.3 Environmental Impacts and Mitigation Measures

D.9.3.1 Definition and Use of Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance for evaluating whether a development project may result in significant impacts. In accordance with Appendix G, the proposed project would have a significant impact with regard to hazards and hazardous materials if the proposed project would:

Impact HAZ-1 Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials

Impact HAZ-2 Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous or other materials into the environment

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

Impact HAZ-4 Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment

Impact HAZ-5 For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 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 site

Impact HAZ-6 Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan

Impact HAZ-7 Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires

D.9.3.2 Applicant Proposed Measures

Table D.9-4 presents the applicant proposed measures (APMs) proposed by PG&E to avoid project impacts related to hazards and hazardous materials.

Table D.9-4
Applicant Proposed Measures for Hazards and Hazardous Materials

APM No.	Description
APM HM-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 and, as appropriate, during the operation and maintenance phase. 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 (see APM WQ-1). A site-specific Spill Prevention Control and Countermeasure (SPCC) Plan and a Hazardous Materials Business Plan will be developed for the proposed Egbert Switching Station facility prior to the construction date (see APM WQ-4). **Worker environmental awareness program hazards and hazardous material module.** A worker environmental awareness program will be developed prior to construction. The worker environmental awareness program will communicate environmental issues and appropriate work practices specific to this project to all field personnel. These will include spill prevention and response measures and proper BMP implementation. The program will emphasize site-specific physical conditions to improve hazard prevention, and will include a review of applicable portions of PG&E's health and safety plan. A copy of the worker environmental awareness program record will be provided to CPUC for recordkeeping. 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 on site, as applicable. **Potentially contaminated soil.** Soil that is suspected of being contaminated (based on existing analytical data or visual, olfactory, or other evidence) and is removed during trenching or excavation activities will be segregated and tested; if the soil is contaminated above hazardous levels, it will be contained and disposed of off site at a licensed waste facility. The presence of known or suspected contaminated soil will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations. If suspected hazardous substances are unexpectedly encountered during trenching or other construction activities (using indicators such as sheen, odor, and/or soil discoloration), work will be stopped until the material is properly characterized and appropriate measures are taken to protect human health and the environment. Appropriate personal protective equipment will be used, and waste management will be performed in accordance with applicable regulations. If excavation of hazardous materials is required, the materials will be disposed of in accordance with applicable regulations. **Groundwater.** If necessary, groundwater will be collected during construction, contained, and disposed of in accordance with all applicable regulations. Non-contaminated groundwater will be released to one of the City and County of San Francisco's combined sanitary and stormwater drainage systems (with prior

Table D.9-4
Applicant Proposed Measures for Hazards and Hazardous Materials

APM No.	Description
	approval) or will be contained, tested, and disposed of in accordance with applicable regulations. **Underground storage tanks.** If underground or aboveground storage tanks are found to be located along the project route and the route cannot be adjusted to avoid disturbance, the tanks will be removed prior to installation of new facilities at the tank location. If it is determined that removal and disposal of tanks is necessary, a separate work plan describing the proper decommissioning and removal of the tanks and removal of any associated impacted soil will be prepared prior to removal. **Hazardous materials and hazardous wastes.** All hazardous materials and hazardous wastes will be handled, stored, and disposed of in accordance with all applicable regulations by personnel qualified to handle hazardous materials. Practices during construction will include, but will not be limited to, the following: • Proper disposal of potentially hazardous materials • Site-specific buffers for construction vehicles and equipment located near sensitive resources/receptors • Emergency response and reporting procedures to address any potential hazardous material spills as described in Section D.10, Hydrology and Water Quality. Applicable portions of PG&E plans for Martin Substation (e.g., Risk Management Plan or Site Management Plan) and testing for potential hazardous materials in soil as required under the Maher Ordinance (see Section D.9-2) will also be adhered to. For the operation and maintenance phase of the project, existing operational hazardous substance control and emergency response plans will be updated as appropriate to incorporate necessary modifications resulting from this project.
APM HM-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 escapes during pouring, it will be directed to adjacent lined and bermed areas, where the concrete will dry, and then be transported for disposal per applicable regulations.
APM HM-3	**Soil, Groundwater, Underground Tank, and Wastewater Characterization.** In areas where existing data are not available, soil and groundwater sampling will be conducted in project areas prior to or upon commencement of construction. Appropriate handling, transportation, and disposal locations will be determined based on results of the analyses performed on soil and groundwater. In addition, results will be provided to contractor and construction crews to inform them about soil and groundwater conditions and potential hazards. The location, distribution, and/or frequency of the sampling locations will be determined during final design with the intent to provide adequate representation of the conditions in the construction area. Sampling will likely be more intensive in areas along the project alignment (1) where potential residual contamination associated with the four former LUST and two EnviroStor cleanup sites may exist, (2) near the transformer oil spill in the vicinity of 607 Carter Street, San Francisco, (3) near the locations of six historical auto service stations and two historical dry cleaners, and (4) subject to the Maher Ordinance (see Section D.9.2). The sampling program in areas subject to the Maher Ordinance must be reviewed and approved by the SFDPH prior to construction.

D.9.3.3 Impact Discussion

Impact HAZ-1 Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Construction

Construction of the proposed project would involve the use of hazardous materials, such as substances associated with construction vehicles and equipment, cleaning solvents, liquid concrete, use of lubricants for cable pulling, management of dielectric fluid during construction splicing activities of the proposed Egbert-Embarcadero and Martin-Egbert transmission lines, use of liquid nitrogen to freeze dielectric fluids in transmission lines during bisection and splicing, and use of lubricating and cooling oils and substances associated with motor vehicles at the proposed Egbert Switching Station. When not in use, any hazardous material would be stored in designated construction staging areas in compliance with federal, state, and local requirements. The volume of stored materials in any one place would be small (i.e., generally less than 25 gallons) and would be the minimum necessary to carry out construction activities along the project alignment. Maintenance, fueling, and servicing of construction vehicles would occur off site, such as at a pre-existing gas station or service center.

Any hazardous materials needed for construction would be stored and used in accordance with the product specifications and applicable regulations. Product specifications are described in detail on Material Safety Data Sheets (MSDS) that accompany every batch of materials considered hazardous. Information in the MSDS includes instructions on proper use and application of the material, accidental release measures, and handling and storage requirements. Applicable regulations specify storage and handling requirements, such as proper container types and usage methods. Transportation of hazardous materials to be used during construction would be conducted in compliance with DOT requirements. After construction, all hazardous materials and waste would be removed from the site for reuse, recycling, or disposal at a properly licensed facility in accordance with federal and state regulations and requirements.

As part of APM HM-1, PG&E would implement construction controls, training, and communication to minimize the potential exposure of the public and site workers to hazardous materials during all phases of project construction and, as appropriate, during the operation and maintenance phase. This would include worker training to prevent and respond to spills, as well as training in containment and spill control practices in accordance with the stormwater pollution prevention plan (SWPPP) (APM WQ-1). In addition, as discussed in Section D.10, Hydrology and Water Quality, a site-specific spill prevention control and countermeasure (SPCC) plan would be developed for the proposed Egbert Switching Station facility prior to the construction

date (APM WQ-4) and emergency spill supplies and equipment would be available on site during construction (APM HM-2). These APMs would minimize the likelihood of spills and ensure a prompt, safe, and effective response if a spill were to occur. The impacts of potentially hazardous materials on the environment or exposure of the public and site workers to potentially hazardous materials routinely transported, used, or disposed of during project construction would be less than significant through compliance with applicable regulations, as indicated in APM HM-1, APM HM-2, APM WQ-1, and APM WQ-4 (Class III). This less-than-significant impact is specific to public and environmental hazards from the transport, use, and disposal of small quantities of hazardous materials required to construct the proposed project. Impacts associated with the potential presence of hazardous constituents of concern present within soil and groundwater underlying construction work areas are addressed under Impact HAZ-4.

Operation and Maintenance

No hazardous materials would be used during project maintenance and operation, with the exception of substances associated with the proposed Egbert Switching Station facility, such as lubricating and cooling oils, and substances associated with motor vehicles that would be used for inspection of the new facilities. In accordance with APM HM-1, existing PG&E operation and maintenance policies addressing hazardous materials use would be updated prior to completion of project construction. These operation and maintenance policies, along with the SPCC plan that would be implemented for the Egbert Switching Station site (APM WQ-4), would minimize the possibility of significant hazard to the public or the environment through routine activities; therefore, impacts would be less than significant (Class III).

Impact HAZ-2 Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous or other materials into the environment?

Construction

As discussed under Impact HAZ-1, project construction would require the limited use of hazardous materials such as fuels, lubricants, and solvents. Storage and use of hazardous materials during construction could result in the accidental release of small quantities of hazardous materials, typically associated with minor spills or leaks. Spills and leaks could degrade soil and groundwater quality and/or surface water quality in nearby creeks or downstream water bodies.

Although spills and leaks during construction could occur, implementation of construction water quality best management practices (BMPs) required by the RWQCB through its review and approval of the SWPPP, in accordance with APM WQ-1, would reduce the potential for

accidental releases and ensure a quick response to any spills to minimize impacts to the environment. As discussed in Impact HAZ-1, hazardous materials would be stored, handled, and used in accordance with applicable regulations. All equipment and materials storage would be routinely inspected for leaks, and records would be maintained for documenting compliance with the storage and handling of hazardous materials.

Construction worker training under APM HM-1 would provide site personnel with instruction on spill prevention and response measures and proper BMP implementation, along with containment and spill control practices in accordance with the SWPPP. Furthermore, all hazardous materials and hazardous wastes would be handled, stored, and disposed of in accordance with all applicable regulations by personnel qualified to handle hazardous materials. Additionally, materials would be available on the project site during construction to contain, collect, and dispose of any minor spill (APM HM-2). With implementation of these APMs, impacts involving release of hazardous materials into the environment during project construction would be less than significant (Class III). This less-than-significant impact is specific public and environmental hazards from the potential for accidents or spills of small quantities of hazardous materials required to construct the proposed project. Impacts associated with the potential presence of hazardous constituents of concern present within soil and groundwater underlying construction work areas are addressed under Impact HAZ-4.

Operation and Maintenance

Other than substances associated with the proposed Egbert Switching Station facility, such as lubricating and cooling oils, and substances associated with motor vehicles that would be used for inspection of the new facilities, no hazardous materials would be associated with maintenance and operation of the proposed project. As described under APM HM-1, existing PG&E operation and maintenance policies to address the potential release of hazardous materials in upset or accident conditions at the new facilities would be updated as needed prior to completion of project construction. These operation and maintenance policies, along with the SPCC plan that would be implemented for the Egbert Switching Station site (APM WQ-4), would minimize the possibility of significant hazard to the public or the environment through routine activities; therefore, any impact would be less than significant. Any impacts associated with such an accidental release would be less than significant with implementation of APM HM-1 and APM HM-4 (Class III).

Impact HAZ-3 Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

As shown in Table D.9-2, there are 13 schools that would be located within 0.25 miles of the proposed project. Construction would involve limited quantities of liquid concrete, vehicle fuels, lubricants and other vehicle maintenance fluids, hydraulic fluid, and cleaning solvents. However, no acutely hazardous materials, substances, or waste listed in Section 25532 of the California Health and Safety Code or 40 CFR Part 355 would be used or generated by the proposed project. Given the temporary and short-term nature of construction in any one area and the relatively small quantity of hazardous materials to be used, impacts on schools from potential hazardous substance emissions would be less than significant. Implementation of APM HM-1 and APM HM-2 would further reduce the less-than-significant impacts. Based on these considerations, sensitive receptors would not be exposed to substantial pollutant concentrations and this impact would be less than significant (Class III).

Impact HAZ-4 Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

As indicated in Figure D.9.2, the site of the proposed Egbert Switching Station, portions of the proposed Egbert-Embarcadero and Martin-Egbert transmission lines, and portions of the northeastern section of the proposed Jefferson-Egbert transmission line are within the Maher Area, subject to the City and County of San Francisco's Maher Ordinance. This ordinance covers areas of the City and County of San Francisco where there is an assumed potential to encounter hazardous waste in the subsurface, based on the land use history of a site or the surrounding area. Examples include sites currently or previously with industrial land uses, sites within 100 feet of a UST, sites with historic bay fill, sites within 100 feet of known hazardous waste sites, or sites in proximity to freeways. Historic bay fill often contains contaminants, including predominantly petroleum-based chemicals and heavy metals. As discussed in the Section D.9.1 Environmental Setting above, the Limited Phase II Site Investigation conducted for the proposed Egbert Switching Station site analyzed soil and groundwater contamination on-site, including an area previously developed with an underground storage tank (UST) and fueling island. Site investigations results suggest that the former UST and associate piping has been removed. Fuel compounds, VOCs, semivolatile organic compounds, polychlorinated biphenyls, pesticides, and metals in the on-site soils samples were either not detected or generally detected at low concentrations below applicable environmental screening levels (ESLs). Groundwater samples indicated that on-site groundwater is impacted with fuel-related compounds and metals exceeding applicable ESLs (Appendix D.9-2). The lack of exceedance of these compounds in on-site soil samples suggests that the elevated occurrence of these compounds in on-site groundwater is caused by off-site sources (Appendix D.9-2).

A regulatory database review indicated that four closed LUST cleanup sites are located adjacent to the proposed routes and switching station. In addition, DTSC has records of two hazardous

materials sites located adjacent to the project site that are active or certified with operation and maintenance of remedial measures, as well as two sites that have undergone regulatory closure. The latter includes a former PCB spill site along the proposed Jefferson-Egbert route, in the vicinity of 607 Carter Street, in San Francisco. Residual contamination may be present at the closed LUST and DTSC sites. In addition, the PG&E Martin Service Center, located at 731 Schwerin Street in the City of Daly City (see Figure D.9-1), is a 49-acre EnviroStor State Response site located to the west and south of the Martin Substation. Two potential staging areas would be created and foundation demolition would occur within the Martin Service Center. This site is certified with land use controls and ongoing operation and maintenance of remedial measures.

Two potential staging areas along Amador Street are located partly or entirely on a RWQCB-regulated Class III solid waste landfill inland of Pier 94 (see site 16 on Figure D.9-1). The smaller northwestern staging area is located entirely within the landfill boundary, and a limited 15,000-foot section of the northwestern corner of the larger staging area is within the landfill. These potential Amador Street staging areas are also located adjacent to the proposed San Francisco Energy Cogeneration Plant (site 17 on Figure D.9-1), a voluntary cleanup site overseen by DTSC. A proposed removal action and capping of fill material at the site has not been implemented because the cogeneration project has not been approved.

Based on historical records, several other project areas have the potential for soil and/or shallow groundwater contamination to be present (sites 1 through 7 on Figure D.9-1). In addition, six potential historical gas station/filling station/service station sites and two historical dry cleaner or laundry facilities are adjacent to the proposed project. Historical auto service stations are commonly associated with leaks from fuel or waste oil USTs, and historical 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, shown on Figure D.9-1, is possible. In addition to these sites located adjacent to the proposed routes and switching station, the EDR report identified 53 more historical auto service sites and 44 more current or historical dry cleaner sites located within 0.25 miles of the project alignment. In addition, there are no Superfund sites within 0.25 miles of the site. Hunter's Point Naval Shipyard is located more than a mile east of the project site, and there is no evidence to suggest that associated contaminants of concern are a threat to the proposed project, based on distance and the direction of groundwater flow toward the San Francisco Bay.

Creation of staging areas would likely not require excavations that would expose potentially contaminated soil and/or shallow groundwater. Unpaved staging areas would only require blading uneven surfaces, compacting soil, and/or spreading gravel on the site for safety and erosion control. However, encountering previously unknown soil contamination, shallow groundwater contamination, USTs, and other infrastructure in excavations could result in exposure of construction personnel and the public to hazardous substances and petroleum waste; potential exposure of

contaminated soil to precipitation, resulting in contaminated runoff; potential runoff of contaminated groundwater to the storm drain system during dewatering; and potential rupture and leakage of previously unknown USTs. Impacts are considered potentially significant.

To minimize potential impacts associated with disturbance of contaminated soil, contaminated groundwater, and USTs, PG&E would implement APM HM-1 through APM HM-3. In particular, APM HM-1 and APM HM-3 require pre-construction testing of soils and groundwater where there is insufficient evidence available to confirm the absence of soil or groundwater contamination within the expected disturbance area (both lateral and vertical) for construction. Importantly, through application of the Maher Ordinance (a component of APM HM-1) and through implementation of APM HM-3, PG&E would generally presume that contaminants may be present unless it can be demonstrated otherwise, and would implement worker safety measures, treatment protocols, and appropriate handling and transport procedures necessary to protect workers and the public from exposure to hazardous materials. In addition, PG&E is legally required to respect, where present, all land use restrictions and covenants, which for historically impacted sites, may prohibit disturbance of contaminant caps, soil below the caps, and/or groundwater interceptors without first obtaining DTSC and/or RWQCB approval. This may be relevant for subsurface work in proximity to certain cleanup sites shown in Figure D.9-1.

Because CPUC has exclusive jurisdiction over the siting, design, and construction of the proposed project, the proposed project is not subject to local discretionary regulations. However, PG&E has committed to implementing a sampling/testing process consistent with the Maher Ordinance. The Maher Ordinance, implemented by SFDPH, would effectively protect against adverse health and environmental impacts associated with construction work on sites with confirmed or suspected presence of soil contaminants. Without implementing the type of soil testing and mitigation required by the Maher Ordinance, the impacts of the proposed project would be potentially significant. Therefore, PG&E shall be required to implement MM HM-1, which requires PG&E to submit project site history documentation to the SFDPH/CPUC for review for all areas of proposed ground disturbance. For areas under the Maher Ordinance, SFDPH would determine compliance with San Francisco Health Code Section 22A. For areas not subject to the Maher Ordinance, the documentation would be submitted to CPUC. If the SFPDH/CPUC determines potential presence of hazardous materials, subsurface investigations would be required to determine the extent and severity of soil and/or groundwater contamination within proposed work areas. With implementation MM HM-1, the potential impacts from encountering known and unknown hazardous substances, including the contaminants found at the Egbert Switching Station site, as well as other underground hazardous features during construction, would be less than significant with mitigation (Class II).

MM HM-1 Prior to commencing work on the Egbert Switching Station as well as all project components within 500 feet of a leaking underground storage tank (LUST), State

Response site, voluntary cleanup site, historical gas station/filling station/service station, historical dry cleaner or laundry facilities, or historical auto service station, Pacific Gas & Electric Company (PG&E) shall submit site history documentation for proposed work areas for review. For work within the area designated under the Maher Ordinance, PG&E shall submit site history documentation to the San Francisco Department of Public Health (SFDPH) and the California Public Utilities Commission (CPUC). For areas not subject to the Maher Ordinance, PG&E shall submit site history documentation to the CPUC only. An independent qualified person approved by CPUC shall review all site documentation provided by PG&E and all comments, questions, or clarifications requested shall be addressed prior to report approval by CPUC. For work areas within the limits of the Maher Ordinance, if the site history indicates that hazardous materials may be present in the soil/groundwater, the CPUC and/or SFPDH would require additional documentation, as follows:

1. PG&E shall submit a Work Plan for analysis of sampled soil and/or groundwater.
2. PG&E shall conduct subsurface soil and/or groundwater sampling requested by the CPUC and/or SFDPH and submit a subsurface investigation report (i.e., soil testing), prepared by a qualified person (professional geologist, licensed civil engineer, or engineering geologist), for review and approval. The subsurface investigation report shall document sampling locations, sampling protocol, and laboratory analyses to be conducted on the samples, and shall include testing for the complete list of analytes required by the Maher Ordinance, and other hazardous substances that the CPUC and/or SFDPH determines may be present, such as known radioactive substances near the Hunter's Point Shipyard.
3. If the subsurface investigation report indicates exceedances of the Department of Toxic Substances Control's or Regional Water Quality Control Board's health risk levels or other applicable standards, PG&E shall have a qualified person prepare a site mitigation plan (SMP) prior to authorization to commence construction. The SMP must describe procedures, methods, and devices to protect site worker's and adjacent sensitive receptor's health and safety from potential risks of contaminated soil, groundwater, and soil vapor, if present. The SMP shall include figures and drawings showing areas where soil testing indicates exposure levels may be exceeded, environmental contingency procedures, post-excavation confirmation sampling, appropriate handling and disposal of

contaminated soil, and a commitment to prepare and certify a final project report. The SMP shall also reference and briefly describe construction-related documents (dust, stormwater, odor, and noise control plans). The SMP shall be reviewed and approved by the CPUC and/or SFDPH prior to construction work within applicable project work areas.

The SMP would be focused on protecting site workers and adjacent sensitive receptors from any health and safety threats stemming from excavation and handling of potentially contaminated soil and/or groundwater. CPUC may waive soils testing, on a case-by-case basis, for work sites in which PG&E can demonstrate in writing that (a) there would be no soil excavation associated with the work (e.g., staging areas), or (b) the site history indicates that there is no information that hazardous substances may be present in the soil or groundwater at concentrations exceeding either the Department of Toxic Substances Control's or the Regional Water Quality Control Board's health risk levels.

Impact HAZ-5 Would the project be located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, and would the project result in a safety hazard or excessive noise for people residing or working in the project site?

As described in Section D.9.1, the proposed project would not be located within 2 miles of a public airport. The southern portion of the project site in the County of San Mateo would be located within a real estate disclosure area, i.e., Airport Influence Area A, of the airport land use compatibility plan for the San Francisco International Airport (C/CAG 2012). However, no portions of the project site are located within the area subject to land use policy action reviews, i.e., Airport Influence Area B. No new structures associated with the proposed project would require Federal Aviation Administration notification because the highest structure (i.e., the Egbert Switching Station) would be 40 feet above grade, which is well under the 200-foot threshold that requires notification to the Federal Aviation Administration under its Part 77 Notice Criteria (CFR Title 14 Part 77.9). Because the proposed project is unmanned, and because the proposed transmission lines are underground, there would be no impact with regard to exposure to excessive noise (see Section D.12, Noise).

Therefore, the proposed project would not result in a safety hazard or excessive noise for people residing or working in the project site during either the construction or the operation and maintenance phases (No Impact).

Impact HAZ-6 Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Work would occur in roadways during construction and operation and maintenance. For the U.S. Highway 101 crossing, trenchless construction technology would be used to avoid lane closures. In places where project construction may require a temporary road closure, construction activities would be coordinated with the local jurisdiction so as not to cause closure of any emergency access route (see APM TR-1 in Section D.13). Flaggers may briefly hold traffic back for construction equipment, but emergency vehicles would be provided access even in the event of temporary road closures. Because streets would remain open to emergency vehicles at all times, construction of the proposed project would not impact emergency access and would minimally and temporarily impact emergency evacuation. The proposed project would not impair the implementation of or physically interfere with an adopted emergency response or emergency evacuation plan; therefore, no impacts would occur during project operation and construction impacts would be less than significant (Class III).

Impact HAZ-7 Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

The project site would be located within urbanized areas that are not designated as Moderate or High FHSZs. However, approximately 0.1miles of the proposed Jefferson-Egbert transmission line along Carter Street is located adjacent to the San Bruno Mountain State Park, which is a SRA, designated as High FHSZ.

Construction activities near the open space, vegetated areas of the park could provide fuel to spark a wildfire in the adjacent High FHSZ. Heat or sparks from construction equipment and vehicles, as well as the use of flammable hazardous materials, have the potential to ignite adjacent vegetation and start a fire, especially during weather events that include low humidity and high wind speeds. Project construction would result in up to 88 workers on site at any one time (maximum total) for the estimated 22-month construction period. Trenching work is generally expected to progress at an average of 40 linear feet per day per crew, depending on soil conditions, existing utilities, and other considerations. Therefore, construction adjacent to the High FHSZ would be completed within approximately 2 weeks. As shown in Table D.9-3, there are numerous fire stations in the immediate area that could respond quickly in the event of a fire. Daly City Fire Department Station 93 is the closest station to the High FHSZ adjacent to the proposed Jefferson-Egbert transmission line on Carter Street. Station 93 is located at 464 Martin Street, approximately 0.2 miles northwest of the High FHSZ. To minimize the potential for ignitions in vegetated areas along Carter Street during construction and maintenance activities, implementation of MM WF-1 would be required.

Once the proposed project is constructed, only underground transmission line infrastructure would be present adjacent to the High FHSZ, which presents minimal fire risk during operation and maintenance (due to confined spaces and lack of oxygen underground). Furthermore, the purpose of the proposed project is to provide a redundant system, which has benefits with respect to fire hazards, because damaged lines along the existing Martin-Embarcadero Transmission Line caused by an extreme event could be de-energized without resulting in blackouts.

With implementation of MM WF-1, the proposed project would not exacerbate wildfire risks and impacts would be less than significant (Class II).

D.9.4 Project Alternatives

D.9.4.1 Bayshore Switching Station Alternative

Environmental Setting

The alternative Bayshore Switching Station would be developed in a disturbed area, primarily surrounded by industrial land uses and vacant, disturbed properties. An area north of the alternative switching station site of approximately 180 acres, previously operated by the Southern Pacific Transportation Company for locomotive maintenance operations until 1960, was cited for hazardous materials contamination in 1992 (City of Brisbane 2013). The site has been divided into two operable units (OUs). OU-1 contains VOC groundwater contamination, and OU-2 contains soils contaminated with petroleum hydrocarbons. The former Brisbane Landfill is located east of the alternative switching station site. These sites have a long history of environmental investigations and cleanup efforts. The alternative Bayshore-Embarcadero transmission line would be installed south of Bayshore Park, a Certified State Response site on Midway Drive, and would connect to the Martin Substation near the PG&E Martin Service Center, a 49-acre EnviroStor State Response site located to the west and south of the Martin Substation (DTSC 2019). Two LUST cleanup sites are present within the industrial development along the east side of Bayshore Boulevard (SWRCB 2019).

The Bayshore Switching Station Alternative would be located adjacent to Bayshore Elementary School at 155 Oriente Street in the City of Daly City. No other schools are within 0.25 miles of the alternative switching station and transmission lines.

The Bayshore Switching Station Alternative would be developed within San Mateo County, within Airport Influence Area A of the airport land use compatibility plan for the San Francisco International Airport. Area A includes the entire County of San Mateo, all of which is overflown by aircraft flying to and from SFO at least once per week at altitudes of 10,000 feet or less above mean sea level (C/CAG 2012).

The Bayshore Switching Station Alternative would not be located within a designated FHSZ (CAL FIRE 2008b).

Environmental Impacts and Avoidance/Mitigation Measures

Impact HAZ-1: Construction of the Bayshore Switching Station Alternative would involve the use of hazardous materials similar to the proposed project. When not in use, any hazardous material would be stored in designated construction staging areas in compliance with federal, state, and local requirements. Maintenance, fueling, and servicing of construction vehicles would occur off site, such as at a pre-existing gas station or service center. After construction, all hazardous materials and waste would be removed from the site for reuse, recycling, or disposal at a properly licensed facility in accordance with federal and state regulations and requirements.

Consistent with the proposed project, the Bayshore Switching Station Alternative would also comply with APM HM-1, APM HM-2, APM WQ-1, and APM WQ-4 to reduce potential impacts associated with hazards to the public or environment during routine use and transport of hazardous materials during construction activities, resulting in less-than-significant impacts (Class III).

Impact HAZ-2: Construction of the Bayshore Switching Station Alternative would require limited use of hazardous materials such as fuels, lubricants, and solvents. Storage and use of hazardous materials during construction could result in the accidental release of small quantities of hazardous materials, typically associated with minor spills or leaks, which could degrade soil, groundwater or surface water quality nearby. Operation activities would require use of substances such as lubricating and cooling oils, as well as substances associated with motor vehicles that would be used for inspection of the new facilities.

Consistent with the proposed project, the Bayshore Switching Station Alternative would also comply with APM HM-1, APM HM-2, APM WQ-1, and APM WQ-4 to reduce potential impacts associated with accidental release of hazardous materials to the environment during construction and operation activities. Any impacts associated with accidental release of hazardous materials would be less than significant with implementation of these APMs (Class III).

Impact HAZ-3: Two schools would be located within 0.25 miles of the Bayshore Switching Station Alternative. No acutely hazardous materials, substances, or waste listed in Section 25532 of the California Health and Safety Code or 40 CFR Part 355 would be used or generated by the proposed project. Given the temporary and short-term nature of construction in any one area and the relatively small quantity of hazardous materials to be used, impacts on schools from potential hazardous substance emissions would be less than significant, further reduced with implementation of APM HM-1 and APM HM-2 (Class III).

Impact HAZ-4: No hazardous materials sites are have been identified within the alternative switching station site or the alternative transmission line segments, but several hazardous materials sites (former Brisbane Landfill, OU-1, and OU-2) and two LUSTs have been identified near the alternative project site. Due to the close proximity of known hazardous materials, contaminated soils and groundwater may still be encountered within the alternative project site. Encountering previously unknown soil contamination, shallow groundwater contamination, USTs, and other infrastructure in excavations could result in exposure of construction personnel and the public to hazardous substances and petroleum waste; potential exposure of contaminated soil to precipitation, resulting in contaminated runoff; potential runoff of contaminated groundwater to the storm drain system during dewatering; and potential rupture and leakage of previously unknown USTs. Impacts are considered potentially significant.

APM HM-1 and APM HM-3 would be implemented to verify presence or absence of soil/groundwater contamination and minimize potential impacts associated with disturbance of contaminated soil, contaminated groundwater, and USTs. Although the Bayshore Switching Station is not within an area subject to the Maher Ordinance, soil testing and mitigation pursuant to the Maher Ordinance would be required for project components within 500 feet of a LUST, through implementation of MM HM-1. Through implementation of MM HM-1 and applicable APMs, impacts from encountering known and unknown hazardous substances or underground hazardous features during construction of the Bayshore Switching Station would be less than significant with mitigation (Class II).

Impact HAZ-5: The Bayshore Switching Station Alternative would not be located within 2 miles of a public airport. The alternative switching station site and the alternative transmission line segments within San Mateo County are within Airport Influence Area A of the airport land use compatibility plan for the San Francisco International Airport (C/CAG 2012). No special land use or noise restrictions are in effect within Area A. The alternative switching station would not require FAA notification because, assuming the alternative switching station would be the same height as the proposed Egbert Switching Station, it would be well under the 200-foot threshold. Therefore, the Bayshore Switching Station Alternative would not result in a safety hazard or excessive noise for people residing or working within the alternative switching station or transmission line segments (No Impact).

Impact HAZ-6: Work would be required within existing roadways during construction of the Bayshore Switching Station Alternative. In places where project construction may require a temporary road closure, construction activities would be coordinated with the local jurisdiction so as not to cause closure of any emergency access route (see APM TR-1 in Section D.13, Transportation). Because streets would remain open to emergency vehicles at all times, construction of the proposed project would not impact emergency access and would minimally and temporarily impact emergency evacuation. Likewise, operation and maintenance of the proposed project would not impact

emergency access because regular inspections would occur within roadway or pavement shoulder and would not require road closures. The Bayshore Switching Station Alternative would not impair the implementation of or physically interfere with an adopted emergency response or emergency evacuation plan; therefore, no impacts would occur during project operation and construction impacts would be less than significant (Class III).

Impact HAZ-7: The alternative switching station and transmission line segments would be located within urbanized areas within San Mateo County that are not designated as Moderate or High FHSZs. The nearest High FHSZ is located approximately 0.5 miles west of the alternative Bayshore-Embarcadero transmission line, within the San Bruno Mountain State Park, west of Carter Street. Therefore, the Bayshore Switching Station Alternative would not expose people or structures to risk of wildland fires (No Impact).

Comparison to the Proposed Project

The Bayshore Switching Station Alternative would result in similar impacts to known hazardous materials sites compared to the proposed project (Impact HM-4). The Bayshore Switching Station would not directly impact any known hazardous materials sites; however, due to proximity to potential and known hazardous materials sites and LUSTs, contaminated soils and groundwater could be encountered during construction activities within the alternative project site. Potentially significant impacts could be avoided, reduced, or remedied through implementation of MM HM-1 and APM HM-1 and APM HM-3. The Bayshore Switching Station Alternative would have similar impacts associated with routine transport, use, and disposal of hazardous materials (Impact HAZ-1) and accidental release of hazardous materials (Impact HAZ-2) as the proposed project, with implementation of APM HM-1, APM HM-2, APM WQ-1, and APM WQ-4. The Bayshore Switching Station would have similar impacts associated with hazardous substance emissions on nearby schools compared to the proposed project (Impact HAZ-3), with implementation of APM HM-1. Consistent with the proposed project, the Bayshore Switching Station Alternative would not result in safety hazards for people residing or working in close proximity to an airport (Impact HAZ-5). Consistent with the proposed project, implementation of APM TR-1 would ensure the Bayshore Switching Station Alternative would not conflict within emergency response or an adopted emergency evacuation plan (Impact HAZ-6). The Bayshore Switching Station Alternative would have lower impacts associated with wildfire risk than the proposed project, because there are no FHSZs within or adjacent to the alternative site (Impact HAZ-7).

D.9.4.2 Geneva Switching Station Alternative

Environmental Setting

The Geneva Switching Station Alternative would be developed in a disturbed area, primarily surrounded by commercial and residential land uses. A regulatory database review indicated that five closed LUST cleanup sites are located adjacent to the proposed routes and switching station (SWRCB 2019). DTSC has records of two hazardous materials sites within the existing Martin Substation that are certified with operation and maintenance of remedial actions and two voluntary cleanup sites along Geneva Avenue (DTSC 2019). The PG&E Martin Service Center is a 49-acre EnviroStor State Response site located to the west and south of the Martin Substation, and Bayshore Park is a Certified State Response site, directly adjacent to the Martin Substation on Midway Drive.

The Geneva Switching Station Alternative would be located adjacent to Bayshore School at 155 Oriente Street in the City of Daly City. Our Lady of the Visitacion School is located approximately 0.25 miles north of Geneva Avenue at 785 Sunnydale Avenue in the City and County of San Francisco.

The Geneva Switching Station Alternative would be developed primarily within San Mateo County, within Airport Influence Area A of the airport land use compatibility plan for the San Francisco International Airport. Area A includes the entire County of San Mateo, all of which is overflown by aircraft flying to and from SFO at least once per week at altitudes of 10,000 feet or less above mean sea level (C/CAG 2012). The small portion of the alternative Geneva-Embarcadero and Jefferson-Geneva transmission lines within the County of San Francisco is not within an airport influence area.

Approximately 0.1 miles of the alternative Jefferson-Geneva transmission line along Carter Street is located adjacent to the San Bruno Mountain State Park, which is a SRA, designated as High FHSZ (CAL FIRE 2008b).

Environmental Impacts and Avoidance/Mitigation Measures

Impact HAZ-1: Construction of the Geneva Switching Station Alternative would involve the use of hazardous materials similar to the proposed project. When not in use, any hazardous material would be stored in designated construction staging areas in compliance with federal, state, and local requirements. Maintenance, fueling, and servicing of construction vehicles would occur off site, such as at a pre-existing gas station or service center. After construction, all hazardous materials and waste would be removed from the site for reuse, recycling, or disposal at a properly licensed facility in accordance with federal and state regulations and requirements.

Consistent with the proposed project, the Geneva Switching Station Alternative would comply with APM HM-1, APM HM-2, APM WQ-1, and APM WQ-4 to reduce potential impacts associated with hazards to the public or environment during routine use and transport of hazardous materials during construction activities, resulting in less-than-significant impacts (Class III).

Impact HAZ-2: Construction of the Geneva Switching Station Alternative would require limited use of hazardous materials such as fuels, lubricants, and solvents. Storage and use of hazardous materials during construction could result in the accidental release of small quantities of hazardous materials, typically associated with minor spills or leaks, which could degrade soil, groundwater, or surface water quality nearby. Operation activities would require use of substances such as lubricating and cooling oils, as well as substances associated with motor vehicles that would be used for inspection of the new facilities.

Consistent with the proposed project, the Geneva Switching Station Alternative would comply with APM HM-1, APM HM-2, APM WQ-1, and APM WQ-4 to reduce potential impacts associated with accidental release of hazardous materials to the environment during construction and operation activities. Any impacts associated with accidental release of hazardous materials would be less than significant with implementation of these APMs (Class III).

Impact HAZ-3: Two schools are located within 0.25 miles of the Geneva Switching Station Alternative. No acutely hazardous materials, substances, or waste listed in Section 25532 of the California Health and Safety Code or 40 CFR Part 355 would be used or generated by the proposed project. Given the temporary and short-term nature of construction in any one area and the relatively small quantity of hazardous materials to be used, impacts on schools from potential hazardous substance emissions would be less than significant, further reduced with implementation of APM HM-1 and APM HM-2 (Class III).

Impact HAZ-4: No hazardous materials sites are located within the alternative switching station site or the alternative transmission line segments. As described in the environmental setting, a regulatory database review identified five closed LUST cleanup sites, two active hazardous materials sites, and two voluntary cleanup sites adjacent to the alternative switching station site and transmission line segments. Due to close proximity of known hazardous waste cleanup site near the east end of the alternative project site, contaminated soils and groundwater may still be encountered. APM HM-1 and APM HM-3 would be implemented to verify presence or absence of soil/groundwater contamination and minimize potential impacts associated with disturbance of contaminated soil, contaminated groundwater, and USTs. Therefore, with implementation of applicable APMs, the Geneva Switching Station would result in less-than-significant impacts to known hazardous materials sites (Class III).

Impact HAZ-5: The Geneva Switching Station Alternative would not be located within 2 miles of a public airport. The alternative switching station site and the alternative transmission line segments within San Mateo County are within Airport Influence Area A of the airport land use compatibility plan for the San Francisco International Airport (C/CAG 2012). No special land use or noise restrictions are in effect within Area A. The small portion of the alternative transmission line segments within the City and County of San Francisco are not within an airport influence area. The alternative switching station would not require FAA notification, because assuming the alternative switching station would be the same height as the proposed Egbert Switching Station, it would be well under the 200-foot threshold. Therefore, the Geneva Switching Station Alternative would not result in a safety hazard or excessive noise for people residing or working within the alternative switching station or transmission line segments (No Impact).

Impact HAZ-6: Work would be required within existing roadways during construction of the Geneva Switching Station Alternative. In places where project construction may require a temporary road closure, construction activities would be coordinated with the local jurisdiction so as not to cause closure of any emergency access route (see APM TR-1 in Section D.13). Because streets would remain open to emergency vehicles at all times, construction of the proposed project would not impact emergency access and would minimally and temporarily impact emergency evacuation. Likewise, operation and maintenance of the proposed project would not impact emergency access, because regular inspections would occur within roadway or pavement shoulder and would not require road closures. The Geneva Switching Station Alternative would not impair the implementation of or physically interfere with an adopted emergency response or emergency evacuation plan; therefore, no impacts would occur during project operation, and construction impacts would be less than significant (Class III).

Impact HAZ-7: Approximately 0.1 miles of the alternative Jefferson-Geneva transmission line along Carter Street is located adjacent to the San Bruno Mountain State Park, which is a SRA, designated as High FHSZ. Consistent with the proposed project, construction activities adjacent to open space, vegetated areas of the park could provide fuel to spark a wildfire, but implementation of MM WF-1 (see Section D.15) would minimize the potential for ignition within the adjacent High FHSZ, and impacts contributing to increased risk of wildfire would be less than significant (Class II).

Comparison to the Proposed Project

The Geneva Switching Station Alternative would not impact any known hazardous materials sites (Impact HAZ-4); therefore, potential impacts associated with disturbance of hazardous materials sites would be less than the proposed project. The Geneva Switching Station Alternative would have similar impacts associated with routine transport, use, and disposal of hazardous materials (Impact HAZ-1) and accidental release of hazardous materials (HAZ-2) as

the proposed project, with implementation of APM HM-1, APM HM-2, APM WQ-1, and APM WQ-4. The Geneva Switching Station and proposed project would have less-than-significant impacts associated with hazardous substance emission on nearby schools (Impact HAZ-3), with implementation of APM HM-1. Consistent with the proposed project, the Geneva Switching Station Alternative would not result in safety hazards for people residing or working in close proximity to an airport (Impact HAZ-5). Consistent with the proposed project, implementation of APM TR-1 would ensure the Geneva Switching Station Alternative would not conflict with emergency response or an adopted emergency evacuation plan. The Geneva Switching Station Alternative would have similar impacts associated with wildfire risk as compared to the proposed project. Overall, the Geneva Substation Alternative would result in less impacts than the proposed project associated with hazards and hazardous materials, because the likelihood for impacts contaminated soils would be less.

D.9.4.3 Sunnydale HOPE SF Avoidance Line Alternative Option A

Environmental Setting

The Sunnydale HOPE SF Avoidance Line Alternative Option A (Sunnydale Option A Alternative) would be developed in a disturbed area, primarily surrounded by residential land uses. A regulatory database review determined that there are no hazardous materials sites or LUST cleanup sites near the Sunnydale Option A Alternative. The Sunnydale Option A Alternative is limited to the alternative line segment. Existing conditions and environmental impacts would remain unchanged for the Egbert Switching Station, Martin-Egbert transmission line, Ebert-Embarcadero transmission line, Martin Substation, and the remainder of the Jefferson-Egbert transmission line.

The Sunnydale Option A Alternative would be located approximately 0.17 miles northwest of Bayshore Elementary School. No other schools are within 0.25 miles of the Sunnydale Option A Alternative.

The Sunnydale Option A Alternative would be developed primarily within San Francisco County, which is not within an airport influence area. Approximately 0.2 miles of the Sunnydale Option A Alternative line segment would be within San Mateo County, within Airport Influence Area A of the airport land use compatibility plan for the San Francisco International Airport. Area A includes the entire County of San Mateo, all of which is overflown by aircraft flying to and from SFO at least once per week at altitudes of 10,000 feet or less above mean sea level (C/CAG 2012).

The Sunnydale Option A Alternative would not be located within a designated FHSZ.

Environmental Impacts and Avoidance Measures

Impact HAZ-1: Construction of the Sunnydale Option A Alternative would involve limited use of hazardous materials, consistent with the proposed project. The Sunnydale Option A Alternative would comply with APM HM-1, APM HM-2, APM WQ-1, and APM WQ-4 to reduce potential impacts associated with hazards to the public or environment during routine use and transport of hazardous materials during construction activities, resulting in less-than-significant impacts (Class III).

Impact HAZ-2: Construction of the Sunnydale Option A Alternative would require limited use of hazardous materials such as fuels, lubricants, and solvents. Storage and use of hazardous materials during construction could result in the accidental release of small quantities of hazardous materials, typically associated with minor spills or leaks, which could degrade soil, groundwater, or surface water quality nearby. Operation activities would require use of substances such as lubricating and cooling oils, as well as substances associated with motor vehicles that would be used for inspection of the new facilities.

Consistent with the proposed project, the Sunnydale Option A Alternative would also comply with APM HM-1, APM HM-2, APM WQ-1, and APM WQ-4 to reduce potential impacts associated with accidental release of hazardous materials to the environment during construction and operation activities. Any impacts associated with accidental release of hazardous materials would be less than significant with implementation of these APMs (Class III).

Impact HAZ-3: One school is located within 0.25 miles of the Sunnydale Option A Alternative. No acutely hazardous materials, substances, or waste listed in Section 25532 of the California Health and Safety Code or 40 CFR Part 355 would be used or generated by the Sunnydale Option A Alternative. Given the temporary and short-term nature of construction in any one area and the relatively small quantity of hazardous materials to be used, impacts on schools from potential hazardous substance emissions would be less than significant, further reduced with implementation of APM HM-1 and APM HM-2 (Class III).

Impact HAZ-4: No hazardous materials sites are located within or adjacent to the Sunnydale Option A Alternative line segment. Construction of the alternative transmission lines would be conducted primarily within existing roadways. Implementation of APM HM-1 through APM HM-3 would minimize potential impacts associated with disturbance of unknown contaminated soil and groundwater, and impacts would be less than significant (Class III).

Impact HAZ-5: The Sunnydale Option A Alternative would not be located within 2 miles of a public airport. The majority of the alternative transmission line would be located within the City and County of San Francisco, outside of any airport influence areas. Approximately 0.2 miles of the alternative transmission line segment would be located within San Mateo County, within

Airport Influence Area A of the airport land use compatibility plan for the San Francisco International Airport (C/CAG 2012). No special land use or noise restrictions are in effect within Area A. The Sunnydale Option A Alternative would not require FAA notification, because all improvements are proposed below the surface. Therefore, the Sunnydale Option A Alternative would not result in a safety hazard or excessive noise for people residing or working within the alternative switching station or transmission line segments (No Impact).

Impact HAZ-6: Work would be required within existing roadways during construction of the Sunnydale Option A Alternative. In places where project construction may require a temporary road closure, construction activities would be coordinated with the local jurisdiction so as not to cause closure of any emergency access route (see APM TR-1 in Section D.13). Because streets would remain open to emergency vehicles at all times, construction of the proposed project would not impact emergency access and would minimally and temporarily impact emergency evacuation. The Sunnydale Option A Alternative would not impair the implementation of or physically interfere with an adopted emergency response or emergency evacuation plan; therefore, impacts would be less than significant (Class III).

Impact HAZ-7: The Sunnydale Option A Alternative would be located within an urbanized area within the Counties of San Francisco and San Mateo. No portion of the Sunnydale Option A Alternative is within or adjacent to an area designated as FHSZs. The nearest High FHSZ is located approximately 0.6 miles southwest of the alternative transmission line segment, within the San Bruno Mountain State Park, west of Carter Street. Therefore, the Sunnydale Option A Alternative would not expose people or structures to risk of wildland fires (No Impact).

Comparison to the Proposed Project

No known hazardous materials sites are located within the Sunnydale Option A Alternative or the segment of the Jefferson-Egbert transmission line, proposed as an alternative to bypass the proposed Sunnydale HOPE SF project area. There are no schools, airports, or FHSZs near either segment. Therefore, with implementation of APMs, the Sunnydale Option A Alternative would result in similar impacts associated with hazardous materials as the segment of the proposed Jefferson-Egbert transmission line that it would bypass; therefore, impacts would be similar to the proposed project.

D.9.4.4 No Project Alternative

Under the No Project Alternative, none of the facilities associated with the proposed project or alternatives would be constructed, and therefore, none of the impacts described in this section would occur.

D.9.5 Mitigation Monitoring, Compliance, and Reporting

Table D.9-5 shows the mitigation monitoring, compliance, and reporting program for hazards and hazardous materials The CPUC is responsible for ensuring compliance with provisions of the monitoring program. The APMs that PG&E has incorporated as part of the proposed project, as well as the mitigation measure developed as part of this EIR analysis, are listed in the following table.

Table D.9-5
Mitigation Monitoring, Compliance, and Reporting Program for Hazards and Hazardous Materials

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
Impact HAZ-1 Significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials Impact HAZ-2 Reasonably foreseeable upset and accident conditions involving the release of hazardous or other materials into the environment Impact HAZ-3 Handling of acutely hazardous materials and/or hazardous emissions within 1/4 mile of a school	—	APM HM-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 and, as appropriate, during the operation and maintenance phase. 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 (see APM WQ-1). A site-specific Spill Prevention Control and Countermeasure (SPCC) Plan and a Hazardous Materials Business Plan will be developed for the proposed Egbert Switching Station facility prior to the construction date (see APM WQ-4). **Worker environmental awareness program hazards and hazardous material module.** A worker environmental awareness program will be developed prior to construction. The worker environmental awareness program will communicate environmental issues and appropriate work practices specific to this project to all field personnel. These will include spill prevention and response measures and proper BMPs implementation. The program will emphasize site-specific physical conditions to improve hazard prevention, and will include a review of applicable portions of PG&E's health and safety plan. A copy of the worker environmental awareness program record will be provided to CPUC for recordkeeping. If it is necessary	Plans and procedures to be submitted to CPUC. PG&E to conduct training program as described and incorporate measure into construction contracts. PG&E will request approval from the cities of San Francisco, Brisbane or Daly City prior to release of groundwater into their sanitary or storm drain infrastructure.	PG&E to prepare plans and procedures and submit to CPUC to verify. PG&E to submit evidence of training in order for CPUC to verify. If necessary, PG&E must provide hazardous materials disposal documentation for CPUC to verify.	Procedures will be developed prior to construction. Procedures and plans will be implemented during construction activities.

Table D.9-5
Mitigation Monitoring, Compliance, and Reporting Program for Hazards and Hazardous Materials

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
			to store chemicals, they will be managed in accordance with all applicable regulations. Safety data sheets will be maintained and kept available on site, as applicable. **Potentially contaminated soil.** Soil that is suspected of being contaminated (based on existing analytical data or visual, olfactory, or other evidence) and is removed during trenching or excavation activities will be segregated and tested; if the soil is contaminated above hazardous levels, it will be contained and disposed of off site at a licensed waste facility. The presence of known or suspected contaminated soil will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations. If suspected hazardous substances are unexpectedly encountered during trenching or other construction activities (using indicators such as sheen, odor, and/or soil discoloration), work will be stopped until the material is properly characterized and appropriate measures are taken to protect human health and the environment. Appropriate personal protective equipment will be used, and waste management will be performed in accordance with applicable regulations. If excavation of hazardous materials is required, the materials will be disposed of in accordance with applicable regulations. **Groundwater.** If necessary, groundwater will be collected during construction, contained, and disposed of in accordance with all applicable regulations. Non-contaminated groundwater will be released to one of the			

Table D.9-5
Mitigation Monitoring, Compliance, and Reporting Program for Hazards and Hazardous Materials

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
			City and County of San Francisco's combined sanitary and stormwater drainage systems (with prior approval) or will be contained, tested, and disposed of in accordance with applicable regulations. **Underground storage tanks.** If underground or aboveground storage tanks are found to be located along the project route and the route cannot be adjusted to avoid disturbance, the tanks will be removed prior to installation of new facilities at the tank location. If it is determined that removal and disposal of tanks is necessary, a separate work plan describing the proper decommissioning and removal of the tanks and removal of any associated impacted soil will be prepared prior to removal. **Hazardous materials and hazardous wastes.** All hazardous materials and hazardous wastes will be handled, stored, and disposed of in accordance with all applicable regulations by personnel qualified to handle hazardous materials. Practices during construction will include, but will not be limited to, the following: • Proper disposal of potentially hazardous materials • Site-specific buffers for construction vehicles and equipment located near sensitive resources/receptors • Emergency response and reporting procedures to address any potential hazardous material spills as described in Section D.10, Hydrology and Water Quality. Applicable portions of PG&E plans for Martin Substation (e.g., Risk Management Plan or Site Management Plan) and testing for potential			

Table D.9-5
Mitigation Monitoring, Compliance, and Reporting Program for Hazards and Hazardous Materials

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
			hazardous materials in soil as required under the Maher Ordinance will also be adhered to. For the operation and maintenance phase of the project, existing operational hazardous substance control and emergency response plans will be updated as appropriate to incorporate necessary modifications resulting from this project.			
Impact HAZ-1 Significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials Impact HAZ-2 Reasonably foreseeable upset and accident conditions involving the release of hazardous or other materials into the environment Impact HAZ-3 Handling of acutely hazardous materials and/or hazardous emissions within 1/4 mile of a school	—	APM HM-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 escapes during pouring, it will be directed to adjacent lined and bermed areas, where the concrete will dry, and then be transported for disposal per applicable regulations.	SDG&E to provide supplies and equipment in construction and staging areas.	CPUC to monitor occasionally to ensure supplies and equipment stocked and accessible.	During construction activities.

Table D.9-5
Mitigation Monitoring, Compliance, and Reporting Program for Hazards and Hazardous Materials

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
Impact HAZ-4 Being located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, creating a significant hazard to the public or the environment	—	APM HM-3	**Soil, Groundwater, Underground Tank, and Wastewater Characterization.** In areas where existing data are not available, soil and groundwater sampling will be conducted in project areas prior to or upon commencement of construction. Appropriate handling, transportation, and disposal locations will be determined based on results of the analyses performed on soil and groundwater. In addition, results will be provided to contractor and construction crews to inform them about soil and groundwater conditions and potential hazards. The location, distribution, and/or frequency of the sampling locations will be determined during final design with the intent to provide adequate representation of the conditions in the construction area. Sampling will likely be more intensive in areas along the project alignment (1) where potential residual contamination associated with the four former LUST and two EnviroStor cleanup sites may exist, (2) near the transformer oil spill in the vicinity of 607 Carter Street, San Francisco, (3) near the locations of six historic auto service stations and two historic dry cleaners, and (4) subject to the Maher Ordinance (see [PEA] Section 3.8.3 [Section D.9.2 of this EIR]). The sampling program in areas subject to the Maher Ordinance must be reviewed and approved by the SFDPH prior to construction.	PG&E to perform sampling and provide results to the contractor and CPUC. PG&E must submit sampling in areas subject to Maher Ordinance to SFDPH for review and approval.	PG&E provide sampling results to contractor and CPUC; submit sampling in areas subject to Maher ordinance to SFDPH for review and approval.	Prior to or upon commencement of construction.
Impact HAZ-4 Improvements proposed on a site which is included on a list of hazardous	MM HM-1	—	Prior to commencing work on the Egbert Switching Station as well as all project components within 500 feet of a leaking underground storage tank (LUST), State Response site, voluntary cleanup site, historical gas station/filling station/service station, historical dry cleaner or laundry facilities, or historical auto service	PG&E to prepare a subsurface investigation report, and if necessary, an SMP.	PG&E to submit subsurface investigation report to qualified person approved by CPUC for review; CPUC to	Reports to be submitted prior to construction. If applicable, SMP to be implemented during construction.

Table D.9-5
Mitigation Monitoring, Compliance, and Reporting Program for Hazards and Hazardous Materials

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
materials sites compiled pursuant to Government Code Section 65962.5, and ground disturbance could create a significant hazard to the public or the environment			station, Pacific Gas & Electric Company (PG&E) shall submit site history documentation for proposed work areas for review. For work within the area designated under the Maher Ordinance, PG&E shall submit site history documentation to the San Francisco Department of Public Health (SFDPH) and the California Public Utilities Commission (CPUC). For areas not subject to the Maher Ordinance, PG&E shall submit site history documentation to the CPUC only. An independent qualified person approved by CPUC shall review all site documentation provided by PG&E and all comments, questions, or clarifications requested shall be addressed prior to report approval by CPUC. For work areas within the limits of the Maher Ordinance, if the site history indicates that hazardous materials may be present in the soil/groundwater, the CPUC and/or SFPDH would require additional documentation, as follows: 1. PG&E shall submit a Work Plan for analysis of sampled soil and/or groundwater. 2. PG&E shall conduct subsurface soil and/or groundwater sampling requested by the CPUC and/or SFDPH and submit a subsurface investigation report (i.e., soil testing), prepared by a qualified person (professional geologist, licensed civil engineer, or engineering geologist), for review and approval. The subsurface investigation report shall document sampling locations, sampling protocol, and laboratory analyses to be conducted on the samples, and shall include testing for the complete list of analytes required by the Maher		approve subsurface investigation report, and if applicable, SMP, prior to construction.	

Table D.9-5
Mitigation Monitoring, Compliance, and Reporting Program for Hazards and Hazardous Materials

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
			Ordinance, and other hazardous substances that the CPUC and/or SFDPH determines may be present, such as known radioactive substances near the Hunter's Point Shipyard. 3. If the subsurface investigation report indicates exceedances of the Department of Toxic Substances Control's or Regional Water Quality Control Board's health risk levels or other applicable standards, PG&E shall have a qualified person prepare a site mitigation plan (SMP) prior to authorization to commence construction. The SMP must describe procedures, methods, and devices to protect site worker's and adjacent sensitive receptor's health safety from contaminated soil, groundwater, and soil vapor, if present. The SMP shall include figures and drawings showing areas where soil testing indicates exposure levels may be exceeded, environmental contingency procedures, post-excavation confirmation sampling, appropriate handling and disposal of contaminated soil, and a commitment to prepare and certify a final project report. The SMP shall also reference and briefly describe construction-related documents (dust, stormwater, odor, and noise control plans). The SMP shall be reviewed and approved by the CPUC and/or SFDPH prior to construction work within applicable project work areas. The SMP would be focused on protecting site workers and adjacent sensitive receptors from any health and safety threats stemming from excavation and handling			

Table D.9-5
Mitigation Monitoring, Compliance, and Reporting Program for Hazards and Hazardous Materials

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
			of potentially contaminated soil and/or groundwater. CPUC may waive soils testing, on a case-by-case basis, for work sites in which PG&E can demonstrate in writing that (a) there would be no soil excavation associated with the work (e.g., staging areas), or (b) the site history indicates that there is no information that hazardous substances may be present in the soil or groundwater at concentrations exceeding either the Department of Toxic Substances Control's or the Regional Water Quality Control Board's health risk levels.			

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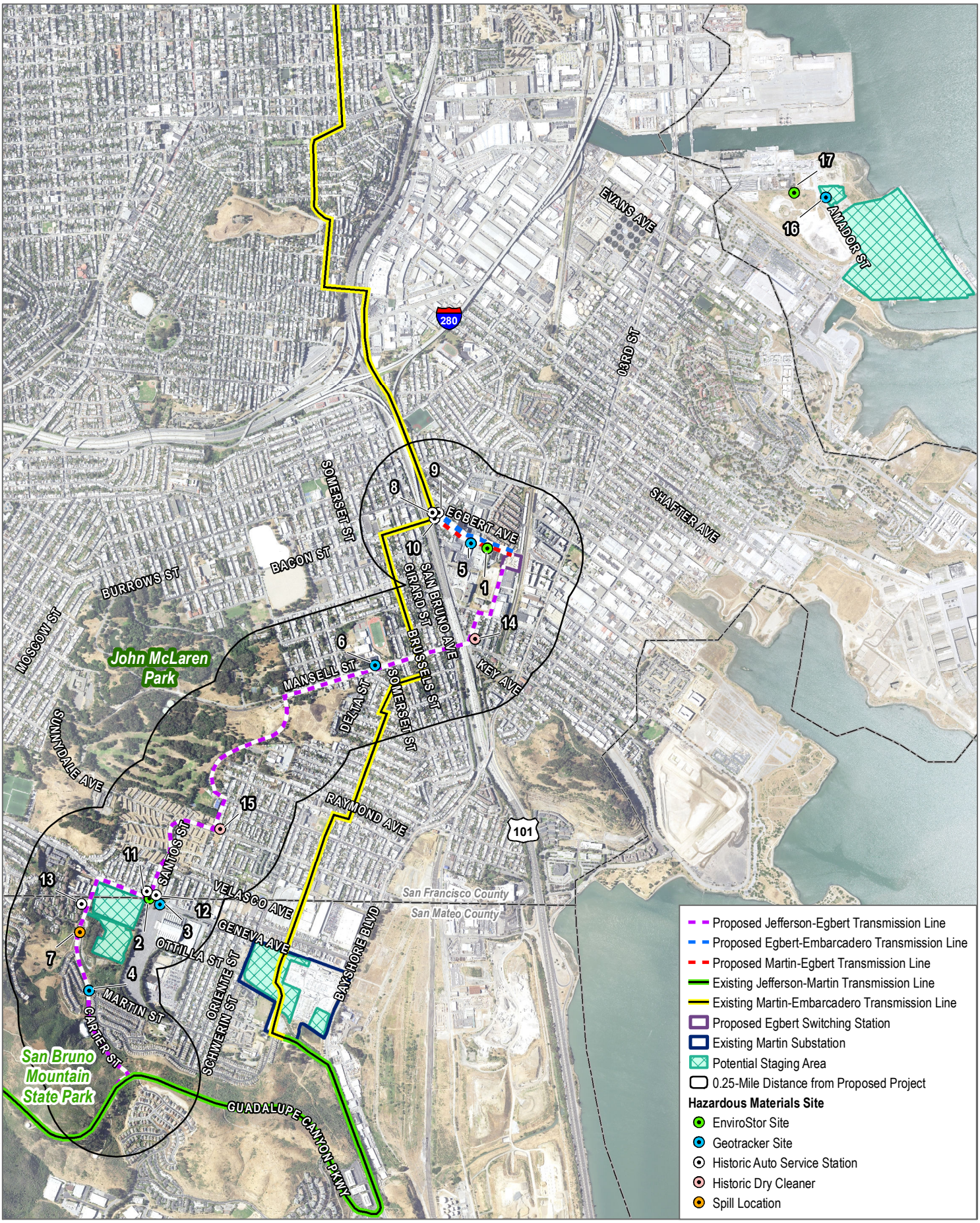
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SOURCE: USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

DUDEK

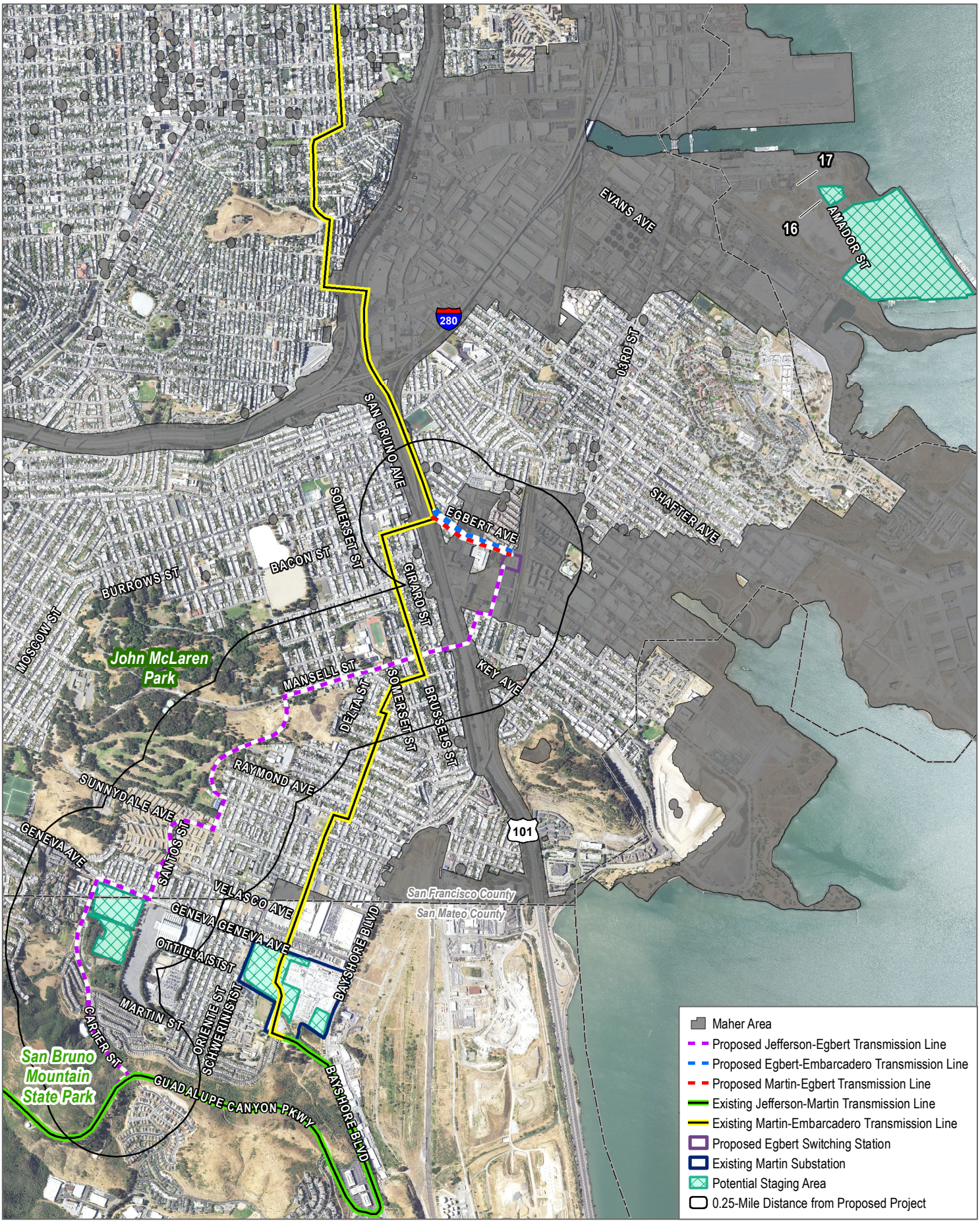
0 1,500 3,000 Feet

FIGURE D.9-1

Potential Hazardous Material Sites

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: San Francisco County 2019; San Mateo County 2018

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0 1,500 3,000 Feet

FIGURE D.9-2

Maher Area Map

Egbert Switching Station (Martin Substation Extension) Project

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D.10 HYDROLOGY AND WATER QUALITY

This section evaluates the potential for the Egbert Switching Station (Martin Substation Extension) Project (proposed project) to impact hydrology and water quality in the project site. Section D.10.1 provides a summary of the existing hydrology and water quality conditions present in the vicinity of the proposed project, while Section D.10.2 lists applicable regulations, plans, and standards. Section D.10.3 presents potential impacts and mitigation measures for the proposed project, while alternatives are described and discussed in Section D.10.4. Section D.10.5 discusses mitigation monitoring, compliance, and reporting, and Section D.10.6 lists the references cited in this section. Cumulative effects associated with hydrology and water quality are analyzed in Section F.5.2.9 of this Environmental Impact Report.

D.10.1 Environmental Setting for the Proposed Project

The proposed project is located within the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (RWQCB), which administers a water quality control plan and other water quality programs for the San Francisco Bay Hydrologic Basin. The San Francisco Bay region covers approximately 4,603 square miles and includes all or large portions of the Counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma (SFB RWQCB 2017). The majority of freshwater entering the San Francisco Bay is from the Sacramento and San Joaquin Rivers, which flow through the Sacramento–San Joaquin River Delta at the eastern end of Suisun Bay to enter the San Francisco Bay. In addition, several small rivers and streams contribute freshwater to the San Francisco Bay. Over 90% of annual runoff within the San Francisco Bay region occurs within the winter rainy season between October and April (SFB RWQCB 2017).

The project site lies within the City of Brisbane, City of Daly City, and City and County of San Francisco, within U.S. Geological Survey Hydrologic Unit Code 18050004 (USGS 2018). The proposed Egbert Switching Station, Egbert-Embarcadero and Martin-Egbert transmission lines, and northern portion of the proposed Jefferson-Egbert transmission line (i.e., along Mansell Street and north to the proposed switching station) are located in the Yosemite Creek watershed (Figure D.10-1, Watersheds on the Project Site) (PG&E 2017). This watershed drains toward the historically tidal marshes of Yosemite Creek, which in turn drains into the South Basin of the Lower San Francisco Bay. The proposed Amador Street staging area is located within the northeastern portion of the Islais Creek watershed (PG&E 2017). The central portions of the proposed Jefferson-Egbert transmission line (i.e., south of Mansell Street and north of Carter Street at Saddleback Drive) and the potential Cow Palace staging area are located in the northern part of the Visitacion Valley watershed, which is pumped northward into the City and County of San Francisco's combined sanitary/stormwater sewers (PG&E 2017). Most of the southernmost portion of the proposed Jefferson-Egbert transmission line (i.e., south of Carter Street at

Saddleback Drive to nearly Guadalupe Canyon Parkway) and the potential Carter Street and Martin Substation staging areas are located in the southern part of the Visitacion Valley watershed, which drains by gravity to the San Francisco Bay through the City of Brisbane (PG&E 2017). Furthermore, the portion of the proposed Jefferson-Egbert transmission line along the southernmost 150 feet of Carter Street and along Guadalupe Canyon Parkway is located in the Guadalupe Valley watershed, which drains toward the historically tidal marshes of Guadalupe Valley Creek and into the San Francisco Bay (PG&E 2017; Oakland Museum n.d.).

The City and County of San Francisco are served by a combined storm drainage system that transports sewage and stormwater in the same pipes for treatment at the City and County of San Francisco's wastewater treatment plants. Due to the highly urbanized nature of the City and County of San Francisco, large volumes of stormwater runoff can generate rapidly during rainstorms. In addition, small areas of the City and County of San Francisco are served by separate storm sewers. Stormwater within the Cities of Daly City and Brisbane flows into the San Francisco Bay through municipal stormwater drainage systems.

Site Topography and Drainage

The proposed Jefferson-Egbert transmission line would traverse land that is alternately hilly and flat. The southern end would begin on Guadalupe Canyon Parkway, which is along the Guadalupe Hills area of San Bruno Mountain. The transmission line would descend toward McLaren Park before rising to a high point along Mansell Street. Moving eastward, the transmission line would descend to the switching station. Project elevations vary between approximately 30 and 400 feet above sea level (Appendix D.7-1, Geologic Hazard and Feasibility Evaluation).

The project site is located primarily within paved or disturbed areas that are surrounded by urban development. Project site elevations vary between approximately 30 and 400 feet above sea level (Appendix D.7-1). A storm drain is located on the Egbert Switching Station site near the site's entrance off Egbert Avenue. The existing Martin Substation and the proposed transmission line routes are mostly covered by impervious surfaces, whereas most of the proposed Egbert Switching Station site is currently unpaved.

The surface topography and associated surface drainage of the northern project site (i.e., generally north of Mansell Street and east of Goettingen Street) slopes from south to north and from west to east. The surface topography of the central project site (i.e., generally south of Mansell Street, west of Goettingen Street, and north of Sunnydale Avenue) slopes from north to south and from west to east. The surface topography of the southern project site (i.e., generally south of Sunnydale Avenue) slopes from south to north and from west to east. The site of the proposed Egbert Switching Station slopes gently from an elevation of approximately 35 feet above mean sea level along the southern boundary to 30 feet at the northern boundary.

Climate

The project site has a semi-arid Mediterranean climate characterized by dry, mild summers and moderately moist, cool winters. Most precipitation falls as rain in the winter and spring, with an average annual precipitation of 17.5 inches. Surface water flows in the region are highly seasonal, with more than 90% of the annual runoff occurring during the winter rainy season, between October and April. Many streams are dry during the middle or late summer (SFB RWQCB 2017).

Surface Water

Regional development has increased the amount of impervious surface and the rates of runoff. Local creeks in the urbanized project site (e.g., Yosemite Creek) have been highly channelized, and runoff into these channels is managed above- and belowground as part of the stormwater and sewer water conveyance systems. The nearest surface water bodies to the proposed project are McNab Lake (located in John McLaren Park, about 1,300 feet northwest of the proposed Jefferson-Egbert transmission line at Visitacion Avenue and Mansell Street) and John McLaren Park's Upper Reservoir (located about 2,500 feet northwest of the proposed Jefferson-Egbert transmission line at Raymond Avenue). Yosemite Slough is located about 2,900 feet east of the proposed Egbert Switching Station (Figure D.10-1).

Groundwater

The project site is located over three groundwater basins within the San Francisco Bay Hydrologic Region (DWR 2004a–c). The proposed Egbert-Embarcadero and Martin-Egbert transmission lines, proposed Egbert Switching Station, and northern portion of the proposed Jefferson-Egbert transmission line (i.e., from approximately Mansell Street north) are located in the South San Francisco Groundwater Basin (Figure D.10-2, Groundwater Basins on the Project Site). The South San Francisco Groundwater Basin is separated from the Islais Valley Groundwater Basin to the north and west and is separated from the Visitacion Valley Groundwater Basin to the south by bedrock topographic highs. The only project component in the Islais Valley Groundwater Basin is a potential staging area, and the southern end of the proposed Jefferson-Egbert transmission line (i.e., from approximately Mansell Street north) and potential staging areas are located in the Visitacion Valley Groundwater Basin (Figure D.10-2). The San Francisco Bay forms the basin boundaries along the entire eastern extents. Geologically, a groundwater basin can be broadly classified as unconsolidated and/or poorly-consolidated sediment bounded laterally and with depth by bedrock. The primary water-bearing strata are unconsolidated sediments, including dune sand, the Colma Formation, bay mud and clay, and artificial fill (DWR 2004a–c).

Shallow groundwater is present on the project site. Groundwater was encountered during the Limited Phase II Site Investigation (Appendix D.9-2) of the Egbert Switching Station site,

ranging from 9.5 to 12.5 feet below ground surface. Groundwater depths reported in the Environmental Data Resources Inc. Well Search Report (EDR 2017) for three U.S. Geological Survey wells within 0.25 miles of the project alignment ranged from 3.7 to 54 feet below ground surface from 1988 to 1993. The California Statewide Groundwater Elevation Monitoring Online System maintains groundwater depth data for one well that had water levels ranging from 0.3 to 3.4 feet below ground surface from 2011 to 2016 on the project site (DWR 2017). Groundwater depths reported for 10 leaking underground storage tank cleanup sites identified on the State Water Resources Control Board (SWRCB) GeoTracker website and located within 0.25 miles of the project alignment ranged from 4 to 37 feet below ground surface (SWRCB 2017).

Groundwater development potential for the South San Francisco, Visitacion Valley, and Islais Valley Groundwater Basins appears low, and no current municipal or domestic use exists or are planned (SFB RWQCB 1996). Potential future use of groundwater is limited to non-potable uses because of the historic industrial development, high salinity, and density of contaminated sites. The project site has been affected by historical industrial and commercial uses, and past contamination in soil and groundwater has been documented at several locations along the project route (Section D.9, Hazards and Hazardous Materials). Under the Sustainable Groundwater Management Act, California's groundwater basins have been ranked to identify medium and high priority basins requiring development of a groundwater sustainability plan; however, the groundwater basins that underlie the project site have been assigned a "very low" priority ranking by the California Department of Water Resources (DWR 2018). These rankings are based on the intensity with which the basin is relied upon for municipal, agricultural, and/or domestic water supply, as well as the degree to which they are experiencing pumping pressures and/or supply limitation.

Flood Hazards

The National Flood Insurance Program, which is managed by the Federal Emergency Management Agency (FEMA), provides flood insurance at affordable rates. To support the National Flood Insurance Program, FEMA publishes Flood Insurance Rate Maps. These maps show Special Flood Hazard Areas, defined as areas subject to inundation during a flood having a 1% chance of occurrence in any given year (also referred to as the base flood or 100-year flood). The preliminary Flood Insurance Rate Maps for the City and County of San Francisco and the Flood Insurance Rate Map for the County of San Mateo indicate that the proposed Egbert Switching Station, Egbert-Embarcadero transmission line, Martin-Egbert transmission line, Jefferson-Egbert transmission line, existing Martin Substation, and most of the potential staging areas are not located within an identified Special Flood Hazard Area or FEMA flood zone (City and County of San Francisco 2015; County of San Mateo 2012). However, two sets of potential staging areas are located within flood zones: (1) some portions of the southern potential Amador Street staging area are in Special Flood Hazard Areas with 1% and 0.2% annual chances of flood hazard, and (2) some portions of the potential

Martin Substation staging areas within the City of Brisbane are in FEMA Flood Zone A (i.e., areas subject to inundation by the 1% annual chance flood event) (City and County of San Francisco 2015; County of San Mateo 2012; FEMA 2017) (Figure D.10-3, Potential Flood Zones, Inundation Areas Due to Reservoir Failure, and Tsunami Areas).

The San Francisco Water Department owns aboveground reservoirs and tanks within the City and County of San Francisco. Dams and reservoirs, which hold large volumes of water, represent a potential hazard attributable to failure caused by ground shaking. Potential inundation areas attributable to reservoir failure have been identified by the San Francisco Water Department (San Francisco Planning Department 2012). Two sections of the project site are located within potential inundation areas: (1) areas east of the University Mound Reservoir (North and South Basins), and (2) areas southeast of the McLaren Park tanks (Figure D.10-3). The McLaren Park tanks were rehabilitated and seismically upgraded in 2008. The University Mound Reservoir North Basin was seismically retrofitted from 2009 to 2011 to ensure its integrity in the event of a major earthquake (Basic Safety Earthquake 2 level). The University Mound Reservoir is under the jurisdiction of the California Department of Water Resources, Division of Safety of Dams, and is not currently subject to any Division of Safety of Dams restrictions. The portion of the project site in the County of San Mateo is not located within any dam or reservoir failure inundation areas (County of San Mateo 2005).

Tsunamis are large waves in the ocean or other large water bodies generated by earthquakes, coastal or submarine landslides, or volcanoes. Most California tsunamis are associated with distant earthquakes, typically in Alaska or South America, not with local earthquakes, and damaging tsunamis are not common on the California coast. Because of the lack of reliable information regarding tsunami run-ups that have occurred in the prehistoric past, there is considerable uncertainty over the potential extent of tsunami run-up that could occur in the Bay Area; research is ongoing. Most of the project site and potential staging areas are not located within a tsunami inundation zone as currently delineated by the California Emergency Management Agency. However, some portions of the potential southern Amador Street staging area are in a tsunami inundation zone (California Emergency Management Agency et al. 2009a, 2009b) (Figure D.10-3).

A seiche is the resonant oscillation of water generated in an enclosed body of water, such as the San Francisco Bay, 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 4 inches high. The Bay Area has not been adversely affected by seiches during its history within this seismically active region of California (ACOE 2000).

D.10.2 Applicable Regulations, Plans, and Standards

Federal Regulation, Plans, and Standards

Clean Water Act

The Clean Water Act (CWA) (33 USC 1251 et seq.), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" (33 USC 1251 et seq.). The CWA requires that states adopt water quality standards to protect public health, enhance the quality of water resources, and ensure implementation of the CWA. Important sections of the act are summarized as follows:

- CWA Sections 303 and 304 provide for water quality standards, criteria, and guidelines. Under Section 303(d) of the CWA, the State of California is required to develop a list of impaired water bodies that do not meet water quality standards and objectives. California is required to establish total maximum daily loads for each pollutant/stressor. A total maximum daily load defines how much of a specific pollutant or stressor a given water body can tolerate and still meet relevant water quality standards.
- CWA Section 401 (Water Quality Certification) requires an applicant for any federal permit that proposes an activity that may result in a discharge to waters of the United States, to obtain certification from the state that the discharge will comply with other provisions of the act. In California, the RWQCBs and SWRCB issue such certifications. The proposed project is under the jurisdiction of the San Francisco Bay RWQCB. If the project requires a U.S. Army Corps of Engineers (ACOE) permit, a Water Quality Certification will be required.
- CWA Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the United States. This permit program is administered by the SWRCB and the nine RWQCBs, which have several programs that implement individual and general permits related to construction activities, stormwater runoff quality, and various kinds of non-stormwater discharges.
- CWA Section 404 establishes a permit program for the discharge of dredged or fill material into waters of the United States. This permit program is jointly administered by the ACOE and the U.S. Environmental Protection Agency. A Section 404 permit is required for the discharge of dredged or fill material into waters of the United States.

Numerous agencies have responsibilities for administration and enforcement of the CWA. At the federal level, this includes the U.S. Environmental Protection Agency, ACOE, Bureau of

Reclamation, and major federal land management agencies such as the U.S. Forest Service and the Bureau of Land Management. At the state level, with the exception of tribal lands, the California Environmental Protection Agency and its sub-agencies, including the SWRCB, have been delegated primary responsibility for administering and enforcing the CWA in California.

Federal Antidegradation Policy

The federal antidegradation policy is designed to protect water quality and water resources. The policy directs states to adopt a statewide policy that includes the following primary provisions: (1) existing instream uses and the water quality necessary to protect those uses shall be maintained and protected; (2) where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development; and (3) where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

National Flood Insurance Program

FEMA is responsible for determining flood elevations and floodplain boundaries based on ACOE studies. FEMA is also responsible for distributing the Flood Insurance Rate Maps used in the National Flood Insurance Program (42 USC 4102). These maps identify the locations of special flood hazard areas, including 100-year floodplains. FEMA allows non-residential development in the floodplain; however, FEMA has criteria to "constrict the development of land which is exposed to flood damage where appropriate" and "guide the development of proposed construction away from locations which are threatened by flood hazards" (42 USC 4102). Federal regulations governing development in a floodplain are set forth in the Code of Federal Regulations, Title 44, Part 60, enabling FEMA to require municipalities that participate in the National Flood Insurance Program to adopt certain flood hazard reduction standards for construction and development in 100-year floodplains.

National Pollutant Discharge Elimination System

The NPDES permit program, as authorized by Section 402 of the CWA, was established to control water pollution by regulating point sources that discharge pollutants into waters of the United States. In the State of California, the U.S. Environmental Protection Agency has authorized the SWRCB permitting authority to implement the NPDES program. In general, the SWRCB issues two baseline general permits: one for industrial discharges and one for construction activities. The Phase II Rule that became final on December 8, 1999, expanded the existing NPDES program to address stormwater dischargers from construction sites that disturb land equal to or greater than 1 acre.

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 non-transportation-related facilities that store oil above certain volume thresholds (i.e., total aggregate capacity of aboveground oil storage containers is greater than 1,320 gallons and total aggregate capacity of 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 countermeasures (SPCC) plans and establishes procedures, methods, and equipment requirements.

Section 10 of the Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) requires the ACOE to authorize construction of any structure in or over navigable waters of the United States, or obstruction or alteration in a navigable water of the United States. Structure or work outside the limits defined for navigable waters of the United States require a Section 10 permit if the structure or work affects the course, location, condition, or capacity of the water body. Navigable waters are defined as waters that are subject to the ebb and flow of the tide.

State Regulations, Plans, and Standards

Porter–Cologne Water Quality Control Act

The Porter–Cologne Water Quality Control Act (Porter–Cologne Act) (codified in the California Water Code, Section 13000 et seq.) is the primary water quality control law for California. Whereas the CWA applies to all waters of the United States, the Porter–Cologne Act applies to waters of the state, which includes isolated wetlands and groundwater in addition to federal waters. It is implemented by the SWRCB and the nine RWQCBs. In addition to other regulatory responsibilities, the RWQCBs have the authority to conduct, order, and oversee investigation and cleanup where discharges or threatened discharges of waste to waters of the state[1] could cause pollution or nuisance, including impacts to public health and the environment.

The Porter–Cologne Act requires a Report of Waste Discharge for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface water or groundwater of the state. California Water Code, Section 13260(a), requires that any person discharging waste or proposing to discharge waste—other than to a community sewer system—that could affect the quality of the waters of the state, file a Report of Waste Discharge

[1] "Waters of the state" are defined in the Porter–Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code, Section 13050[e]).

with the applicable RWQCB. For discharges directly to surface water (waters of the United States), an NPDES permit is required, which is issued under federal and state law. For other types of discharges, such as waste discharges to land (e.g., spoils disposal and storage), erosion from soil disturbance, or discharges to waters of the state (such as groundwater and isolated wetlands), waste discharge requirements are required and issued exclusively under state law. Waste discharge requirements typically require many of the same best management practices (BMPs) and pollution control technologies as required by NPDES-derived permits.

State Water Resources Control Board and Regional Water Quality Control Board

The SWRCB administers water rights, water pollution control, and water quality functions throughout the state, while the RWQCBs conduct planning, permitting, and enforcement activities. The project site lies within the jurisdiction of the San Francisco Bay RWQCB, which uses planning, permitting, and enforcement authorities to meet this responsibility. The San Francisco Bay RWQCB has adopted the fourth edition of the Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin (SFB RWQCB 2017) to implement plans, policies, and provisions for water quality management. The Basin Plan was prepared in compliance with the federal CWA and the state Porter–Cologne Water Act. The Basin Plan establishes beneficial uses for major surface waters and their tributaries, water quality objectives that are intended to protect the beneficial uses, and implementation programs to meet stated objectives.

The SWRCB is responsible for issuing stormwater permits in accordance with the NPDES program. The applicant, Pacific Gas & Electric Company (PG&E), must comply with the requirements of the NPDES permit for Discharges of Stormwater Runoff associated with Construction Activity (Order No. 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-006-DWQ). This permit (i.e., the Construction General Permit) regulates discharges from construction sites that disturb 1 or more acres of total land area. By law, all stormwater discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance must comply with the provisions of this NPDES permit. The permitting process requires the development and implementation of an effective Stormwater Pollution Prevention Plan (SWPPP). The project applicant must submit a Notice of Intent to the San Francisco Bay RWQCB to be covered by an NPDES permit and prepare the SWPPP prior to the beginning of construction.

The SWPPP must include BMPs to reduce pollutants and any more stringent controls necessary to meet water quality standards. A SWPPP describes the site, erosion and sediment controls, means of waste disposal, implementation of local plans, control of post-construction sediment and erosion control measures and maintenance responsibilities, and non-stormwater management control. Dischargers are also required to inspect construction sites before and after storms to identify stormwater discharge from construction activity, and to identify and implement controls

where necessary. Dischargers must also comply with water quality objectives as defined in the Basin Plan. If Basin Plan objectives are exceeded, corrective measures would be required.

Implementation of the SWPPP starts with the commencement of construction and continues through completion of the project. Upon completion of the project, the applicant must submit a Notice of Termination to the San Francisco Bay RWQCB to indicate that construction is completed. In addition, the RWQCB may issue individual dewatering permits for discharges associated with construction projects.

Local Regulations, Plans, and Standards

The California Public Utilities Commission has exclusive jurisdiction over project siting, design, and construction; the proposed project is not subject to local discretionary regulations. PG&E would secure ministerial permits as required.

The City and County of San Francisco, Department of Building Inspection, requires and enforces standards contained in the California Building Code related to grading and construction, including those that may directly or indirectly affect surface water quality by contributing to erosion or siltation or altering existing drainage patterns. The City of Daly City Department of Public Works, Engineering Division, requires the submittal of an erosion control plan for review and approval prior to the issuance of a grading permit, if required.

D.10.3 Environmental Impacts and Mitigation Measures

D.10.3.1 Definition and Use of Significance Criteria

Appendix G of the California Environmental Quality Act (14 CCR 15000 et seq.) suggests that a development project could have a significant impact on hydrology and water quality if the project would:

Impact WQ-1 Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality

Impact WQ-2 Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin

Impact WQ-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:

(i) Result in substantial erosion or siltation on or off site

(ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site

(iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff

(iv) Impede or redirect flood flows

Impact WQ-4 In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation

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

D.10.3.2 Applicant Proposed Measures

Table D.10-1 presents the applicant proposed measure (APM) proposed by PG&E to reduce project impacts related to hydrology and water quality.

Table D.10-1
Applicant Proposed Measures for Hydrology and Water Quality

APM No.	Description
APM WQ-1	**Development and Implementation of a Stormwater Pollution Prevention Plan.** Stormwater discharges associated with project construction activities are regulated under the General Construction Permit. Cases in which construction will disturb more than 1 acre of soil require submittal of a Notice of Intent, development of a 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 General Construction Permit requirements. Following project approval, PG&E will prepare and implement a SWPPP, which will address erosion and sediment control to minimize construction impacts on surface water quality, as well as reduce the potential for stormwater to impact adjacent properties. The SWPPP will be designed specifically for the hydrologic setting of the proposed project (e.g., surface topography, storm drain configuration, etc.). 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/or silt fences will be installed in compliance with the SWPPP and the General Construction Permit. 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 manufacturers specifications and according to standard industry practice. Erosion and sediment control measures may include the following: • Straw wattle, silt fence, or gravel bag berms • Track out control at all entrances and exits • Stockpile management • Effective dust control measures

Table D.10-1
Applicant Proposed Measures for Hydrology and Water Quality

APM No.	Description
	• Good housekeeping measures • Stabilization measures which may include wood mulch, gravel, or revegetation Identified erosion and sediment control measures will be installed prior to the start of construction activities and will be inspected and improved as needed as required by the Construction General Permit. 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 water body or drainage channel, the staging of construction materials and equipment and excavation spoil stockpiles will be placed and managed in a manner which minimizes 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 Construction General Permit.
APM WQ-2	**Worker Environmental Awareness Program Water Quality Module.** A worker environmental awareness program will be developed and provided separately to CPUC staff prior to construction. The project's worker environmental awareness program will communicate environmental issues and appropriate work practices specific to this project to all field personnel. These will include spill prevention and response measures and proper BMP implementation. A copy of the project's worker environmental awareness program record will be provided to CPUC for recordkeeping at the completion of the project. An environmental monitoring program will also be implemented to ensure that the plans are followed throughout the construction period.
APM WQ-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 WQ-4	**Spill Prevention, Control, and Countermeasure (SPCC) Plan for Egbert Switching Station.** PG&E will prepare an SPCC plan for the new switching station for implementation during operation as required by applicable regulations (CFR 40 Part 112). The plan will include engineered and operational methods for preventing, containing, and controlling potential releases (e.g., construction of a retention pond, moats, or berms) as well as provisions for quick and safe cleanup.
APM WQ-5	**Stormwater Control Plan for Egbert Switching Station.** PG&E will prepare and implement a Stormwater Control Plan to manage stormwater during operation at the new switching station to align with the City of San Francisco Ordinance Number 64-16 of the Public Works Code-Stormwater Management Requirements.

Notes: APM = Applicant Proposed Measure; SWPPP = Stormwater Pollution Prevention Plan; PG&E = Pacific Gas & Electric Company; BMP = best management practice; CPUC = California Public Utilities Commission.

D.10.3.3 Impact Discussion

Impact WQ-1 Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Construction – Surface Waters

This discussion focuses on the potential for stormwater runoff from construction areas to contain elevated levels of pollutants and thus potentially violate water quality standards related to the San Francisco Bay RWQCB Basin Plan. If proposed construction areas are not properly managed to contain loose soils and liquid and solid contaminants, short-term water quality impacts could occur due to sediment and contaminant runoff from the construction zone. The following are two potential ways that construction activities could adversely affect water quality:

- **Land disturbances:** Pre-existing urbanization and paving limit the susceptibility of underlying soil to erosion. Because the proposed project is predominantly in urbanized and paved areas, the erosion potential is low. However, the preliminary stage of construction of the proposed Egbert Switching Station, especially initial site grubbing, grading, and soil stockpiling, would result in the temporary exposure of loose soil to the erosive forces of rainfall and high winds. Similarly, demolition activities associated with removal of foundations at the Martin Substation, temporary stockpiling of soil during trenching and trenchless auger bore installation, and grubbing of staging areas could result in short-term erosion impacts. In general, soil erosion can result in sedimentation of downstream water bodies, which in turn, can result in adverse biological impacts.
- **Spill and/or leaks:** Incidental spills of diesel fuel, gasoline, lubrication oil, cement slurry, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and construction-related trash and debris could contaminate the construction or staging areas. The amount of these materials used would be the minimum necessary to fuel vehicles, power equipment, and complete installation activities. Improper management of hazardous materials and petroleum products could result in accidental spills or leaks, which could locally contaminate on-site soils, shallow groundwater, or the closest surface water body.

The nature of potential water quality impacts associated with construction (related to both erosion and spills/leaks) is temporary and highly localized because work areas would be restored to pre-construction conditions to the extent practicable and according to the project-specific SWPPP described in the following text. In addition, small quantities of fuels, lubricants, and solid and liquid wastes could be temporarily stored within staging areas in accordance with the SWPPP, which would identify areas where fueling and vehicle-maintenance activities and storage of hazardous materials would be permitted to prevent water quality impacts. It should be

noted that hazardous materials impacts are addressed in Section D.9 and direct impacts on jurisdictional waters and wetlands are addressed in Section D.4, Biological Resources.

The required land disturbances would be highly dispersed both geographically and over time, and would be timed to avoid the wet season. This means that at any one time, a much smaller area would be disturbed, and as construction proceeds over the 22-month period, construction activities would proceed incrementally along each of the project alignments.

Because land disturbances associated with the proposed project would cumulatively be greater than 1 acre in size (and in accordance with APM WQ-1), the applicant or its qualified contractor would be required to submit a Notice of Intent to the SWRCB in order to obtain approval to carry out construction activities under the Construction General Permit. This permit includes a number of design, management, and monitoring requirements for the protection of water quality and the reduction of construction-phase impacts related to stormwater (and some non-stormwater) discharges. Compliance with the Construction General Permit requires that a SWPPP be developed and implemented by qualified individuals with appropriate credentials and training (i.e., qualified SWPPP developer/qualified SWPPP practitioner), as defined by the SWRCB. The SWPPP includes BMPs for preventing water quality degradation, identification of stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project site. In addition, the worker environmental awareness program (APM WQ-2) would include a water quality model, so that all site workers (and not just the SWPPP practitioner) would be trained to identify and respond to water quality threats (e.g., spills or leaks of construction materials/equipment) and would maintain a clean and orderly construction site.

The exact type and location of construction site BMPs in the final SWPPP would be based on site-specific conditions and receiving water risk and, thus, would focus on the areas of greatest concern. Minimum BMPs would include erosion controls (e.g., mulches, soil binders, erosion control blankets/mats, outlet projection/energy dissipation devices), sediment controls (e.g., silt fences, fiber rolls, gravel bags), tracking controls (e.g., stabilized construction entrance/exit, entrance/outlet tire wash), wind erosion controls, non-stormwater management, and materials and water management (e.g., cleanup and containment of trash and debris, stockpile management, spill prevention and control, hazardous waste management). Implementation of BMPs included in the SWPPP would protect water quality due to construction-induced erosion and sedimentation on the project site and would include hazardous materials BMPs necessary to prevent or contain spills or leaks associated with construction equipment and materials. As construction activities conclude, all temporarily disturbed areas (e.g., removed curbs and gutters, and/or disturbed landscaping or vegetation) would be restored to their pre-construction condition or better, in accordance with APM WQ-3. This would ensure that post-construction changes in hydrology or threats to water quality would be avoided.

Although construction and demolition activities have the potential to adversely affect water quality, preparation and implementation of a SWPPP for project areas (APM WQ-1), the inclusion of a water quality module in the worker environmental awareness program (APM WQ-2), and restoration of temporarily disturbed areas (APM WQ-3) would be adequate to ensure that potential construction-related impacts on water quality are avoided or substantially minimized. These measures would also minimize the potential for the proposed project to violate any SWRCB/RWQCB water quality standards or waste discharge requirements. For these reasons, the proposed project's construction-phase impacts on stormwater quality would be less than significant (Class III).

Construction – Groundwater

Known or potential contaminated sites are located along or near the project alignment (Section D.9). Groundwater sampling conducted within the Egbert Switching Station site (Appendix D.9-2) contained concentrations above applicable Environmental Screening Levels (ESLs) of volatile organic compounds (VOCs) and total petroleum hydrocarbons (TPH) from diesel (TPH-d), motor oil (TPH-mo), and gasoline (TPH-g). Concentrations of several metals above applicable ESLs were also detected in groundwater samples within the Egbert Switching Station site (Appendix D.9-2). As discussed in Section D.9.1, fuel-related compounds and metals in on-site soils were below applicable ESLs. The elevated occurrence of these compounds within on-site groundwater suggests that groundwater contamination is caused by off-site sources. Nonetheless, water quality could be affected if existing contaminated groundwater is exposed and comes in contact with uncontaminated soil or groundwater during construction, or if contaminant mobility is enhanced as a result of the construction process (e.g., cross-contaminating soil during excavation, breaching of a confining layer, or transporting contaminated soils). In addition to known groundwater contamination within the Egbert Switching Station site, unknown sites of contaminated soils or groundwater could be present along the proposed underground transmission line routes.

Dewatering of the transmission line trenches, vault locations, bore pits, and excavations at the switching station site would be conducted using a pump or well points. Per APM HM-1, groundwater encountered would be sampled and characterized prior to removal and discharge. As appropriate, the water may be pumped into containment vessels (Baker tanks), tested for parameters such as turbidity and pH or as otherwise required, and discharged to the appropriate stormwater or combined stormwater/sewer system if approved or trucked to an appropriate treatment and/or disposal facility. In addition, per APM HM-3, in areas where groundwater quality data are not available, groundwater sampling would be conducted in project areas prior to or upon commencement of construction. Appropriate handling, transportation, and disposal locations would be determined based on the results of the analyses performed on groundwater samples. The location, distribution, and frequency of the sampling locations would be

determined during final design. Sampling would likely be more intensive in areas of known contamination, as described in APM HM-3. Groundwater encountered during construction activities on the Egbert Switching Station would not require additional sampling; known groundwater contamination has already been documented within the site (Appendix D.9-2). Groundwater exposed during construction activities within the Egbert Switching Station would be removed and trucked to an appropriate treatment and/or disposal facility, consistent with APM HM-1.

In addition, as discussed in Section D.10.2, for discharges directly to surface water (waters of the United States), an NPDES permit is required, which is issued under both federal and state law. Therefore, dewatering would be completed in accordance with an NPDES permit from the San Francisco RWQCB. To obtain coverage under the NPDES permit for dewatering activities, PG&E must submit a Notice of Intent to the RWQCB. In the Notice of Intent, PG&E must describe the activity with sufficient detail to demonstrate the nature, location, and duration of the discharge. Compliance with the NPDES permit requires PG&E to send groundwater samples to a certified laboratory for analysis of priority pollutants. If screening levels are exceeded, PG&E must implement suitable and appropriate treatment of the groundwater prior to discharge off site. Dewatering discharges must comply with the discharge prohibitions, effluent limitations, and receiving water limitations outlined in the Basin Plan and other appropriate general permits. Coverage under the permit prohibits the discharger (i.e., PG&E) from impairing beneficial uses, violating water quality standards, or causing a possible nuisance condition. With implementation of project-established dewatering protocol, with respect to disposal of potentially contaminated groundwater, including APM HM-1 and APM HM-3, and compliance with applicable NPDES permits, the proposed project's construction-phase impacts on stormwater quality would be less than significant (Class III).

Operation and Maintenance

Stormwater runoff during operation and maintenance activities along the proposed transmission line routes would be similar to the existing conditions because the proposed transmission lines would be located below ground within predominantly paved areas. During operation and maintenance activities, water quality could potentially be impacted through inadvertent spills or discharges from equipment at Egbert Switching Station, which could wash into nearby drainages or infiltrate soil to the water table. However, per APM WQ-4, implementation of the SPCC Plan for Egbert Switching Station would ensure that large-scale storage of oils and/or fuels is designed to minimize the potential for spills and/or leaks, storage facilities are equipped with secondary containment (i.e., bins, curbs, or other means) to prevent discharge of spills into receiving waters, and that appropriate spill response procedures and equipment are in place. In addition, new impervious surfaces at the Egbert Switching Station

could locally result in a minor increase in the rate and volume of stormwater runoff in the long term, which could affect water quality through erosion and/or sedimentation. However, per APM WQ-5, a Stormwater Control Plan for Egbert Switching Station would be implemented to manage stormwater generation from the site and to comply with the stormwater management requirements of the City and County of San Francisco Public Works Department. These requirements are designed to be consistent with the regional municipal permit applicable to all municipal stormwater discharges.

With implementation of APM WQ-4 and APM WQ-5, impacts on water quality during operation and/or maintenance of the proposed project would be avoided or substantially minimized. Therefore, impacts would be less than significant (Class III).

Impact WQ-2 Would the project substantially decrease groundwater supplies or interfere with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Construction

The proposed project does not require construction or destruction of a groundwater well. Thus, direct impacts with respect to groundwater would be limited to locations that require construction-related groundwater dewatering.

Where localized shallow groundwater is encountered, active or passive dewatering systems may be installed in trenches and excavations as appropriate to allow construction under dry conditions. Should groundwater dewatering be required to provide a dry workspace in excavations, any impacts would be highly localized, temporary, and limited to the bottom depth of the excavation or auger hole. There are no groundwater supply wells within or next to the proposed project, and the groundwater basins underlying the site are ranked as very low priority by the California Department of Water Resources.

The underground portions of the project would be installed under existing streets where soil has been disturbed during prior construction activities. Trenches to be constructed for the underground lines will be narrow and typically shallow (6 to 8 feet, or up to 10 feet, except where additional depth is needed based on final design). Soil in the trench vicinity will not experience any significant modification from that already underlying the streets, and is not expected to create a new barrier to groundwater flow. Furthermore, because the majority of the project areas are currently paved, the proposed project does not involve appreciable increases in impervious surfaces, which means it would have negligible impact with regard to groundwater recharge.

For these reasons, the project would not substantially deplete groundwater supplies or interfere with groundwater recharge; therefore, impacts would be less than significant (Class III).

Operation and Maintenance

The proposed project does not require construction or destruction of a groundwater well. Operation and maintenance activities would not be ground disturbing. Any amount of water used for workers or for cleaning activities would be minor, commercially sourced, and the same as existing conditions. Furthermore, the water demand for the switching station would be limited to periodic maintenance and cleaning activities, and the switching station would not be manned (and therefore no permanent sanitary/potable water demand). The proposed project would not appreciably affect water supplies, whether they come from surface water or groundwater. As discussed in the setting (Section D.10.1), the potential future use of groundwater is limited to non-potable uses due to groundwater quality limitation, and because the predominant source of municipal water is imported surface water supplies. Therefore, there would be no long-term impact to groundwater associated with operation and maintenance activities (No Impact).

Impact WQ-3 Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

(i) Result in substantial erosion or siltation on- or off-site?

The proposed project would be constructed in existing urban areas with developed stormwater infrastructure. Project construction would not alter existing drainage patterns because components of the proposed project would primarily be placed underground and the project areas would be restored to original conditions. With respect to the proposed Egbert Switching Station, PG&E would install stormwater management controls at the switching station for its operations phase that comply with local regulations and guidelines. The proposed project has been designed to minimize impacts on waterways, as well as avoid substantially altering the drainage patterns in the project work areas or altering the course of a stream or river. The proposed project would not cross or be located adjacent to any streams or rivers, and no alteration to existing drainage patterns or streams or rivers would occur during project construction, operation, and maintenance phases that would result in substantial erosion or siltation on or off site. The APMs discussed under Impact WQ-1 would be implemented and would be equally effective at reducing or substantially avoiding erosion or siltation impacts due to alteration of drainage patterns or addition of impervious surfaces.

Accordingly, project impacts on existing drainage patterns and associated erosion and sedimentation would be less than significant (Class III).

(ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

The Stormwater Control Plan to be developed and implemented per APM WQ-5 would implement management measures and BMPs necessary to capture and/or treat any increase in stormwater runoff resulting from increased impervious surfaces at the switching station. The impacts of the proposed project with respect to alteration of drainage patterns are discussed in Impact WQ-3(i), and are equally applicable to potential for increases in the rate or amount of surface runoff. The proposed project's impacts on flooding from altered drainage patterns would be less than significant (Class III).

(iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Construction

Stormwater runoff on the project site is currently collected by the City and County of San Francisco's combined stormwater and sanitary sewer collection system and the Cities of Daly City and Brisbane municipal stormwater drainage system, which have sufficient capacity to accept stormwater from the project site. As indicated under Impact WQ-3(i), the proposed project is not anticipated to substantially alter existing drainage patterns of the project site or area.

Construction of the proposed transmission lines and Egbert Switching Station would require grading or excavation activities. In addition, staging areas may require improvement that includes blading the surface of the area, compacting soil, or applying gravel. Scraping and grading during preparation of the switching station site and staging areas may disturb the soil surface, which could increase the potential for soil erosion and runoff of stormwater contaminated with sediments or other pollutants if stormwater comes into contact with materials on site and discharges contaminants into storm drains. Potential sources of pollution include oil leaked from heavy equipment and vehicles, grease, hydraulic fluid, fuel, construction materials and products, waste materials, and erosion of disturbed soil. With implementation of a SWPPP in accordance with APM WQ-1, the worker environmental awareness program outlined in APM WQ-2, the site restoration activities in APM WQ-3, the emergency spill response activities described in APM HM-1, and the emergency spill supplies and equipment described in APM HM-3, project construction would not create or contribute runoff water that would exceed capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; therefore, the impact would be less than significant (Class III).

Operation and Maintenance

For the same reasons discussed in Impact WQ-1, the proposed project's impacts related to substantial additional sources of polluted runoff during project operation would be less than significant (Class III).

(iv) Impede or redirect flood flows?

The project areas are not located within 100-year flood hazard zones, with the exception of two sets of potential staging areas. Portions of the potential Amador Street staging area are located within Special Flood Hazard Areas with 1% and 0.2% annual chances of flood hazard, and some portions of the potential Martin Substation staging areas are in FEMA Flood Zone A (i.e., areas subject to inundation by the 1% annual chance flood event) (Figure D.10-3). Staging of equipment in temporary work areas would not result in impediments or redirections of floodwaters. Furthermore, project transmission components would be located underground, and the Egbert Switching Station would not be in or adjacent to a creek or waterway subject to flood flows. Therefore, impacts would be less than significant (Class III).

Impact WQ-4 Would the project, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Tsunami

Most of the project site and potential staging areas are not located within a tsunami inundation zone, as delineated by the California Emergency Management Agency. Some portions of the potential Amador Street staging area are in a tsunami inundation zone (Figure D.10-3). However, devastating tsunamis have not occurred in historic times in the San Francisco Bay Area, and the likelihood of such an event occurring during project construction is considered remote. The risk for release of pollutants is comprehensively addressed under Impact WQ-1. Therefore, this impact is less than significant for the construction, operation, and maintenance phases (Class III).

Seiche

The largest seiche wave ever measured in the San Francisco Bay, following the 1906 earthquake, was 4 inches high. The Bay Area has not been adversely affected by seiches during its history within this seismically active region of California. Moreover, as discussed for tsunamis, only the Amador Street staging area is located adjacent to the San Francisco Bay. No reservoirs capable of producing seiches are immediately adjacent to proposed structures, as would be built at the Egbert Switching Station. The risk for release of pollutants is comprehensively addressed under Impact WQ-1. Therefore, the proposed project would not result in inundation by a seiche, and no impact would occur during construction, operation, and maintenance phases (No Impact).

Flood Zone

The Egbert Switching Station site and the proposed Egbert-Embarcadero and Martin-Egbert transmission lines would not be located within a flood zone, but would be located within a potential dam failure inundation area, located east of the University Mound Reservoir. Furthermore, a portion of the proposed Jefferson-Egbert transmission line could be located within a potential inundation area southeast of the McLaren Park water tanks (Figure D.10-3). Seismic upgrades of the McLaren Park tanks and University Mound Reservoir North Basin have occurred within the past 10 years, and the Department of Water Resources Division of Safety of Dams has no restrictions in place on the University Mound Reservoir. No aboveground structures would be located along the underground transmission lines.

In the event of failure of the concrete University Mound Reservoir, aboveground infrastructure at Egbert Switching Station could be exposed to damage or loss from flooding. PG&E would obtain a building permit from the City and County of San Francisco that would address local building standards for flood potential. The presence of personnel at the switching station and transmission lines within the potential inundation areas would be temporary during construction and limited and infrequent during operation and maintenance. The risk for release of pollutants is comprehensively addressed under Impact WQ-1. Therefore, impacts related to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam, would be less than significant (Class III).

Impact WQ-5 Would the project conflict or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The analysis and description of APMs contained under Impact WQ-1 indicate how and why the proposed project would be consistent with the applicable water quality control plan, in this case the Water Quality Control Plan for the San Francisco Bay Basin (Region 2). Furthermore, the underlying groundwater basins are designated as very low priority by the California Department of Water Resources, and thus preparation and implementation of a groundwater sustainability plan is not required (the earliest deadline for adoption of groundwater sustainability plans in California is 2020). For these reasons, the proposed project will have no impact with respect to conflicts or obstructions with a water quality control plan or sustainable groundwater management plan (No Impact).

D.10.4 PROJECT ALTERNATIVES

D.10.4.1 Bayshore Switching Station Alternative

Environmental Setting

Surface Water

The Bayshore Switching Station Alternative is located within the Visitacion Valley and Gaudalupe Valley watersheds, and generally consists of a large bowl bounded by Bayview Hill, McLaren Ridge, and San Bruno Mountain.

The alternative switching station and transmission lines east of Bayshore Boulevard would be constructed within the Guadalupe Valley watershed in an area that was historically part of an estuarine ecosystem through which upland drainage flowed into tidal marshes and mudflats before reaching deeper waters of San Francisco Bay. Surface runoff from higher elevations to the west flows by gravity through existing drainage infrastructure west of Bayshore Boulevard, which is directed south to Guadalupe Creek, the primary drainage within the watershed, and into the Brisbane Lagoon south of the alternative switching station site. No drainage infrastructure is present within the alternative switching station site or transmission line segments east of Bayshore Boulevard. On-site drainage flows south via surface flow to the Guadalupe Creek and is deposited into the Brisbane Lagoon. The alternative Martin-Bayshore transmission line segment crosses an unnamed drainage feature north of the alternative switching station site.

The alternative Bayshore-Embarcadero transmission line along and west of Bayshore Boulevard would be constructed within the southern portion of the Visitacion Valley watershed, which drains by gravity to the San Francisco Bay through the City of Brisbane (PG&E 2017).

Groundwater

The Bayshore Switching Station Alternative is located within the San Francisco Bay Hydrologic Regions, over the Visitacion Valley Groundwater Basin (DWR 2004b). The Visitacion Valley Groundwater Basin is separated from basins to the northwest and northeast by bedrock topographic highs. Mean annual precipitation within the basin ranges from 20 to 24 inches (DWR 2004b).

Flood Hazard

The current approved Flood Insurance Rate Map (Panel Number 06081C0035F) that encompasses the Bayshore Switching Station Alternative was updated April 2019. The alternative project site is designated Zone X, which is an area outside of an identified Special Flood Hazard Area or FEMA flood zone. A flood hazard area, designated Zone A, is present

west of Bayshore Boulevard approximately 100 feet from the alternative switching station site. Additionally, flood hazard areas are present east of Bayshore Boulevard near Main Street and north of Main Street adjacent to and within the Martin Substation (FEMA 2019).

Environmental Impacts and Avoidance Measures

Impact WQ-1: Construction of the Bayshore Switching Station Alternative would have potential to impact local water quality due to sediment and contaminant runoff. Preliminary construction activities would temporarily expose loose soil to erosive forces of rainfall and high winds. During construction, stockpiling of soil, trenching activities could also result in short-term erosion impacts. Incidental spills of diesel fuel, gasoline, lubrication oil, cement slurry, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and construction-related trash and debris could result in accidental spills or leaks, which could locally contaminate on-site soils, shallow groundwater, or the closest surface water body. Potential construction-related water quality impacts would be temporary, because work areas would be restored to preconstruction conditions to the extent practicable (APM WQ-3). Because land disturbances in excess of 1 acre would be necessary the applicant must comply with the Construction General Permit, including development and implementation of a SWPPP during construction activities. Implementation of BMPs included in the SWPPP would protect water quality due to construction-induced erosion and sedimentation on the alternative project site and would include hazardous materials BMPs necessary to prevent or contain spills or leaks associated with construction equipment and materials. In addition, the worker environmental awareness program (APM WQ-2) would include a water quality module so that all site workers (and not just the SWPPP practitioner) would be trained to identify and respond to water quality threats. Implementation of APM WQ-1, APM WQ-2, and APM WQ-3 would be adequate to ensure that potential construction-related impacts on water quality are avoided or substantially minimized. These measures would also minimize the potential for the Bayshore Switching Station to violate any SWRCB/RWQCB water quality standards or waste discharge requirements, resulting in a less-than-significant impact (Class III).

Ground-disturbing construction activities have potential to affect water quality if existing contaminated groundwater is exposed and comes in contact with uncontaminated soil or groundwater. Dewatering of the trench, vault locations, bore pits, and excavations at the switching station would be conducted using a pump or well points. Sampling of groundwater encountered during construction (APM HM-1) and groundwater sampling in areas where existing data is unavailable (APM HM-3) would reduce the likelihood of groundwater contamination. Additionally, compliance with the NPDES permit requires PG&E to send groundwater samples to a certified laboratory for analysis of priority pollutants. If screening levels are exceeded, PG&E must implement suitable and appropriate treatment of the groundwater prior to discharge off site. With implementation of project-established dewatering

protocol with respect to disposal of potentially contaminated groundwater, including APM HM-1 and APM HM-3, and compliance with applicable NPDES permits, the Bayshore Switching Station Alternative's construction-phase impacts on stormwater quality would be less than significant (Class III).

Operation and maintenance activities at the Alternative Bayshore Switching Station could result in impacts due to inadvertent spills or discharges from equipment. As described in Section D.10.3.3, implementation of APM WQ-4 and APM WQ-5, requiring compliance with a SPCC and a Stormwater Control Plan designed to be consistent with the regional municipal permit, would minimize potential water quality impacts during operation and maintenance activities (Class III).

Impact WQ-2: Localized shallow groundwater encountered during construction activities may require active or passive dewatering systems to be installed in trenches and excavations as appropriate to allow construction under dry conditions. Dewatering activities would be localized, temporary, and limited to the bottom depth of excavation. Underground portions of the alternative would be installed in disturbed areas and are not expected to create a new barrier to groundwater flow. The alternative switching station would result in development of up to 6.6 acres of new impervious surfaces, reducing the available area for infiltration. However, groundwater is not currently used at the alternative switching station site, and there are no downstream users of groundwater, because the site is near the Brisbane Lagoon and San Francisco Bay. Therefore, the Bayshore Switching Station Alternative would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge, and impacts would be less than significant (Class III).

Impact WQ-3: The Bayshore Switching Station Alternative would alter existing drainage patterns at the alternative switching station site permanently. Aerial drainage would not be impacted and would still flow from north to south, around the alternative switching station site, and be deposited into Guadalupe Creek and, ultimately, into Brisbane Lagoon, approximately 700 feet southeast of the alternative switching station site. The alternative transmission line segments would result in temporary minor changes in drainage during construction, but they would be highly localized and cease once the work site is restored (APM WQ-3).

(i) Erosion and Sedimentation: Construction activities would temporarily expose subsurface soils to erosion factors, including wind and water. APMs discussed under Impact WQ-1 would be implemented, reducing erosion and siltation impacts during construction. Once all work areas are restored, no erosion or sedimentation is anticipated in excess of existing conditions. During operation activities, PG&E would install stormwater management controls at the Bayshore Switching Station for its operations phase that comply with local regulations and guidelines. Accordingly, Bayshore Switching Station impacts on existing drainage patterns and associated erosion and sedimentation would be less than significant (Class III).

(ii) Surface Runoff Resulting in Flooding: The Stormwater Control Plan to be developed and implemented per APM WQ-5 would implement management measures and BMPs necessary to capture and/or treat any increase in stormwater runoff resulting from increased impervious surfaces at the switching station. The Bayshore Switching Station Alternative would not result in changes to the regional drainage patterns, and on-site drainage would be covered with implementation of APM WQ-5; therefore, no on- or off-site flooding is expected to occur as a result of development of the Bayshore Switching Station Alternative, and impacts would be less than significant (Class III).

(iii) Runoff Exceed Capacity of Drainage System or Add Sources of Polluted Runoff: Stormwater runoff on the alternative project site is currently collected by the City of Brisbane Municipal Stormwater drainage system. Although some stormwater infrastructure within the City of Brisbane is currently operating in exceedance of its design capacity during large storm events, the drainage area south of the alternative switching station site is adequate for existing conditions. The alternative switching station would increase impervious surfaces in the area, resulting in generation of increased runoff. The Stormwater Control Plan to be developed and implemented per APM WQ-5 would implement management measures and BMPs necessary to capture and/or treat any increase in stormwater runoff resulting from increased impervious surfaces at the switching station. Alternative transmission line segments would not permanently change drainage patterns. Implementation of APMs described under Impact WQ-1 would reduce potential for additional sources of polluted runoff. Therefore, the Bayshore Switching Station Alternative would not create or contribute runoff water that would exceed capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; therefore, these potential impacts would be less than significant (Class III).

(iv) Impede or Redirect Flood Flows: No Bayshore Switching Station Alternative improvements are proposed within a flood hazard area. Furthermore, project transmission components would be located underground, and the Bayshore Switching Station would not be within or adjacent to a creek or waterway subject to flood flows. Therefore, impacts would be less than significant (Class III).

Impact WQ-4: The Bayshore Switching Station Alternative would not be developed within a tsunami inundation zone or area at risk of seiche. Therefore, the Bayshore Switching Station Alternative would not result in inundation by a seiche or tsunami, and no impact would occur (No Impact).

Impact WQ-5: The analysis and description of APMs contained under Impact WQ-1 indicate how and why the proposed project would be consistent with the applicable water quality control plan, in this case the Water Quality Control Plan for the San Francisco Bay Basin (Region 2).

The Bayshore Switching Station would have no impact with respect to conflicts or obstructions with a water quality control plan or sustainable groundwater management plan (No Impact).

Comparison to the Proposed Project

Hydrology and water quality impacts resulting from the construction and operation of the Bayshore Switching Station Alternative would be similar to the proposed project for Impacts WQ-1, WQ-2, WQ-4, and WQ-5. Under Impact WQ-4, while the Egbert Switching Station site is located in a potential dam failure inundation zone due to close proximity to the University Mound Reservoir, the Bayshore Switching Station Alternative site is not. Because of proper maintenance, regulatory oversight, and completion of the seismic protection project implemented on the University Mound Reservoir, there is no significant risk of dam failure inundation at the Egbert Switching Station. Therefore, the impact from flooding at the alternative switching station site would be less than significant, similar to the proposed project. Although impacts would be less than significant for Impact WQ-3, the Bayshore Switching Station Alternative is anticipated to result in greater changes to existing drainage than the proposed project, because the alternative switching station would be developed on vacant land and would increase impervious surfaces in the vicinity. Therefore, the Bayshore Switching Station Alternative would result in increased hydrology and water quality impacts when compared to the proposed project.

D.10.4.2 Geneva Switching Station Alternative

Environmental Setting

Surface Water

The Geneva Switching Station Alternative is located within the Visitacion watershed, which drains by gravity to the San Francisco Bay through the City of Brisbane (PG&E 2017). No surface waters are present within or adjacent to the alternative project site.

Groundwater

The Geneva Switching Station Alternative is located within the San Francisco Bay Hydrologic Regions, over the Visitacion Valley Groundwater Basin (DWR 2004b). The Visitacion Valley Groundwater Basin is separated from basins to the northwest and northeast by bedrock topographic highs. Mean annual precipitation within the basin ranges from 20 to 24 inches (DWR 2004b).

Flood Hazard

The current approved Flood Insurance Rate Maps (Panel Numbers 06081C0035F and 0602980233A) that encompass the Geneva Switching Station Alternative area were updated in

April and May 2019, respectively. The alternative project site is designated Zone X, which is an area outside of an identified Special Flood Hazard Area or FEMA flood zone. No flood hazard zones are within or adjacent to the alternative project site (FEMA 2019).

Environmental Impacts and Avoidance Measures

Impact WQ-1: The Geneva Switching Station Alternative would have potential to impact local water quality due to sediment and contaminant runoff during construction activities. Preliminary construction activities would temporarily expose loose soil to erosive forces of rainfall and high winds. Stockpiling of soil and trenching activities could also result in short-term erosion impacts. Incidental spills of hazardous materials and construction-related trash and debris could result in accidental spills or leaks, which could locally contaminate on-site soils, shallow groundwater, or the closest surface water body. Potential construction-related water quality impacts would be temporary, because work areas would be restored to preconstruction conditions to the extent practicable (APM WQ-3). As described in Section 10.3.3, PG&E would comply with the SWQCB Construction General Permit (APM WQ-1), including development and implementation of a SWPPP. Additionally, the worker environmental awareness program (APM WQ-2) would include a water quality module so that all site workers would be trained to identify and respond to water quality threats. Implementation of APM WQ-1, APM WQ-2, and APM WQ-3 would be adequate to ensure that potential construction-related impacts on water quality are avoided or substantially minimized. These measures would also minimize the potential for the Geneva Switching Station to violate any SWRCB/RWQCB water quality standards or waste discharge requirements, resulting in a less-than-significant impact (Class III).

Ground-disturbing construction activities have potential to affect water quality if existing contaminated groundwater is exposed and comes in contact with uncontaminated soil or groundwater. Dewatering would be conducted using a pump or well points, as necessary. Sampling of groundwater encountered during construction (APM HM-1) and groundwater sampling in areas where existing data is unavailable (APM HM-3) would reduce the likelihood of groundwater contamination. In addition, compliance with the NPDES permit requires PG&E to send groundwater samples to a certified laboratory for analysis of priority pollutants. If screening levels are exceeded, PG&E must implement suitable and appropriate treatment of the groundwater prior to discharge off site. With implementation of project-established dewatering protocol with respect to disposal of potentially contaminated groundwater, including APM HM-1 and APM HM-3, and compliance with applicable NPDES permits, the Geneva Switching Station Alternative's construction-phase impacts on stormwater quality would be less than significant (Class III).

Operation and maintenance activities at the Alternative Bayshore Switching Station could result in the same impacts as the proposed project due to inadvertent spills or discharges from equipment. As described in Section D.10.3.3, implementation of APM WQ-4 and APM WQ-5,

requiring compliance with a SPCC and a Stormwater Control Plan designed to be consistent with the regional municipal permit would minimize potential water quality impacts during operation and maintenance activities (Class III).

Impact WQ-2: Localized shallow groundwater encountered during construction activities may require installation of active or passive dewatering systems in trenches and excavations as appropriate to allow construction under dry conditions. Dewatering activities would be localized, temporary, and limited to the bottom depth of excavation. Underground portions of the alternative would be installed in disturbed areas and are not expected to create a new barrier to groundwater flow. An existing gravel parking lot (approximately 5.5 acres) is located within the alternative switching station site, but the alternative switching station would result in development of up to 11.1 acres of new impervious surfaces, reducing the available area for infiltration. There are no groundwater supply wells within or next to the proposed project, and the groundwater basins underlying the site are ranked as very low priority by the California Department of Water Resources. Operation of the Geneva Switching Station Alternative would require similar water demand as the proposed project. Therefore, the Geneva Switching Station Alternative would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge, and impacts would be less than significant (Class III).

Impact WQ-3: The Geneva Switching Station Alternative would be constructed in existing urban areas with developed stormwater infrastructure. The Stormwater Control Plan to be developed and implemented per APM WQ-5 would implement management measures and BMPs necessary to capture and/or treat any increase in stormwater runoff resulting from increased impervious surfaces at the switching station. Construction of the alternative transmission lines would not alter existing drainage patterns, because components would be placed underground, and the work areas would be restored to original conditions (APM WQ-3). The Geneva Switching Station would not cross or be located adjacent to any streams or rivers, and no alteration to existing drainage patterns or streams or rivers would occur during project construction, operation, and maintenance phases that would result in substantial erosion or siltation on or off site.

(i) Erosion and Sedimentation: Construction activities would temporarily expose subsurface soils to erosion factors, including wind and water. APMs discussed under Impact WQ-1 would be implemented, reducing erosion and siltation impacts during construction. Once all work areas are restored, no erosion or sedimentation is anticipated in excess of existing conditions. During operation activities, PG&E would install stormwater management controls at the Bayshore Switching Station for its operations phase that comply with local regulations and guidelines. Accordingly, Geneva Switching Station impacts on existing drainage patterns and associated erosion and sedimentation would be less than significant (Class III).

(ii) Surface Runoff Resulting in Flooding: The Stormwater Control Plan to be developed and implemented per APM WQ-5 would implement management measures and BMPs necessary to capture and/or treat any increase in stormwater runoff resulting from increased impervious surfaces at the switching station. The Geneva Switching Station Alternative would not result in changes to the regional drainage patterns, and on-site drainage would be covered with implementation of APM WQ-5; therefore, no on- or off-site flooding is expected to occur as a result of development of the Geneva Switching Station Alternative, and impacts would be less than significant (Class III).

(iii) Runoff Exceed Capacity of Drainage System or Add Sources of Polluted Runoff: Stormwater runoff on the alternative project site is currently collected by the City of Daly City municipal stormwater drainage system and the City and County of San Francisco's combined stormwater and sanitary sewer collection system. The Geneva Switching Station is not anticipated to substantially alter existing drainage patterns of the alternative project site or area. The Stormwater Control Plan to be developed and implemented per APM WQ-5 would implement management measures and BMPs necessary to capture and/or treat any increase in stormwater runoff resulting from increased impervious surfaces at the switching station. Alternative transmission line segments would not permanently change drainage patterns. Implementation of APMs described under Impact WQ-1 would reduce potential for additional sources of polluted runoff. Therefore, the Geneva Switching Station Alternative would not create or contribute runoff water that would exceed capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; therefore, the impact would be less than significant (Class III).

(iv) Impede or Redirect Flood Flows: No Geneva Switching Station Alternative improvements are proposed within a flood hazard area. Furthermore, project transmission components would be located underground, and the Geneva Switching Station would not be in or adjacent to a creek or waterway subject to flood flows. Therefore, the Geneva Switching Station Alternative would not impede or redirect flood flows, and no impact would occur (No Impact).

Impact WQ-4: The Geneva Switching Station Alternative would not be developed within a tsunami inundation zone or area at risk of seiche. Therefore, the Geneva Switching Station Alternative would not result in inundation by a seiche or tsunami, and no impact would occur (No Impact).

Impact WQ-5: The analysis and description of APMs contained under Impact WQ-1 indicate how and why the proposed project would be consistent with the applicable water quality control plan, in this case the Water Quality Control Plan for the San Francisco Bay Basin (Region 2). The Geneva Switching Station would have no impact with respect to conflicts or obstructions with a water quality control plan or sustainable groundwater management plan (No Impact).

Comparison to the Proposed Project

Hydrology and water quality impacts resulting from the construction and operation of the Geneva Switching Station Alternative would be similar to the proposed project for Impacts WQ-1, WQ-2, through Impact WQ-5. Although impacts would be less than significant for Impact WQ-3, the Geneva Switching Station Alternative is anticipated to result in greater changes to existing drainage than the proposed project, because construction of the alternative switching station would increase impervious surfaces within the alternative switching station site.

Therefore, the Geneva Switching Station Alternative would result in increased hydrology and water quality impacts when compared to the proposed project.

D.10.4.3 Sunnydale HOPE SF Avoidance Line Alternative Option A

Environmental Setting

The Sunnydale HOPE SF Avoidance Line Alternative Option A (Sunnydale Option A Alternative) would be developed within the same general area as the proposed project. The regional environmental setting included in Section D.10.1 is applicable to the Sunnydale Option A Alternative line segment. However, the Sunnydale Option A Alternative is limited to the alternative line segment. Existing conditions and environmental impacts would remain unchanged for the Egbert Switching Station, Martin-Egbert transmission line, Egbert-Embarcadero transmission line, Martin Substation, and the remainder of the Jefferson-Egbert transmission line.

No surface waters are present within or adjacent to the alternative project site. The Sunnydale Option A Alternative is not within a 100-year flood hazard area; however, the northern portion of the alternative line segment is within an area of potential inundation due to reservoir failure.

Environmental Impacts and Avoidance Measures

The Sunnydale Option A Alternative would include an approximate 0.5-mile diversion away from the proposed Jefferson-Egbert transmission line east of Hahn Street and reconnect on Geneva Avenue. The Sunnydale Option A Alternative would result in the same potential impacts as those described for the proposed project for Impact WQ-1 through Impact WQ-5. Implementation of all applicable APMs and compliance with applicable regulations, as described in Section D.10.3.3, would ensure impacts associated with hydrology and water quality would be less than significant (Class III).

Comparison to the Proposed Project

Potential impacts associated with hydrology and water quality would be similar for the Sunnydale Option A Alternative and the proposed project.

D.10.4.4 No Project Alternative

Under the No Project Alternative, none of the facilities associated with the proposed project or alternatives would be constructed, and therefore, none of the impacts described in this section would occur.

D.10.5 Mitigation Monitoring, Compliance, and Reporting

Table D.10-2 shows the mitigation monitoring, compliance, and reporting program for hydrology and water quality. The CPUC is responsible for ensuring compliance with the provisions of the monitoring program. The APMs that are incorporated as part of the proposed project are listed in the following table.

Table D.10-2
Mitigation Monitoring, Compliance, and Reporting Program for Hydrology and Water Quality

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
Impact WQ-1 Construction activities impact surface water quality in the stormwater system Impact WQ-3 Construction activities could cause erosion from exposed soils and result in polluted runoff Impact WQ-5 Potential impacts could result in conflict with Water Quality Control Plan	—	APM WQ-1	**Development and Implementation of a Stormwater Pollution Prevention Plan.** Stormwater discharges associated with project construction activities are regulated under the General Construction Permit. Cases in which construction will disturb more than 1 acre of soil require submittal of a Notice of Intent, development of a 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 General Construction Permit requirements. Following project approval, PG&E will prepare and implement a SWPPP, which will address erosion and sediment control to minimize construction impacts on surface water quality, as well as reduce the potential for stormwater to impact adjacent properties. The SWPPP will be designed specifically for the hydrologic setting of the proposed project (e.g., surface topography, storm drain configuration, etc.). 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/or silt fences will be installed in compliance with the SWPPP and the General Construction Permit. 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 manufacturers specifications	PG&E to implement measure as defined. PG&E to submit SWPP to RWQCB to receive General Construction Permit PG&E will provide CPUC a copy of SWPPP for recordkeeping.	CPUC to conduct occasional inspections to ensure compliance with SWPPP	SWPPP to be prepared prior to construction SWPPP to be implemented during construction activities

Table D.10-2
Mitigation Monitoring, Compliance, and Reporting Program for Hydrology and Water Quality

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
			and according to standard industry practice. Erosion and sediment control measures may include the following: • Straw wattle, silt fence, or gravel bag berms • Track out control at all entrances and exits • Stockpile management • Effective dust control measures • Good housekeeping measures • Stabilization measures which may include wood mulch, gravel, or revegetation Identified erosion and sediment control measures will be installed prior to the start of construction activities and will be inspected and improved as needed as required by the Construction General Permit. 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 water body or drainage channel, the staging of construction materials and equipment and excavation spoil stockpiles will be placed and managed in a manner which minimizes 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.			

Table D.10-2
Mitigation Monitoring, Compliance, and Reporting Program for Hydrology and Water Quality

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
			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 Construction General Permit.			
Impacts WQ-1 and WQ-3 Construction activities could inadvertently contaminate surface water	—	APM WQ-2	**Worker Environmental Awareness Program Water Quality Module.** A worker environmental awareness program will be developed and provided separately to CPUC staff prior to construction. The project's worker environmental awareness program will communicate environmental issues and appropriate work practices specific to this project to all field personnel. These will include spill prevention and response measures and proper BMP implementation. A copy of the project's worker environmental awareness program record will be provided to CPUC for recordkeeping at the completion of the project. An environmental monitoring program will also be implemented to ensure that the plans are followed throughout the construction period.	PG&E to conduct training program as described.	PG&E to submit program record to CPUC for recordkeeping at the completion of the project	Prior to ground-disturbing activities in all construction areas
Impact WQ-3 Construction activities could alter surface drainage patterns	—	APM WQ-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.	PG&E to implement measure as defined	PG&E to provide CPUC with restoration plans for review	During final construction activities
Impact WQ-1 operation could result in inadvertent contamination Impact WQ-3 Construction activities could cause	—	APM WQ-4	**Spill Prevention, Control, and Countermeasure (SPCC) Plan for Egbert Switching Station.** PG&E will prepare an SPCC plan for the new switching station for implementation during operation as required by applicable regulations (CFR 40 Part 112). The plan will include engineered and operational methods for preventing, containing, and controlling potential releases (e.g., construction of a retention pond, moats, or berms) as well as provisions for quick and safe cleanup.	PG&E to implement measure as defined	CPUC to conduct occasional inspections to ensure compliance with SPCC Plan	During construction and operation

Table D.10-2
Mitigation Monitoring, Compliance, and Reporting Program for Hydrology and Water Quality

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
Impact WQ-1 operation of switching station could result in inadvertent contamination Impact WQ-5 Construction activities could alter surface drainage patterns	—	APM WQ-5	**Stormwater Control Plan for Egbert Switching Station.** PG&E will prepare and implement a Stormwater Control Plan to manage stormwater during operation at the new switching station to align with the City of San Francisco Ordinance Number 64-16 of the Public Works Code-Stormwater Management Requirements.	PG&E to implement measure as defined	CPUC to conduct occasional inspections to ensure compliance with SPCC Plan	During project operation

Notes: MMCRP = mitigation monitoring, compliance, and reporting program; MM = mitigation measure; APM = Applicant Proposed Measure; SWPPP = Stormwater Pollution Prevention Plan; PG&E = Pacific Gas & Electric Company; BMP = best management practice; CPUC = California Public Utilities Commission.

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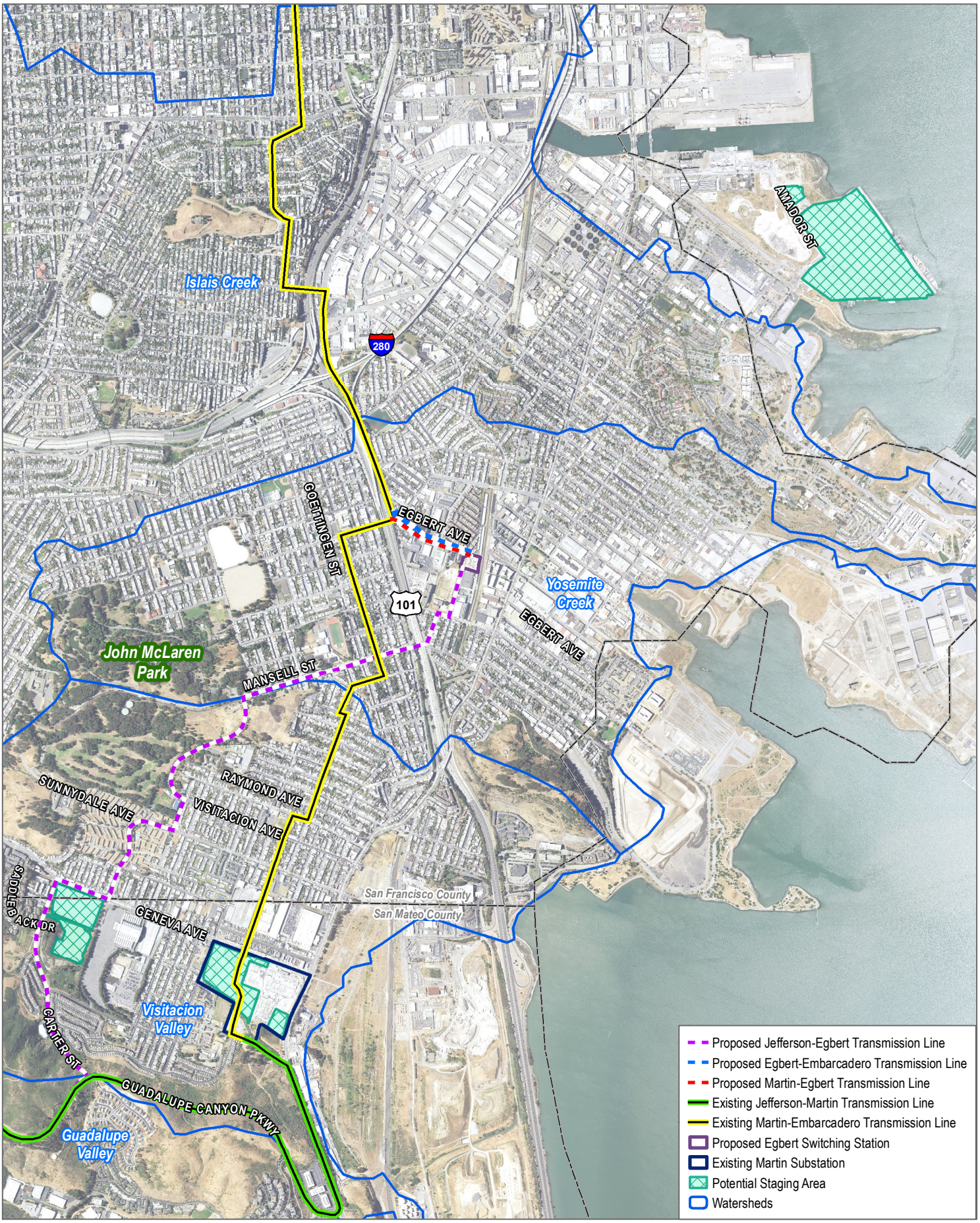
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SOURCE: USFWS 2019; USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

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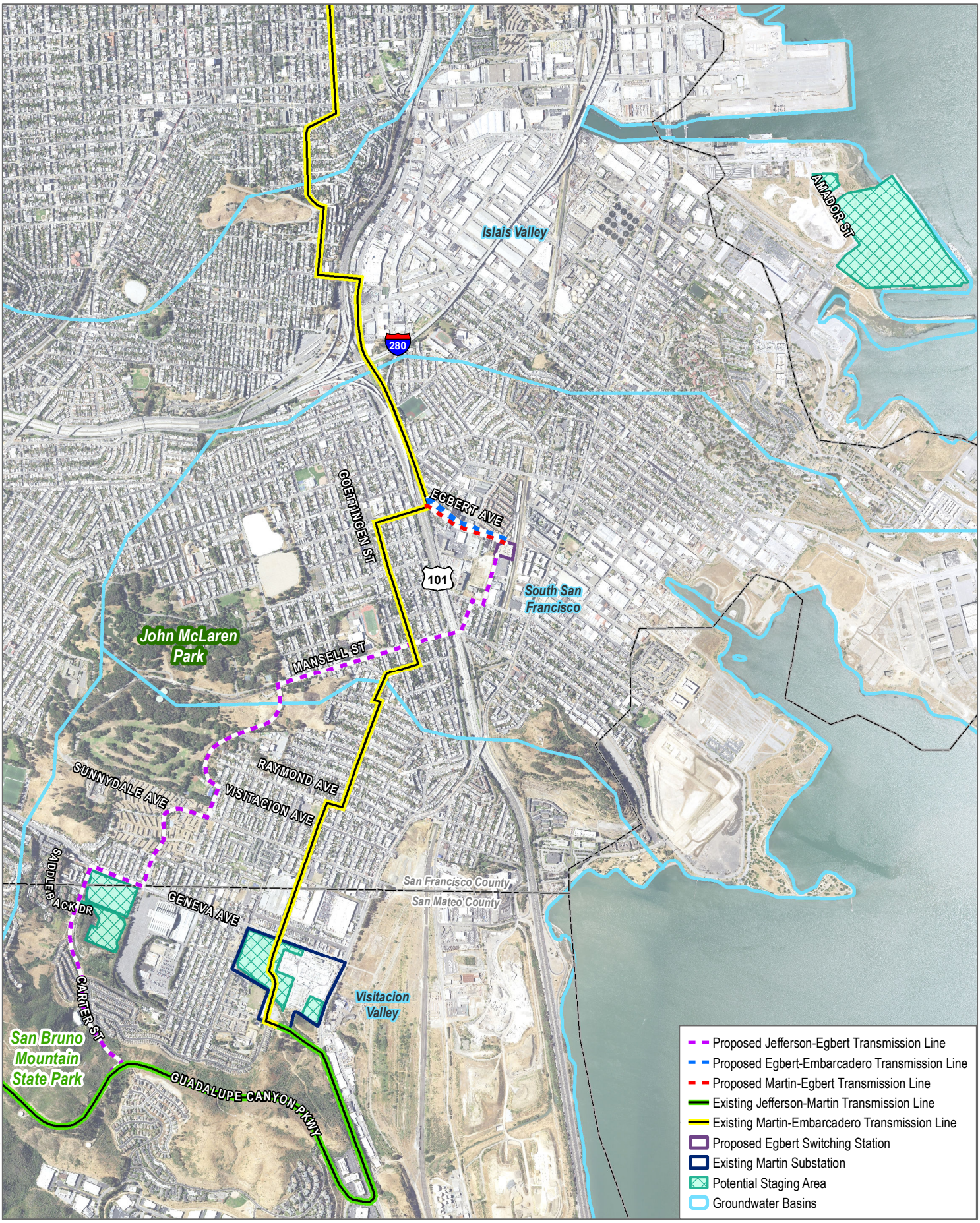
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FIGURE D.10-1

Watersheds

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: USFWS 2019; USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

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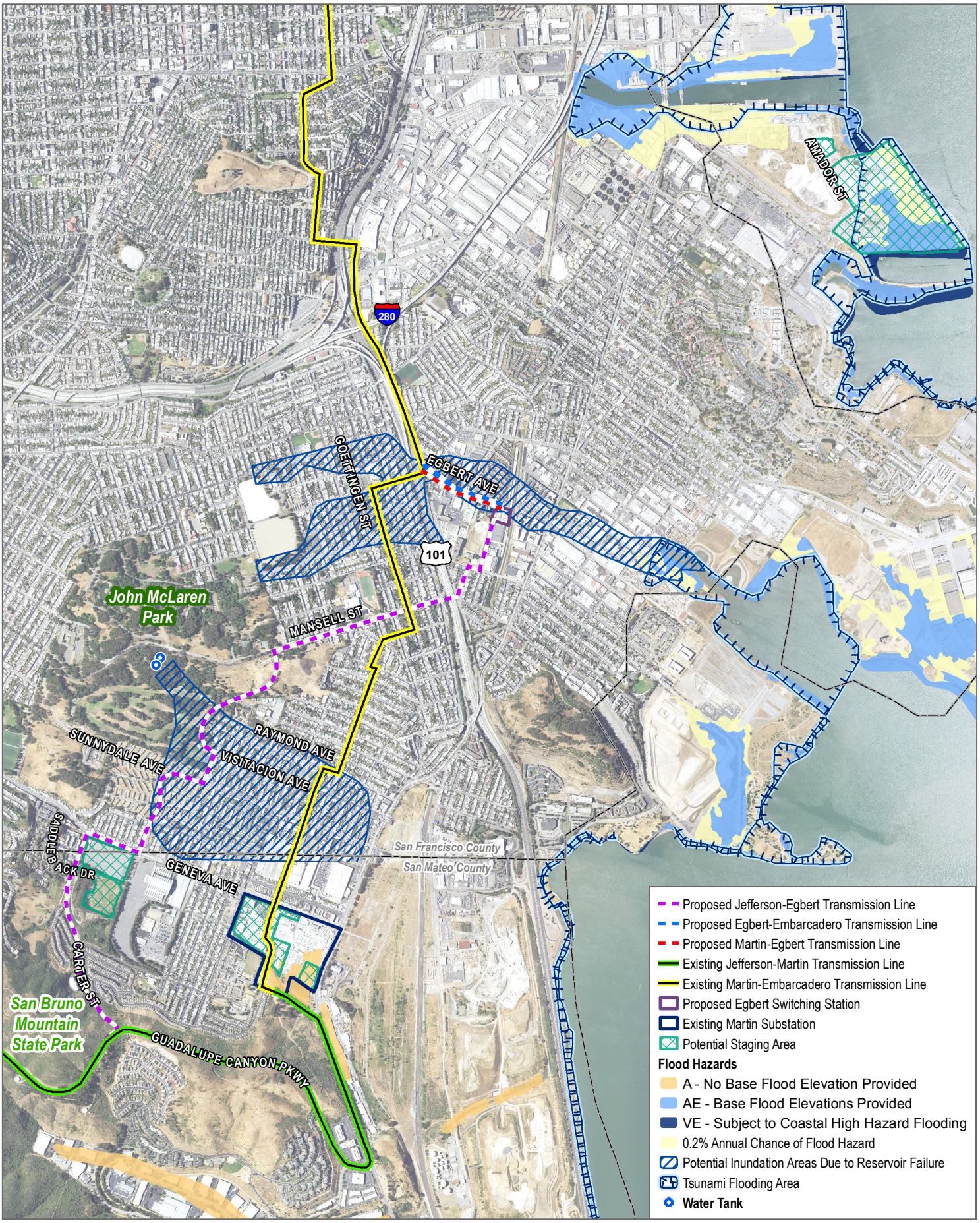
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FIGURE D.10-2

Groundwater Basins

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: USFWS 2019; USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

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FIGURE D.10-3

Potential Flood Zones, Inundation Areas Due to Reservoir Failure, and Tsunami Areas

Egbert Switching Station (Martin Substation Extension) Project

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D.11 LAND USE AND PLANNING

This section evaluates the physical impacts that the Egbert Switching Station (Martin Substation Extension) Project (proposed project). Section D.11.1 provides a description of the environmental setting, and the underlying regulations, plans, and standards are introduced in Section D.11.2. An analysis of the proposed project impacts is provided in Section D.11.3. Section D.11.4 presents impact analysis for the alternatives. Mitigation, monitoring, compliance, and reporting are discussed in Section D.11.5, and Section D.11.6 lists the references cited in this section. Cumulative effects are analyzed in Section F.5.2.10 of this environmental impact report.

D.11.1 Environmental Setting for the Proposed Project

As stated in the Proponent's Environmental Assessment (PG&E 2017):

> The project [Egbert Switching Station (Martin Substation Extension) Project] is located primarily within the limits of the City and County of San Francisco, with the southern portion of the proposed Jefferson-Egbert [transmission] line located in San Mateo County within the cities of Brisbane and Daly City. The proposed Egbert Switching Station would be constructed in San Francisco, while the connecting 230 kV [kilovolt] lines would run underground beneath the urban streets of San Francisco, Brisbane, and Daly City. Dominant geographic features that intersect the project include U.S. 101 and San Bruno Mountain State and County Park.

Existing land uses on the project site are shown on Figures D.11-1, D.11-2a–f, and D.11-3. Residential development is the predominant land use surrounding much of the project site, with commercial uses interspersed and light industrial operations located in the area surrounding the Egbert Switching Station site. The proposed Jefferson-Egbert transmission line includes a short 0.1-mile stretch under Brisbane streets through public park land use.

D.11.1.1 Existing Land Uses

The proposed project is located primarily within the limits of the City and County of San Francisco, with the southern portion of the proposed Jefferson-Egbert transmission line located in San Mateo County within the cities of Brisbane and Daly City. The proposed Egbert Switching Station would be constructed in San Francisco, while the connecting 230 kV lines run underground beneath the urban streets of San Francisco, Brisbane, and Daly City. Dominant geographic features that intersect the project include U.S. 101 and San Bruno Mountain State Park.

Within the developed San Francisco neighborhoods of Bayview, Excelsior, Visitacion Valley, and Crocker Amazon, existing land use is primarily residential, with commercial along 3rd Street and the U.S. Highway 101 corridor, and a mix of residential with light industrial development in the area surrounding the proposed switching station (Figures D.11-1, D.11.2a-f, and D.11-3). Approximately one to three staging areas totaling up to approximately 15 acres would be identified once a construction contractor is selected. Two potential staging areas in San Francisco are in the Southern Waterfront industrial area owned by the Port of San Francisco (Port). The portion of the proposed Jefferson-Egbert transmission line to be constructed under Daly City streets, including Geneva Avenue and Carter Street, runs next to a mix of light and heavy commercial, residential, and public park land uses. Two potential staging areas are adjacent to the proposed Jefferson-Egbert transmission line along Carter Street near and at the intersection with Geneva Avenue. Another two potential staging areas are within the existing Martin Substation. The proposed Jefferson-Egbert transmission line includes a short 0.1-mile stretch under Brisbane streets through public park land use. Approximately 740 acres of unincorporated San Mateo County are found within 1 mile of the project, the majority of which (93%) is located within San Bruno Mountain State Park and is currently used for open space or public recreation. The remainder of unincorporated San Mateo County land within 1 mile of the project site is found on the far south side and is occupied with general or heavy industrial existing uses.

Local Land Use Setting (Existing)

Discussion of existing land use is organized into five areas: the proposed Egbert Switching Station, including adjacent parcels and land uses to the east along 3rd Street; Egbert Avenue west of the proposed switching station along the proposed Martin-Egbert and Egbert-Embarcadero transmission lines; the proposed Jefferson-Egbert transmission line, from the interconnection with the existing Jefferson-Martin transmission line on Guadalupe Canyon Parkway to the proposed switching station; the existing Martin Substation and vicinity; and potential staging area locations. Existing Land Uses within 0.25 miles of the proposed project are illustrated on Figure D.11-1 and Figure D.11-2a–f.

Proposed Egbert Switching Station

The existing land use of the proposed switching station site at 1755 Egbert Avenue is industrial consisting of a lumber and materials staging yard. Existing land uses in the vicinity of the proposed Egbert Switching Station are shown on Figure D.11-1, and parcels immediately adjacent are summarized below. The western boundary of the site is adjacent to an industrial use occupied by Art Hive, which provides studio rental spaces for commercial and industrial design industries. Union Pacific Railroad tracks border the site to the east, and industrial uses (data centers) are located to the south. To the north, directly across Egbert Avenue from the proposed switching station is a commercial storage facility. The facility's entrance is on Egbert Avenue,

and the linear facility extends north to Williams Avenue adjacent to the railroad property. The Portola Place residential area is to the west side of the storage facility. The closest residence to the switching station is about 50 feet away on Kalmanovitz Street, which is to the northwest across Egbert Avenue from the proposed switching station site.

The Union Pacific Railroad tracks, the main tracks to San Francisco, separate the switching station from 3rd Street, which is to the east of the project site. Interspersed with the light industrial and residential uses along 3rd Street are the 2111 Land Street Post Office location, Bayview Hunters Point Multipurpose Senior Services facility, several churches, Bayview Park, and Martin Luther King pool.

Proposed Egbert-Embarcadero and Martin-Egbert Transmission Lines

Existing land uses surrounding the proposed Egbert-Embarcadero and Martin-Egbert transmission lines are shown on Figure D.11-2a and summarized below. The proposed Martin-Egbert and Egbert-Embarcadero transmission lines extend from the proposed Egbert Switching Station site west along Egbert Avenue to Bayshore Boulevard. As the lines extend west, Egbert Avenue is bordered by a mix of residential and industrial uses, including single-family homes, duplexes, a City and County of San Francisco Housing Authority office building, the Plumbers and Pipefitters Union Training Center, a commercial self-storage facility, and industrial design offices. Single-family homes are located to the north and south as Egbert Avenue approaches the east side of Bayshore Boulevard. The west side of the intersection of Egbert Avenue and Bayshore Boulevard is bordered by an elevated section of U.S. 101.

Proposed Jefferson-Egbert Transmission Line

The proposed Jefferson-Egbert transmission line connects the existing Jefferson-Martin transmission line in Brisbane on Guadalupe Parkway terminating at the proposed Egbert Switching Station, heading north through Daly City into San Francisco (Figures D.11-2a–e). The line begins at an interconnection point at an existing Jefferson-Martin transmission line vault in Guadalupe Canyon in San Bruno Mountain State Park (Figure D.11-2e). A Brisbane residential area called The Ridge is located directly outside of the park boundaries, which does not have direct access to Guadalupe Canyon Parkway.

The transmission line leaves Brisbane and enters the city limits of Daly City within 0.1 miles of turning north from Guadalupe Canyon Parkway onto Carter Street. At this point, Carter Street becomes the border between the park to the west and Daly City residential neighborhoods to the east. In another 0.1 miles, Carter Street exits from the park entirely, heading north toward commercial land uses (a storage facility, motel, and automotive shop) mixed with residential neighborhoods. The line continues under Carter Street to Geneva Avenue, where it turns east along Geneva Avenue to Santos Street (Figure D.11-2d). On Carter Street near its intersection

with Geneva Avenue, two potential staging areas have been identified. A field visit on June 1, 2017, observed portions of both parcels supporting construction activities as staging areas and/or materials yards. The western end of the Cow Palace (owned and operated by California Department of Food and Agriculture) is located at the southeast corner of Carter Street and Geneva Avenue. Geneva Avenue is a mix of residential and light and heavy commercial land uses (i.e., Cow Palace, businesses, and a restaurant). When the line turns north onto Santos Street, the commercial uses transition into residential single-family homes or duplexes.

The transmission line would follow Santos Street through the Sunnydale-Velasco ("Sunnydale") community, which consists of 785 residential units. The Sunnydale community is bounded by Velasco Avenue to to the south, Hahn Street to the east, and McLaren Park to the north and west. The Jefferson-Egbert transmission line would turn east on Sunnydale Avenue, where it continues through the Sunnydale community and passes the Girls and Boys Club of San Francisco – Sunnydale Clubhouse (entrance at 1654 Sunnydale Avenue). The line would turn north onto Hahn Street, which is lined with residences and a grocery store at the northeast corner of Sunnydale Avenue and Hahn Street. Shortly after the route enters Hahn Street, it would pass by John McLaren Park to the west, with residential areas to the east (Figure D.11-2c). John McLaren Park is a San Francisco Recreation and Park Department park and contains significant natural areas, open space, and recreational uses. The line would enter the park as it heads west onto Visitacion Avenue, passing park facilities adjacent to the route including the Coffman Pool, baseball field, and basketball court. Approximately 200 feet east of Visitacion Avenue and the park boundaries (not accessible via Visitacion Avenue) is the John King Senior Community Center located in a residential community to the east of the park at 500 Raymond Avenue. Continuing northeast on Visitation Avenue, the line passes the main entrance and parking lot for Visitacion Valley Middle School; however, the school's address is 450 Raymond Avenue. The school is bounded by Visitacion Avenue and Elliot Street to the east. The line exits the park after turning east onto Mansell Street, a boulevard with median, on the far or westbound side. For two blocks, Mansell Street separates single-family homes and apartments to the north from McLaren Park to the south.

The transmission line continues east along Mansell Street through residential areas to San Bruno Avenue (Figure D.11-2b). Phillip and Sala Burton Academic High School is located along westbound Mansell Street to the south and Dwight Street to the north, adjacent to the backyards of homes along Goettingen Street to the east and Bowdoin Street to the west. As the transmission line approaches U.S. 101 through residential neighborhoods on Mansell Street, it passes approximately 360 feet north of the Bee Farm, an educational bee garden and urban farm project located on San Bruno Avenue.

From San Bruno Avenue, the proposed Jefferson-Egbert transmission line crosses under U.S. 101. The west end of the crossing is located to the west of the intersection of Mansell Street

(westbound) and San Bruno Avenue (Figures D.11-2a and D.11-2b). An off-ramp of U.S. 101 connects to the east side of the intersection, and a small landscaped area behind residences is located to the south. Multistory residences are located along San Bruno Avenue and Mansell Street. The east end of the crossing is located at the intersection of Bayshore Boulevard and Crane Street. This area is bordered by single-story and multistory residences.

The transmission line continues north in Crane Street, which has residences on both sides. Residences line the south side of Paul Avenue, while the north side is industrial. The route passes across Paul Avenue to a private industrial parcel, running along the eastern edge of the parcel with industrial uses on either side, until reaching the proposed Egbert Switching Station site.

Martin Substation

The existing Martin Substation and adjacent Service Center is located in both the cities of Brisbane and Daly City (Figure B-1). Areas within the substation property may be used as staging areas during construction as available. The substation is located in an area that is heavily industrialized to the south, east, and west, with residential and commercial uses to the north across the street on Geneva Avenue. The nearest residence to the property line of the substation is located within 150 feet on Geneva Avenue. One block west of the substation on Ottilla Street is the Bayshore School, and one block further west is the Mt. Vernon Christian Academy. Bayshore Heights Park and the Bayshore Branch of the Daly City Public Library are also located on Martin Street, between Martin Substation and the proposed Jefferson-Egbert transmission line on Carter Street (Figure D.11-2e). The Cow Palace is four blocks west of Martin Substation, with a commercial corridor that stretches between the two facilities along Geneva Avenue.

Potential Staging Areas

While staging areas would be determined based on availability at the time of construction as described in Section B, potential staging areas have been preliminarily identified (Figure B-3). Approximately one to three staging areas totaling up to approximately 15 acres would be identified for use once a construction contractor is selected. Of the locations identified for potential use, four are located along the proposed Jefferson-Egbert transmission line or within the existing Martin Substation. The existing land use and analysis for these four potential staging areas, adjacent to or co-located with a proposed or existing project component, is described with the respective component. The two potential staging areas on Amador Street are located approximately 2 miles northeast of the proposed Egbert Switching Station site. These two potential staging areas are located near San Francisco's Piers 92–96, a heavily industrial area, in San Francisco's easternmost neighborhood of India Basin. A variety of industrial uses (San Francisco Police Department firing range, marine construction yards, Recology's Recycle

Central Plant, and concrete recycling) and public open spaces for bay/wetland conservation, including Heron's Head Park, are near these two potential staging areas.

D.11.1.2 Zoning and General Plan Land Use Designations

The project is located within the cities of San Francisco, Daly City, and Brisbane. Figures D.11-3 and D.11-4 illustrate the zoning in the project site. Public utility facilities regulated by the California Public Utilities Commission (CPUC) are not subject to local land use and zoning regulations.

In San Francisco, the portion of the project east of U.S. 101 is located in the Bayview neighborhood. Zoning in this area is primarily industrial and residential. The portion west of U.S. 101 and north of Dwight Street is the Excelsior neighborhood, which extends north as far as Interstate 280. The portion west of U.S. 101 south of Dwight Street is the Visitacion Valley neighborhood, which extends south to the city border.

The proposed Egbert Switching Station site is located near the center of the western edge of the Bayview neighborhood and is zoned Core Production, Distribution, and Repair (PDR-2). Zoning control for PDR-2 permits utility and infrastructure uses, specifically allowing *public utilities yard* and *utility installation* as a permitted use (Planning Code Article 1, Section 210.3).

To allow zoning flexibility and opportunity to the design industry, the San Francisco Planning Department has overlaid the zoning requirements for the proposed Egbert Switching Station site and parcels adjacent to portions of Egbert Avenue with a Design and Development Special Use District (SUD). The Design and Development SUD was created to provide affordable office space to small firms and organizations that focus on design activities, such as architectural, graphic, interior, product, and industrial design. If an occupant does not qualify for the SUD, then the underlying zoning is enforced. Figure D.11-3 shows the mix of both residential and industrial zoning near the switching station and proposed lines, including the SUD boundaries.

In Visitacion Valley, with the exception of commercial and mixed residential-commercial zoning along the west side of U.S. 101 and on San Bruno Avenue, the remainder of the project within San Francisco is primarily zoned residential and parks/open space.

Daly City zoning around the proposed Jefferson-Egbert transmission line is entirely residential and parks/open space, with the exceptions of the small commercial area at the intersection of Sunnydale Avenue and Hahn Street and the area surrounding the Cow Palace and Geneva Avenue. The existing Martin Substation is adjacent to residential and commercial zoning designations by Daly City.

Zoning and existing land uses in the project site are listed in Table D.11-1, Zoning and Existing Land Use Adjacent to Proposed Facilities.

Table D.11-1
Zoning and Existing Land Use Adjacent to Proposed Facilities

Project Location	Zoning	Existing Land Use
Proposed Egbert Switching Station/1755 Egbert Avenue	PDR-2	• Lumber yard and material storage yard
San Francisco: Proposed Egbert-Embarcadero and Martin-Egbert transmission lines/Egbert Avenue between Phelps Street and Kalmanovitz Street	RH-1 and PDR-2	• Residential, Mixed (Houses and Apartments) • Union training center • Self-Storage
San Francisco: Proposed Jefferson-Egbert transmission line/ Railroad tracks	M-1	• Active railroad corridor
San Francisco: Proposed Jefferson-Egbert transmission line/Crane Street	RH-1 P RM-1	• Residential, Mixed (Houses and Apartments)
San Francisco: Proposed Jefferson-Egbert transmission line/next to Bayshore Boulevard	RM-1	• Residential, Mixed (Houses and Apartments) • Commercial
San Francisco: Proposed Jefferson-Egbert transmission line/Mansell Street	RH-1	• Residential houses
San Francisco: Proposed Jefferson-Egbert transmission line/ Mansell Street at University Avenue and Visitacion Avenue	P	• Public – McLaren Park, Sala Burton High School, El Dorado Elementary School, Visitacion Valley Middle School
San Francisco: Proposed Jefferson-Egbert transmission line/ Hahn Street, Sunnydale Avenue, Santos Street	RH-1 RM-1 NC-1	• Residential houses • Residential Mixed District (residential and commercial) • Commercial (grocery)
San Francisco: Potential Staging Areas on Amador Street in India Basin	M-2	• Asphalt • Bulk cargo export
Daly City: Proposed Jefferson-Egbert transmission line and Potential Staging Areas on Carter Street from Geneva Avenue toward Guadalupe Canyon Parkway	C-1 and C-2 R-1,2 and 3	• Cow Palace • Light Commercial • Single, Duplex, and Multifamily residential
Daly City/Brisbane: Proposed Jefferson-Egbert transmission line on Carter Street along San Bruno Mountain State Park	P	• Public (San Bruno Mountain State Park) • Residential
Daly/City Brisbane: Martin Substation (including Potential Staging Area)	M (Daly City) M-1 (Brisbane)	• Existing Pacific Gas & Electric Company (PG&E) Substation
Brisbane: Proposed Jefferson-Egbert transmission line/Guadalupe Canyon Parkway	TC-1	• Residential

D.11.2 Applicable Regulations, Plans, and Standards

Federal Regulations, Plans, and Standards

San Bruno Mountain Habitat Conservation Plan

Section 10 of the federal Endangered Species Act allows for the creation of habitat conservation plans (HCPs) to protect listed and candidate species in connection with the issuance of an incidental take permit for federally listed species. The U.S. Fish and Wildlife Service provides oversight of the San Mateo County Department of Parks and Recreation's HCP for San Bruno Mountain, located within San Bruno Mountain State Park (County of San Mateo 1982). The proposed Jefferson-Egbert transmission line interconnects with the existing Jefferson-Martin transmission line at Guadalupe Canyon Parkway, which is within the HCP area's Guadalupe Hills Planning Area. At the interconnection point location, Guadalupe Canyon Parkway separates the Saddle Management Unit (northern side) with the Dairy & Wax Myrtle Ravines Management Unit (southern side). The transmission line continues east to the intersection of Carter Street and Guadalupe Canyon Parkway, which is also the intersection of four HCP management units: Saddle to the northwest, Dairy & Wax Myrtle Ravines to the southwest, Carter/Martin to the northeast, and Northeast Ridge to the southeast. As the proposed Jefferson-Egbert transmission line heads north on Carter Street, it continues as the boundary separation between the Saddle and Carter/Martin Management Units until Carter Street exits the HCP boundary and continues into the City of Daly City.

No other federal regulations related to land use and planning are applicable to the proposed project.

State Regulations, Plans, and Standards

CPUC General Order No. 131-D

The CPUC has sole and exclusive jurisdiction over the siting and design of the Proposed Project and alternatives because it authorizes the construction, operation, and maintenance of investor-owned public utility facilities. Although such projects are exempt from local land use and zoning regulations and discretionary permitting (i.e., they would not require any land use approval that would involve a discretionary decision to be made by a local agency such as a planning commission, city council, or county board of supervisors), General Order No. 131-D, Section XIV.B, requires that in locating a project "the public utility shall consult with local agencies regarding land use matters." The public utility is required to obtain any required non-discretionary local permit.

California Department of Parks and Recreation

San Bruno Mountain State Park is located off Guadalupe Canyon Parkway in the City of Brisbane. The park is an estimated 2,063 acres and composed of state- and county-owned lands. The park borders several cities, including the City of Daly City, City of South San Francisco, Town of Colma, and City of Brisbane. The park offers hiking and day-use facilities, as well as habitat for a variety of species (California Department of Parks and Recreation 2017). The proposed Jefferson-Egbert transmission line would begin on Guadalupe Canyon Parkway inside the park, but since the transmission line would be in the road, it would not cross any hiking trails or day-use facilities. The planning, development, and management of the park, including management of the HCP, is administered by the San Mateo County Department of Parks and Recreation. The park is home to a wide variety of birds and animals, as well as several endangered plant and butterfly species (California Department of Parks and Recreation 2017). The park is adjacent to the proposed Jefferson-Egbert transmission line on Guadalupe Canyon Parkway in the City of Brisbane.

McAteer-Petris Act (California Government Code, Sections 66650–66661)

The McAteer-Petris Act created the San Francisco Bay Conservation and Development Commission (BCDC), which is a state agency with permit authority over the bay and its shoreline. BCDC regulates filling, dredging, and changes in use in San Francisco Bay and development within 100 feet of the bay. The San Francisco Bay Plan (BCDC 2011) specifies goals, objectives, and policies for existing and proposed waterfront land use and other areas under the jurisdiction of BCDC.

Port of San Francisco Waterfront Land Use Plan and Piers 80–96 Maritime Eco-Industrial Strategy

In 1968, the State of California transferred its responsibilities for the San Francisco waterfront to the City and County of San Francisco through the Burton Act. As a condition of the transfer, the state required the City and County of San Francisco to create a port commission that has the authority to manage the San Francisco waterfront for the citizens of California. The Port is responsible for 7.5 linear miles of waterfront and adjacent seawall lots in the City and County of San Francisco, stretching from Hyde Street Pier in the north to India Basin in the south. A port license would be required for use of port property for a staging area, if such a location is used (Port of San Francisco 2009).

The port developed the Piers 80–96 Maritime Eco-Industrial Center Strategy (Port of San Francisco 2016) to preserve maritime industry in this designated "Maritime Eco-Industrial Center" while defining other land uses, transportation, public infrastructure, and open space. The strategy plan identifies specific planned land uses and leasing strategies for the short term (1–3 years), mid-term (3–7 years), and longer term (more than 7 years).

Local Regulations, Plans, and Standards

As shown on Figure B-1, Regional Map, in Section B, Project Description, the project site is located within portions of the County of San Mateo, City and County of San Francisco, City of Daly City, and City of Brisbane. Local regulation of land use and planning is codified in the San Francisco, Daly City, and Brisbane General Plans. Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the proposed project is not subject to local land use and zoning regulations or discretionary permits. This section identifies local land use plans and regulations for informational purposes and to assist with California Environmental Quality Act review.

Although Pacific Gas & Electric Company (PG&E) is not subject to local discretionary permitting, ministerial permits would be secured, as required. Table A-1 in Section A, Introduction Overview, lists the authorizations that may be required for project construction.

The following plans, policies, and zoning ordinances and codes were reviewed and analyzed:

- San Bruno Mountain HCP
- San Bruno Mountain State Park Plan
- San Francisco General Plan
- San Francisco SUD Maps and associated City and County of San Francisco Planning Code
- Brisbane General Plan
- City of Brisbane Planning Commission meeting minutes
- Daly City General Plan
- Data SF – Land Use Open Data
- Piers 80–96 Maritime Eco-Industrial Strategy

In addition, a field visit to the proposed Egbert Switching Station and proposed routes was conducted to gather relevant information pertaining to the land uses at the proposed site and surrounding areas. Meetings were held during the planning stage of the proposed project with local government departments of planning and public works, and agency officials and other stakeholders including landowners; City and County of San Francisco, City of Daly City, and City of Brisbane; Caltrain; California High-Speed Rail Authority; and Universal Paragon (the Brisbane Baylands developer).

The City and County of San Francisco has recently approved a master plan project for Sunnydale HOPE SF. The Sunnydale HOPE SF Master Plan would revitalize housing within this area bordered by Blythdale Avenue, Sunnydale Avenue, Brookdale Avenue, and Hahn Street. From

the south, the Jefferson-Martin transmission line would follow Santos Street to Sunnydale Avenue, turning east on Sunnydale Avenue to Hahn Street, and then proceeding north on Hahn Street, which passes through the Sunnydale HOPE SF project site. During development of the Master Plan, these streets would be reconstructed and in some cases significantly realigned. Because the phasing of the work on this approved project is contingent on the availability of funding from a variety of largely public sources, construction schedules are subject to change within the next 5–10 years.

General Plan Policies

The following are applicable county and city general plan goals and policies that govern transmission and utility facilities on the project site.

San Bruno Mountain Master Plan

San Bruno Mountain State Park is surrounded by the cities of Brisbane, Daly City, and South San Francisco. The park is an estimated 2,063 acres and is composed of state- and county-owned lands. The planning, development, and management is administered by the San Mateo County Division of Parks and Recreation. The park provides Bay Area visitors with day-use facilities, hiking trails, and views of the surrounding cities and bay. The park is home to a wide variety of birds and animals as well as several endangered plant and butterfly species (California Department of Parks and Recreation 2017).

San Bruno Mountain HCP

The San Bruno Mountain HCP was reviewed for land use policies that would assist with the environmental review. A portion of the proposed Jefferson-Egbert transmission line is located in franchise in Guadalupe Canyon Parkway and Carter Street within the overall HCP area. Within the HCP area, Carter Street passes through lands that are developed, unplanned, and conserved habitat. In 2007, 256 acres of unplanned areas remained within the HCP boundary. Parcels designated as unplanned have neither developments nor conservation dedications and, by default, are subject to the HCP's habitat conservation requirements P. Developed residential and light commercial areas on the east side of Carter Street lie outside of the HCP. The habitat on both sides of Guadalupe Canyon Road is protected habitat.

The HCP establishes multiple planning areas; the project lies within the Guadalupe Hills Planning Area. The Guadalupe Hills portion of the HCP supports endangered butterflies and rare and endemic plants (PG&E 2017).

San Francisco General Plan

The San Francisco General Plan (San Francisco Planning Department 2011) was reviewed for land use and zoning maps in addition to policies that would assist with the environmental review of the proposed project (Figure D.11-3). The proposed Egbert Switching Station site and portions of the proposed project's transmission lines are located within the Bayview Hunters Point Area Plan, which designates the site as light industrial. Consistent with this land use designation, the Egbert Switching Station site is zoned Production, Distribution, and Repair (PDR-2) and is also located within one of the City and County of San Francisco's 12 SUDs, the Design and Development SUD. This zoning district provides more flexible office space standards from the existing zoning for qualified design businesses engaged in activities such as architectural, graphic, interior, product, and industrial design. Digital media and arts businesses may also be eligible to receive reduced office space requirements.

Daly City General Plan

The Daly City General Plan (City of Daly City 2013) was adopted in 2013 and contains specific policies and guidelines for 13 planning areas within the City of Daly City. The proposed Jefferson-Egbert transmission line is routed within the Bayshore Planning Area (No. 13). While the City of Daly City is predominantly residential, the Bayshore Planning Area contains the Geneva Avenue commercial corridor and the Cow Palace. The City of Daly City's only industrial area is primarily located in the Bayshore neighborhood, north of MacDonald Avenue.

Redevelopment of the Cow Palace is noted in the Daly City General Plan to be one of the major opportunities in this planning area. The City of Daly City has sought to acquire the Cow Palace from the State of California for redevelopment; however, no bill providing for the sale has been signed into law (Daly City Redevelopment Agency 2009). Adjacent to the Cow Palace is Geneva Avenue, which is also a focus of the City of Daly City's planning efforts by creating the Geneva Avenue Corridor. In 2009, the Draft Bayshore Redevelopment Project Area Implementation Plan was published; a primary objective of the plan was to further the City of Daly City's land use goals from the General Plan. No recent planning or action has been recorded for the Cow Palace or Bayshore neighborhood.

Brisbane General Plan

The Brisbane General Plan (City of Brisbane 2018) was adopted in 1994 and contains specific policies and guidelines for 13 subareas within the City of Brisbane. The proposed Jefferson-Egbert transmission line is routed between the Northeast Ridge and Northwest Bayshore subareas.

The City of Brisbane has been in the process of a General Plan Update, with completion to occur following an environmental impact report and decisions on the potential buildout of the Baylands Subarea, which is unrelated to the proposed project. The Baylands Subarea is located directly across Bayshore Boulevard from the Martin Substation. The Brisbane City Council approved Resolution No. GP-1-06/GP-02/10/SP-01-06 on March 22, 2018. The Resolution denied the general plan amendment and specific plan as proposed by Universal Paragon Corporation for the Brisbane Baylands Specific Plan, but approved a modified general plan amendment that would result in reduced land use intensity to reduce potential significant and unavoidable environmental impacts, as analyzed in the EIR. The Brisbane City Council certified the Final EIR for the Baylands Subarea and adopted the Mitigation Monitoring and Reporting Program on July 19, 2018. Resolution No. GP-1-18 was also approved on July 19, 2018 to revise the general plan amendment for the Baylands Subarea to include 1,800 to 2,200 residences north of the Main Street extension, subject to a majority vote for the GPA in the general election in November 2018. Resolution No. GP-1-18 was passed (as Measure JJ) on November 6 2019.

The City of Brisbane City Council has not made a determination regarding the rezoning of the Baylands Subarea. State Law establishes the General Plan land use map as the overarching constitutional document establishing allowable land uses. Any specific plan or zoning ordinance must be consistent with the General Plan.

Piers 80–96 Maritime Eco-Industrial Strategy

The potential Amador Street staging areas are located in the Southern Waterfront industrial area owned by the Port. The Piers 80–96 Maritime Eco-Industrial Strategy outlines how the Port plans to co-locate maritime industrial uses with public open space, such as the Heron's Head Park Wetlands. The Port's Southern Waterfront Area is bounded by 25th Street to the north, Illinois Street to the west, and Cargo Way to the south. The strategy plan discusses existing and planned land use in phases, transportation and movement of goods, environmental stewardship, public recreational and open space uses, and economic development and other benefits to the community. The two locations preliminarily identified by PG&E as potential staging areas are within the Piers 90–96 area of the plan, northeast of Amador Street, and are surrounded by industrial or open space land uses. The largest, southerly staging area (South Container Terminal) is within the Pier 94/96 area of the port's South Container Terminal, the edges of which are within the BCDC 100-foot shoreline. Table D.11-2 lists area plans and describes associated planned improvements.

Table D.11-2
Area Plans and Planned Improvements

Agency	Plan	Planning Area Name and Improvements
City and County of San Francisco	Conservation and Revitalization Program	**Bayview Hunters Point:** Improve the relationship between the housing industry and open space, conserve natural open space, promote mixed-use development, and revitalize the commercial core.
City and County of San Francisco	Special Use Districts	**Design and Development Special Use District:** Promote design activities, including architectural, graphic, interior, product, and industrial design.
City and County of San Francisco	Green Connections	**Green Path Routes No. 10 (Yosemite Creek along Paul Avenue), No. 12 (Lake Merced to Candlestick Park), and No. 23 (Crosstown Trail along Visitacion Avenue through McLaren Park)[a]:** Increase access to parks, open spaces, and waterfront within the City and County of San Francisco.
Port of San Francisco	Piers 80–96 Maritime Eco-Industrial Strategy	**Maritime Eco-Industrial Center:** Co-locate maritime industrial uses to enable product exchange, optimize resources, incorporate green design and technologies on site, promote resource recovery and reuse, support local employment, and incorporate public open space for recreation and habitat.
City of Daly City	General Plan	**Bayshore Planning Area:** Focus on revitalization effort to provide major job opportunities.
Daly City Redevelopment Agency	Draft Bayshore Redevelopment Project Area Implementation Plan	**Bayshore Redevelopment Project:** Address constraints identified in the General Plan to improve the Bayshore neighborhood and achieve the City of Daly City's land use goals.
City of Brisbane	N/A	N/A
San Francisco Municipal Transportation Agency	Bayshore Boulevard Road Diet and Bikeways	**Bayshore Boulevard between Silver and Paul Avenues:** Increase safety for pedestrians and cyclists on Bayshore Boulevard.
San Mateo County Department of Parks and Recreation	Habitat Conservation Plan	**San Bruno Mountain State Park:** Preserve and enhance habitat for endangered species.

Notes: N/A = not applicable

[a] Section 5.15.1, Environmental Setting, in Section 5.15, Recreation, discusses the Green Connection Routes in relation to the proposed project.

Airport Land Use Plans

Airport land use plans are discussed in Section D.9, Hazards and Hazardous Materials. The project site is located in Airport Influence Area A of San Francisco International Airport (C/CAG 2012). The Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport requires the disclosure of the airport and related annoyances or inconveniences for property sales or leases (C/CAG 2012). No special land use restrictions are in effect within Area A.

D.11.3 Environmental Impacts and Mitigation Measures

D.11.3.1 Definition and Use of Significance Criteria

Appendix G of the California Environmental Quality Act Guidelines (14 CCR 15000 et seq.) provides guidance for evaluating whether a development project may result in significant impacts. In accordance with Appendix G, the proposed project would have a significant impact on land use and planning if the proposed project would:

Impact LU-1 Physically divide an established community

Impact LU-2 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

D.11.3.2 Applicant Proposed Measures

Table D.11-3 presents the applicant proposed measures (APMs) proposed by PG&E to avoid project impacts related to land use and planning.

Table D.11-3
Applicant Proposed Measures for Land Use and Planning

APM No.	Description
APM LU-1	**Provide Construction Notification and Minimize Construction Disturbance.** A public liaison representative will provide the public with advance notification of construction activities, between two and four weeks prior to construction. The announcement will state specifically where and when construction will occur in the area. Notices will provide tips on reducing noise intrusion (e.g., closing windows facing the planned construction).
APM LU-2	**Provide Public Liaison Person and Toll-Free Information Hotline**. PG&E will identify and provide a public liaison person before and during construction to respond to concerns of neighboring residents about noise, dust, and other construction disturbance. Procedures for reaching the public liaison officer via telephone, email, or in person will be included in notices distributed to the public as described above. PG&E will also establish a toll-free telephone number for receiving questions or complaints during construction.

D.11.3.3 Impact Discussion

Impact LU-1 Would the project physically divide an established community?

The proposed project would construct underground transmission lines and a new switching station. The switching station would be located in an urban environment featuring industrial, residential, and commercial uses on an industrial site that currently operates as a fenced lumberyard. The Egbert Switching Station site would be enclosed by a 12-foot-high perimeter metal mesh fence along the northern and eastern site boundaries (the fence would be 40 feet high

at the southern and western site boundaries) with two 20-foot-wide access gates for vehicle and pedestrian access. In addition, a 40-foot-high steel switchgear building would be constructed in the central-southern portion of the project site. The proposed project would introduce a new, larger scale use on the site; however, since the property is already fenced, new barriers that alter or shift the existing community would not be created. Construction activities would only have the potential to disrupt land uses adjacent to the proposed Egbert Switching Station for short periods. Disruptions may occur during removal and delivery of material and equipment. Impacts resulting from temporary disruption of established land uses due to potential restricted access during construction would be reduced with APM LU-1 (Construction Notification) and APM LU-2 (Public Liaison and Information Hotline). Therefore, with implementation of APMs, construction of the proposed underground transmission lines and new switching station would not physically divide an established community. Therefore, impacts would be less than significant (Class III).

Impact LU-2 Would the project 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 proposed Egbert Switching Station site would be located on land designated for light industry and zoned Core Production, Distribution, and Repair District (PDR-2), which specifically permits utility and infrastructure uses (San Francisco Planning Department 2017). Although the City and County of San Francisco does not have jurisdiction over the proposed project, the design and scale of the proposed Egbert Switching Station may be inconsistent with Urban Design Element Policies 3.2 and 3.3. This potential inconsistency is considered in the visual analysis of the project in Section D.2, Aesthetics, where information is provided on environmental setting and community standards.

Use of the potential staging areas on Amador Street is compatible with the Port's Strategy Plan and existing surrounding industrial land uses. The South Container Terminal facility would be used as a staging area only in the event sufficient space is available on the piers per the port at the time of construction. Portions of the South Container Terminal area are also within BCDC's 100-foot shoreline band. No modifications to the existing paved area would be implemented as part of the proposed project, and no impact to resources within BCDC's jurisdiction would occur.

Installation of the new transmission lines would primarily occur within PG&E's right-of-way (ROW) in city streets. The San Bruno Mountain HCP extends along the southern portion of the proposed Jefferson-Egbert transmission line. Construction, operation, and maintenance of the proposed project would be confined entirely underground within PG&E's ROW along Carter Street and Guadalupe Canyon Parkway and, therefore, would not conflict with the San Bruno Mountain HCP. Please see Section D.4, Biological Resources, for further discussion.

The Jefferson-Egbert transmission line continues north on Carter Street through Daly City, through a mix of residential and commercial land uses. The line would follow Geneva Avenue east to Santos Street within San Francisco. The current alignment of Santos Street within the Sunnydale-Velasco community would be altered as part of the Sunnydale HOPE SF Master Plan. Between Velasco Street and Sunnydale Avenue, Santos Street would be realigned, and the existing Santos Street right of way would redeveloped for housing. Therefore, a transmission line placed in the current roadway alignment could be directly beneath planned housing. Although, pursuant to CPUC General Order No. 131-D, local agencies do not have land use jurisdiction over transmission line projects, the timing of the Sunnydale HOPE SF Master Plan and the Jefferson-Egbert transmission line could result in a physical impact to the environment. Depending on the relative timing of the proposed project and the implementation of the Sunnydale HOPE SF Master Plan, two impact scenarios could occur: (1) the proposed project proceeds first and the transmission line is installed in existing roadways and within Sunnydale HOPE SF's development footprint, creating an incompatible land use for future housing within the approved Sunnydale HOPE SF Master Plan thus causing the Sunnydale developer to relocate newly installed transmission lines; or (2) Sunnydale HOPE SF is developed first, realigning Santos Street, and making it necessary to reroute the planned Jefferson-Egbert transmission line and demolish the newly constructed roadways.

If the proposed project proceeds first, prior to construction of the Sunnydale HOPE SF development, the approved master plan development would need to be redesigned to avoid realignment of the affected segment of Santos Street, and avoid placing housing within the transmission line easement (located within the current street ROW). If realignment of Santos Street cannot be avoided, the Sunnydale HOPE SF project proponent would be responsible for relocation of the new transmission line during construction of the new Santos Street alignment. In addition, revisions to the Sunnydale Hope SF Master Plan design would result in substantial delays in development of master plan elements, such as realignment of existing roadways and construction of new updated housing. Furthermore, additional work required by the Sunnydale HOPE SF project proponent to redesign the site to avoid realignment of Santos Street or relocate the new transmission line would likely be economically infeasible for the Sunnydale HOPE SF project proponent.

If the approved Sunnydale HOPE SF Master Plan is developed first, prior to the proposed project, the land uses would technically be compatible. However, demolition of the newly constructed roadway improvements and subsequent repair by PG&E could cause land use disruptions to residents within the Sunnydale HOPE SF Master Plan area due to the uncertain schedule of improvements as well as restricted access from added roadway closures. Although the traffic impacts associated with roadway closures anywhere along the proposed project alignment can be avoided/minimized through implementation of APM TR-1 (Traffic Management Plan) and through Mitigation Measure (MM) TR-1 that requires restoration and repair of all damaged surfaces, this traffic mitigation does not fully address all other issues related to community disruption at the Sunnydale HOPE SF project site (refer to Section D.13, Transportation, for analysis of traffic impacts).

To reduce potential land use conflict, PG&E shall implement MM LU-1, which requires PG&E to coordinate the installation of the Santos Street segment of the Jefferson-Egbert transmission line with the City and County of San Francisco. However, even with implementation of mitigation relative to land use, the uncertainty remains regarding whether or not the construction schedules for Sunnydale and the proposed project can be adequately coordinated.

North of Hahn Street, the Jefferson-Egbert transmission line would follow Visitacion Avenue through McClaren Park. As the line would be within the existing Visitacion Avenue ROW it would not conflict with use of McClaren Park. The transmission line then follows existing street ROW through residential and commercial/industrial areas to the proposed Egbert Switching Station. As the line would be placed within existing street ROW, no land use conflicts would occur. Similarly, the Martin-Egbert and Egbert-Embarcadero transmission lines would be located within the Egbert Avenue ROW from the proposed switching station to Bayshore Boulevard through residential, commercial, and industrial areas.

Operation and maintenance personnel would visit the project periodically for routine inspection and maintenance procedures. This infrequent activity would have negligible impacts on the existing transportation system. Nonetheless, traffic associated with operation and maintenance would be addressed through PG&E's existing processes to coordinate work in streets.

The proposed switching station and staging areas would not result in significant environmental impacts due to land use conflicts. However, because of the uncertain construction schedules with the Sunnydale HOPE SF Master Plan Development, MM LU-1 as proposed may not fully address the extent of the disruption to the Sunnydale HOPE SF community. Therefore, land use impacts at the approved Sunnydale HOPE SF Master Plan Development would be considered significant and unavoidable (Class I).

MM LU-1 Pacific Gas & Electric Company (PG&E) shall coordinate the installation of the Santos Street segment of the Jefferson-Egbert transmission line with the City and County of San Francisco. The transmission line shall be installed in the realigned street section and shall avoid street sections planned for vacation/realignment in the Sunnydale HOPE SF Master Plan.

D.11.4 Project Alternatives

D.11.4.1 Bayshore Switching Station Alternative

Environmental Setting

Local Land Use Setting

The Bayshore Switching Station Alternative is located within the City of Brisbane in San Mateo County. The alternative switching station site is bounded by the Machinery & Equipment Company building to the east, Brisbane Fire Station to the south, Brisbane Boulevard to the west, and an open space area called Icehouse Hill to the north. The alternative Jefferson-Bayshore and Martin-Bayshore transmission line segments run north of the alternative switching station site, adjacent to the base of Icehouse Hill, and traverse the existing Old Bayshore Tunnel Trail alignment east of Icehouse Hill. The alternative transmission lines are also bounded by railroad tracks to the east and industrial development to the north. The alternative Bayshore-Embarcadero transmission line would run along Bayshore Boulevard, west of the switching station, and connect to the Martin Switching Station to the west near the boundaries of the Cities of Brisbane and Daly City. Development along Bayshore Boulevard is primarily made up of industrial and commercial land uses. Open space located west of Bayshore Boulevard is within a San Bruno Mountain HCP Planning Area management unit. The alternative Bayshore-Embarcadero transmission line segment along Main Street would be bounded by Martin Substation to the north, and commercial and residential land uses further west along Midway Drive and north on Schwerin Street. The Bayshore Elementary School is located west of the Schwerin Street near the alternative line segment connection to Martin Substation.

Zoning and General Plan Land Use Designations

The Bayshore Switching Station Alternative would be located within the Baylands Subarea (within and east of Bayshore Boulevard) and the Northwest Bayshore Subarea (west of Bayshore Boulevard) of the Brisbane General Plan. The Bayshore Switching Station Alternative improvements within the Baylands Subarea is designated Planned Development (PD) – Residential Prohibited. PD designates subareas that are primarily vacant and that present unique development constraints due to their size, location, environmental setting, lack of infrastructure improvements, and/or potential impact upon neighboring districts (City of Brisbane 2018). Existing land use designations along the alternative Bayshore-Embarcadero transmission line within the Baylands Subarea include Neighborhood Commercial/Retail/Office, Trade Commercial, and Planned Development – Subregional Commercial/Retail/Office. Existing land uses near the alternative Bayshore-Embarcadero transmission line segment within the Northwest Bayshore Subarea include Marsh/Lagoon/Bayfront, and Commercial/Planned Utilities (City of

Brisbane 2018). The land directly west of the Martin Substation connection is designated Commercial, within the City of Daly City.

The Bayshore Switching Station Alternative improvements east of Bayshore Boulevard are zoned Commercial Mixed-Use District (C-1) (City of Brisbane 2018). The land west of Bayshore Boulevard, adjacent to the alternative Bayshore-Embarcadero transmission line to Main Street is designated Crocker Park Trade Commercial District (TC-1) and PD. The land north of Main Street is zoned Marsh Lagoon Bayfront District (MLB) and Commercial/Public Utilities District (C/P-U). The land directly west of the Martin Substation and the western boundary of the alternative is zoned Residential in the City of Daly City. The zoning designations do not reflect the General Plan Update for the Baylands Subarea, because the City of Brisbane City Council has not made a determination regarding the rezoning proposal at this time. State law establishes the General Plan land use map as the overarching constitutional document establishing allowable land uses. Any specific plan or zoning ordinance must be consistent with the General Plan.

Environmental Impacts and Avoidance Measures

Impact LU-1: The Bayshore Switching Station Alternative would include construction of a switching station on a 6.6-acre parcel in the Baylands Subarea in the City of Brisbane and three underground transmission lines (total 2.6 linear miles) to connect to existing transmission lines and the Martin Substation. An existing nursery is operational in the southern portion of the alternative switching station site and the remainder of the site is undeveloped. Development adjacent to the alternative switching station site includes the Machinery & Equipment Company building directly east, Brisbane Fire Station to the south, Brisbane Boulevard to the west, and an open space area called Icehouse Hill to the north. The Bayshore Switching Station Alternative would introduce a new industrial utility use in an area that is currently sparsely developed with industrial, commercial, and institutional land uses. The alternative switching station would be constructed at the edge of the Brisbane Baylands Subarea and would not limit access to other parcels or alter proposed circulation or access to developable parcels within the subarea. Construction of the alternative switching station may result in temporary disruption of the access road that also leads to the existing Machinery & Equipment Company building. Additionally, alternative transmission lines would require temporary lane closures during construction, resulting in impacts to surrounding land uses. A traffic control plan would be implemented for any portion of construction that would require lane closures to ensure proper access is maintained for surrounding development (Section D.13.3.3). Temporary disruption of established land uses during construction would also be reduced with implementation of APM LU-1 and APM LU-2. Once operational, the alternative switching station and underground transmission lines would not divide any established or proposed communities. Therefore, with implementation of APM LU-1 and APM LU-2, construction and operation of the Bayshore

Switching Station Alternative would not physically divide an established community, and impacts would be less than significant (Class III).

Impact LU-2: The Bayshore Switching Station Alternative would include construction of a switching station and associated underground transmission lines to connect to the Martin Switching Station. The underground transmission lines installed within disturbed areas and existing roadways for this alternative would result in temporary construction impacts and would not conflict with land use regulations. The alternative switching station site is zoned Commercial Mixed-Use.

The majority of the Bayshore Switching Station Alternative would be developed within the Bayshore Subarea of the Brisbane General Plan. The land use section of the Brisbane General Plan was updated in 2018 to reflect Resolution No. GP-1-18, adopted on November 6, 2018. The resolution revised the Baylands Subarea land use designation to read as follows:

> The Baylands Subarea provides for a transit-oriented variety of residential, employment- and revenue-generating uses; natural resource management; and public and semi-public facilities. A range of 1,800 to 2,200 dwelling units (the upper range of which shall not exceed all units permitted under the State density bonus or other law providing for affordable housing, up to 6.5 million square feet of new commercial development, with an additional 500,000 square feet of hotel development shall be permitted.

Development within the Baylands Subarea shall be subject to the City's approval of a single specific plan for the entirety of the Baylands Subarea and a development agreement that is consistent with the General Plan policies. Table D.11-4 outlines the Baylands Subarea land use standards that are applicable to the Bayshore Switching Station Alternative.

Table D.11-4
Land Use Consistency Analysis – Bayshore Switching Station Alternative

Land Use Policy/Standards	Consistency Analysis
Resolution No, GP-1-18: Development within the Baylands Subarea shall be subject to the City's approval of a single specific plan for the entirety of the Baylands Subarea and a development agreement they is consistent with General Plan Policies	Inconsistent. The Brisbane Baylands Specific Plan was denied under Resolution No. GP-01-06GP-02-10/SP-01-06. A specific plan covering the entire Bayshore Subarea must be approved prior to development within the subarea. There is no approved specific plan governing development within the Baylands Subarea.
Resolution No, GP-1-18: Each Increment of development shall be provided with appropriate transportation related and other infrastructure, facilities, and site amenities as determined by the City	Consistent. PG&E would install all new infrastructure required to support the alternative switching station per the City standards.
Resolution No, GP-1-18: Sufficient assurances for the satisfactory ongoing performance of site remediation and site development (e.g., site monitoring, performance	Consistent. Construction of the Bayshore Switching Station Alternative within the Baylands Subarea has potential to encounter contaminated soils. APM HM-1 and APM HM-3 would be

Table D.11-4
Land Use Consistency Analysis – Bayshore Switching Station Alternative

Land Use Policy/Standards	Consistency Analysis
bonds, environmental insurance) shall be provided as determined by the City.	implemented during construction activities to reduce the likelihood of soil or surface/groundwater contaminated from inadvertent disturbance of contaminated soils (Section D.10.3.3).
Resolution No, GP-1-18: Key habitat areas, including Icehouse Hill and Brisbane Lagoon and adjacent habitat identified in the 2001 City Open Space Master Plan shall be preserved, enhanced, and protected	Inconsistent. The alternative switching station and alternative Jefferson-Bayshore and Martin-Bayshore transmission line segments would be constructed within proposed maximized open areas (City of Bayshore 2001). The alternative transmission alignments would be restored once construction is completed, but the alternative switching station would result in permanent impacts to up to 11.1 acres of land recommended to be dedicated as open space. Additionally, construction of the alternative transmission lines at the base of Icehouse Hill would be designed to avoid impacts to sensitive habitat on Icehouse Hill, but the Bayshore-Martin transmission line segment has potential to impact mapped willow scrub habitat in an unnamed drainage feature directly south of Icehouse Hill (Section D.4.3.3).
Resolution No, GP-1-18: Development shall be designed to protect uses from the 100-year flood, including 100 years of projected sea level rise as determined based on regulatory standards or guidelines in effect at the time of project construction, with reference to guidelines and sea level rise projections approved by the Director of Public Works/City Engineer based on context-specific considerations of risk tolerance and adaptive capacity	Consistent. No portion of the Bayshore Switching Station Alternative would be constructed within a flood hazard zone. Additionally, the portion of the alternative within the Baylands Subarea is not within an area at risk of inundation associated with sea level rise (City of Brisbane 2013).
General Plan Policy BL.6: Maximize opportunities for open space and recreational uses in any land use planning for this subarea.	Consistent. Approximately 1,600 feet of the alternative Jefferson-Bayshore and Martin-Bayshore transmission line segments would be construction within the Old Bayshore Tunnel Trail alignment east of Icehouse Hill. Although construction activities may disrupt access to the trail for approximately 40 days, no mitigation is necessary because the trail is not a formally designated trail within the City, state, or other agency.

The Bayshore Switching Station Alternative would conflict with multiple land use policies or standards. While the CPUC has sole and exclusive jurisdiction over the siting and design of the proposed project and alternatives because it authorizes the construction, operation, and maintenance of investor-owned public utility facilities, the consistency analysis presented in Table D.11-4 demonstrates that the Bayshore Switching Station Alternative would conflict with the vision and goals of the Baylands Subarea. Development of the alternative without an approved specific plan would conflict with the existing land use standards but would not necessarily result in substantial environmental effects. Development within an area proposed for maximized open areas near known sensitive biological habitat could result in potentially significant impacts to biological resources. Should this alternative be chosen, additional work

would be necessary to determine the extent of sensitive habitat within or near the alternative project site (e.g., biological resources assessment, jurisdictional delineation, focused surveys). If avoidance cannot be achieved, mitigation would be incorporated into the mitigation monitoring, compliance, and reporting program to minimize or remedy potentially significant direct and/or indirect impacts to sensitive habitat and require application for any permits necessary for habitat modifications. Impacts would be less than significant with implementation of mitigation (Class II).

Comparison to the Proposed Project

The Bayshore Switching Station Alternative would result in development of a land use that conflicts with the standards established for the Baylands Subarea, specifically Resolution No, GP-1-18, which requires preservation of key habitat areas, including Icehouse Hill. Therefore, development of the Bayshore Switching Station and transmission lines could cause a significant environmental land use impact due to a conflict with a land use policy. Section D.4.4.1 describes the potential biological impacts associated with this alternative. Although the Bayshore Switching Station Alternative would conflict with the adopted land use standards within the Baylands Subarea, potential environmental impacts associated with the conflicts could be avoided, minimized, or remedied with implementation of mitigation measures for impacted resources (habitat). Therefore, impacts resulting from potential land use conflicts associated with this alternative, with the incorporation of feasible mitigation measures, would be reduced, as compared to the proposed project; specifically the proposed project would result in a potentially significant and unavoidable land use conflict with the approved Sunnydale HOPE SF Master Plan Development.

D.11.4.2 Geneva Switching Station Alternative

Environmental Setting

Local Land Use Setting

The Geneva Switching Station Alternative would require construction of a new switching station on approximately 11.1 acres of private land in the City of Daly City and installation of approximately 2.3 miles of new 230 kV underground transmission lines within the City of Daly City and City and County of San Francisco. The site is currently utilized as a paved parking lot and has been used as a temporary construction staging area in the past. Existing land uses in the vicinity of the alternative switching station include residential and commercial development to the west, a paved parking lot to the north, the Cow Palace Complex to the east, and vacant land to the south. The alternative switching station is bounded by a line of mature trees on the western and southern property boundaries.

The alternative Jefferson-Geneva transmission line would run south along the Carter Street alignment and connect to existing transmission line on Guadalupe parkway, west of Carter Street. Existing land uses adjacent to Carter Street include residential development, a commercial storage facility, and open space areas. The southern 0.1 miles of Carter Street is directly east of the San Bruno Mountain State Park.

The alternative Geneva-Embarcadero and Martin-Geneva transmission lines would run north along Carter Street, turn east, follow the Geneva Avenue alignment, and connect to existing transmission lines near the intersection with Bayshore Boulevard. A mix of commercial and residential land uses are developed along Carter Street and Geneva Avenue adjacent to the alternative lines. The Cow Palace complex is south of Geneva Avenue, and the Bayshore School and Mt. Vernon Christian Academy are within existing residential and commercial development east of the Cow Palace complex. The Martin Substation and service center is directly east of the school, encompassing an area of approximately 45 acres at the southwest corner of Geneva Avenue and Bayshore Boulevard in the City of Brisbane.

Zoning and General Plan Land Use Designations

The alternative Bayshore Switching Station Alternative would be primarily constructed within the Bayshore planning area within the City of Daly City. The Bayshore neighborhood consists primarily of detached single-family residential homes and the Geneva Avenue commercial corridor.

The alternative switching station site is zoned Commercial. The Cow Palace east of the alternative switching station site and the majority of parcels directly adjacent to Geneva Avenue, within the Geneva Avenue Commercial Corridor, are zoned Commercial as well. The remainder of the land uses near the Geneva Switching Station Alternative are zoned Residential. The Martin Substation, south of Geneva Avenue, is within an Industrial Zoning District. The land at the south end of the alternative Jefferson-Geneva transmission line segment, west of Carter Street, is zoned Open Space and Industrial within unincorporated San Mateo County.

Daly City 2030 General Plan

The City included a vision and goals to redevelop the Cow Palace property, owned by the California Department of Food and Agriculture, and ideally a 12-acre parcel owned by the City of Daly City, and a privately owned 11-acre parcel (alternative Geneva switching station site) (City of Daly City 2013). No redevelopment efforts have been successful to date. The General Plan includes the following task to support their vision and goals:

Task LU-3.2: Prepare a comprehensive land use, infrastructure, and streetscape plan for the Geneva Avenue Corridor, including the state-owned Cow Palace property. If necessary, the plan shall make specific recommendations for changes to the

General Plan and Zoning Ordinance that will be necessary to assist with the plan's implementation. The plan shall also identify which, if any, public improvements will be necessary for long-term implementation, including any necessary upgrades to existing public utilities in the area, and potential financing strategies to fund these improvements.

On July 8, 2019, the City Council approved a resolution in support of a long-term lease agreement for development within the Cow Palace property and potentially the adjacent properties to the west (City of Daly City 2019). No development has been proposed at this time, but the resolution supports the City's General Plan goals and anticipated buildout conditions.

Environmental Impacts and Avoidance Measures

Impact LU-1: The Geneva Switching Station Alternative would include construction of underground transmission lines and a new switching station, primarily within the City of Daly City. The alternative switching station would be located in an urban environment featuring residential and commercial uses on an undeveloped site that is paved and previously operated as a drive-in movie theater. The alternative switching station site is already fenced, and mature trees line the majority of the site boundary, so the alternative switching station would not create new barriers that alter or shift the existing community. Disruptions of existing land uses would occur during construction of the alternative transmission lines within existing roadways. Once operational, the alternative switching station and underground transmission lines would not divide any established or proposed communities or land uses. Therefore, with implementation of APM LU-1 and APM LU-2, construction and operation of the Bayshore Switching Station Alternative would not physically divide an established community, and impacts would be less than significant (Class III).

Impact LU-2: The Geneva Switching Station Alternative would include construction of a switching station and associated transmission lines, primarily within the Bayshore neighborhood of the Daly City 2030 General Plan. The alternative transmission line segments would be constructed underground within existing roadways in the public ROW. Construction activities associated with the alternative transmission line would have the potential to disrupt land uses adjacent to work areas for short periods. However, once construction is completed, construction-related impacts to surrounding development would cease, and all work areas would be restored to pre-project conditions.

The alternative switching station would be constructed on a privately owned 11.1-acre site in a Commercial zoning district in Daly City. Public utilities, including public utility buildings, are a permitted use within the City's Commercial zoning district. The City of Daly City envisions the Cow Palace complex, in conjunction with two adjacent vacant parcels (approximately 100 acres)

as one of the greatest opportunities for redevelopment in Daly City. The 2030 General Plan buildout conditions assume development of the Cow Palace property and adjacent parcels to include 1,700 new dwelling units and 300,000 square feet of retail/office commercial in a mixed-use format (Daly City 2013). The following General Plan policies support the City's goals:

Policy LU-1: Maintain and, where possible, encourage larger commercial development sites throughout the City.

Policy LU-4: Provide regulatory incentives for developers to construct higher-density mixed-use development along Mission Street, Geneva Avenue, and any other locations within close proximity to public transit.

While no new development or redevelopment is proposed within the alternative switching station site at this time, the City is actively pursuing development/redevelopment opportunities for commercial and residential land uses in the area. On July 8, 2019, the City Council adopted a resolution in support of the Cow Palace Board of Director's intent to enter into a long-term lease agreement for development within the upper parking lot of the Cow Palace property at the corner of Geneva Avenue and Carter Street and potentially the alternative switching station site (City of Daly City 2019a). Additionally, on July 8, 2019, the Daly City Housing Development Finance Agency discussed potential land use concepts for residential development on the vacant parcel directly south of the alternative switching station site, at the corner of Martin Street and Carter Street (City of Daly City 2019b).

Construction of the alternative switching station would not conflict with the existing zoning designation, but the design and scale of the alternative Geneva Switching Station would not be consistent with vision and goals established in the City's 2030 General Plan. Based on the unknown location and extent of development within the desired redevelopment area, mitigation would be incorporated into the MMCRP requiring site-specific design features (e.g., adequate setbacks, screening, landscaping, maximum height) to ensure the alternative switching station would not result in environmental impacts on anticipated commercial and land use development within the 100-acre redevelopment area. With implementation of mitigation, the Geneva Switching Station Alternative would result in less-than-significant impacts associated with conflicts with General Plan goals and policies (Class II).

Comparison to the Proposed Project

Although the Geneva Switching Station Alternative does not conflict with existing zoning and land use policies, the alternative switching station would conflict with the City of Daly City's vision for the 100-acre Cow Palace complex and two adjacent vacant parcels. Due to the unknown location and extent of future development in this area, the Geneva Switching Station Alternative has potential to result in significant environmental impacts. Potential environmental

impacts could be avoided, minimized, or remedied with application of mitigation establishing specific design features to ensure the alternative switching station would not result in environmental impacts on anticipated commercial and land use development within the 100-acre redevelopment area. Therefore, impacts resulting from potential land use conflicts associated with this alternative would be less than the proposed project, specifically the proposed project at the approved Sunnydale HOPE SF Master Plan Development.

D.11.4.3 Sunnydale HOPE SF Avoidance Line Alternative Option A

Environmental Setting

Local Land Use Setting

The Sunnydale HOPE SF Avoidance Line Alternative Option A (Sunnydale Option A Alternative) would diverge from the proposed Jefferson-Egbert transmission line at the intersection of Hahn Street and Sunnydale Avenue. A community market and café are located at the northeast corner of the intersection. The Sunnydale Option A Alternative would run east along the Sunnydale Avenue alignment, turn south along Sawyer Street, make a small jog to the east to Calgary Street, and turn west along Geneva Avenue to connect with the remainder of the proposed Jefferson-Egbert transmission line just west of Santos Street. The Sunnydale Option A Alternative would be installed within existing paved roadways primarily surrounded by residential development. Commercial development is present along the north side of Geneva Avenue and the Cow Palace complex south of Geneva Avenue. The Sunnydale Option A Alternative is limited to the alternative line segment. Existing conditions (Section D.11.1) and environmental impacts (Section D.11.3) would remain unchanged for the Egbert Switching Station, Martin-Egbert transmission line, Egbert-Embarcadero transmission line, Martin Substation, and the remainder of the Jefferson-Egbert transmission line.

Zoning and General Plan Land Use Designations

The Sunnydale Option A Alternative would be installed within a developed residential area primarily within an RH-1 zoning district. RH-1 districts are occupied almost entirely by single-family houses on lots 25 feet in width, without side yards. Small areas of NC-1 districts are located at the north end of the alternative line and the south end near the intersection of Geneva Avenue and Santos Street. NC-1 Districts are intended to serve as local neighborhood shopping districts. The land on either side of Geneva Avenue within the City of Daly City is designated Commercial.

Environmental Impacts and Avoidance Measures

Impact LU-1: Construction activities would have the potential to disrupt land uses adjacent to the Sunnydale Option A Alternative for short periods. However, once construction is completed, construction-related impacts to surrounding development would cease, and all work areas would be restored to pre-project conditions. To reduce construction-related impacts within affected roadways, PG&E would implement APM LU-1 and APM LU-2. Therefore, within implementation of APM LU-1 and APM LU-2, the Sunnydale Option A Alternative would not divide an established community. Impacts would be less than significant (Class III).

Impact LU-2: Construction of the Sunnydale Option A Alternative would occur within existing paved roadways in an urban area. Installation of the alternative line would occur within public ROW in city streets. The Sunnydale Option A Alternative would not conflict with any land use plans, policies, or objectives. Therefore, no land use conflicts would occur, and there would be no impact (No Impact).

Comparison to the Proposed Project

The Sunnydale Option A Alternative land use impacts would be reduced as compared to the proposed project. The Sunnydale Option A Alternative line would bypass the Sunnydale-Velasco community, approved for redevelopment, and avoid potentially significant land use conflicts between the proposed project and the approved Sunnydale HOPE SF Master Plan.

D.11.4.4 No Project Alternative

Under the No Project Alternative, none of the facilities associated with the proposed project or alternatives would be constructed, and therefore, none of the impacts described in this section would occur.

D.11.5 Mitigation Monitoring, Compliance, and Reporting

Table D.11-5 shows the mitigation monitoring, compliance, and reporting program for land use and planning. The CPUC is responsible for ensuring compliance with provisions of the monitoring program. The APMs that PG&E has incorporated as part of the proposed project, as well as mitigation measures developed as part of the EIR analysis, are listed in the following table.

Table D.11-5
Mitigation Monitoring, Compliance, and Reporting Program for Land Use and Planning

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
Impact LU-1 Construction activities could create temporary barriers within the established community.	—	APM LU-1	**Provide Construction Notification and Minimize Construction Disturbance.** A public liaison representative will provide the public with advance notification of construction activities, between two and four weeks prior to construction. The announcement will state specifically where and when construction will occur in the area. Notices will provide tips on reducing noise intrusion (e.g., closing windows facing the planned construction).	PG&E's public liaison will prepare and distribute construction notifications to affected parties.	PG&E to submit draft notification and distribution list to CPUC for review and approval.	PG&E liaison to distribute notices to affected parties 2-4 weeks prior to commencement of construction.
Impact LU-1 Construction activities could create temporary barriers within the established community.	—	APM LU-2	**Provide Public Liaison Person and Toll-Free Information Hotline.** PG&E will identify and provide a public liaison person before and during construction to respond to concerns of neighboring residents about noise, dust, and other construction disturbance. Procedures for reaching the public liaison officer via telephone, email, or in person will be included in notices distributed to the public as described above. PG&E will also establish a toll-free telephone number for receiving questions or complaints during construction.	PG&E will provide a public liaison before and during construction activities. PG&E will establish a toll-free number for public to utilize.	CPUC to test public lines of communication to verify they are in working order.	Prior to and during construction.
Impact LU-2 The Jefferson-Egbert transmission line could result in a significant land use conflict within the Sunnydale HOPE SF Master Plan area.	MM LU-1	—	Pacific Gas & Electric Company (PG&E) shall coordinate the installation of the Santos Street segment of the Jefferson-Egbert transmission line with the City and County of San Francisco. The transmission line shall be installed in the realigned street section and shall avoid street sections planned for vacation/realignment in the Sunnydale HOPE SF Master Plan.	PG&E will coordinate the construction of the Santos Street segment of the Jefferson-Egbert transmission line to avoid streets planned for vacation/ realignment.	CPUC to review construction plans and confer with the City and County of San Francisco Planning Department.	Prior to construction plan approval.

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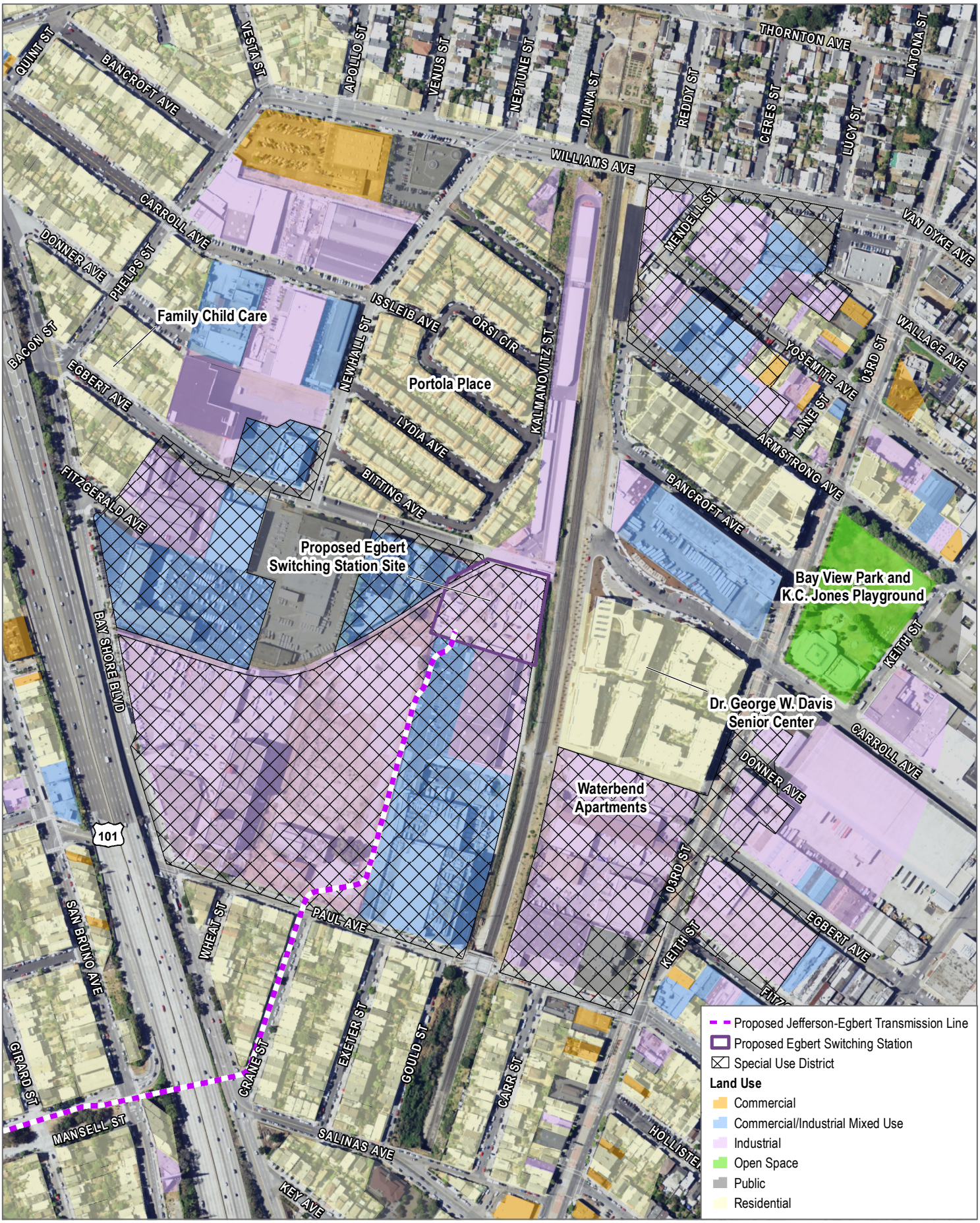
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SOURCE: USDA 2016; PG&E 2017; San Francisco County 2018

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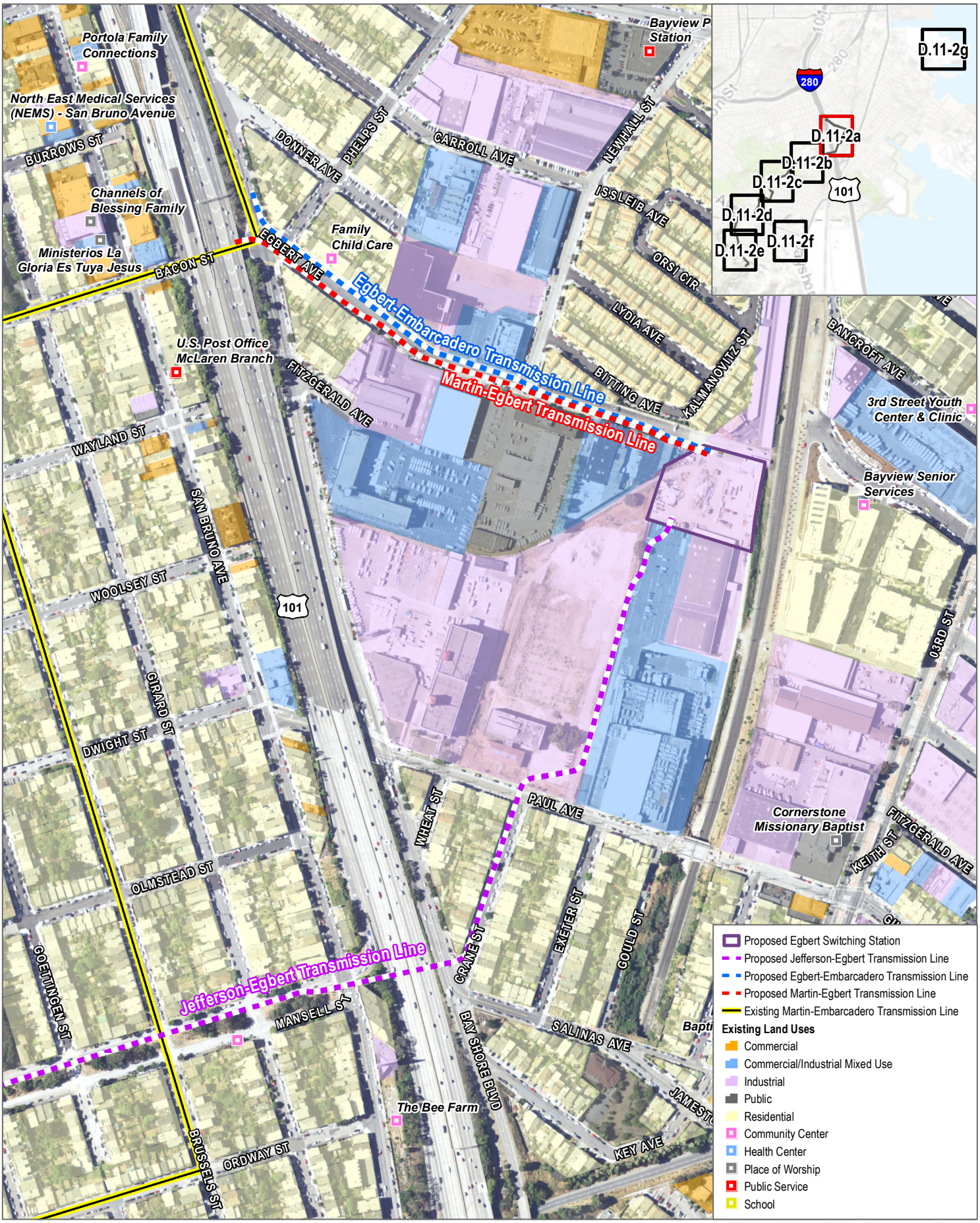
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FIGURE D.11-1

Egbert Switching Station - Existing Land Use

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

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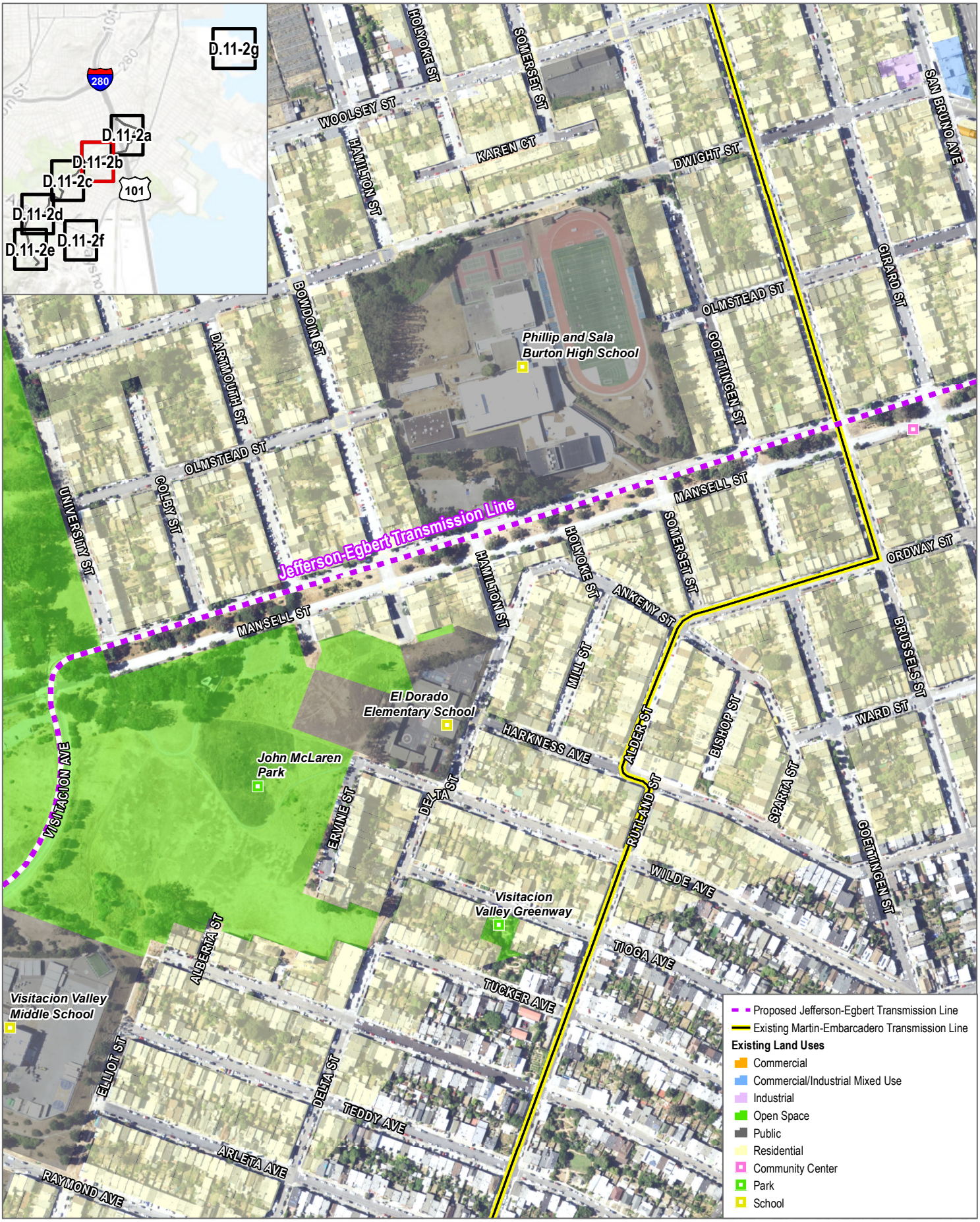
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FIGURE D.11-2a

Detailed Site and Routes

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

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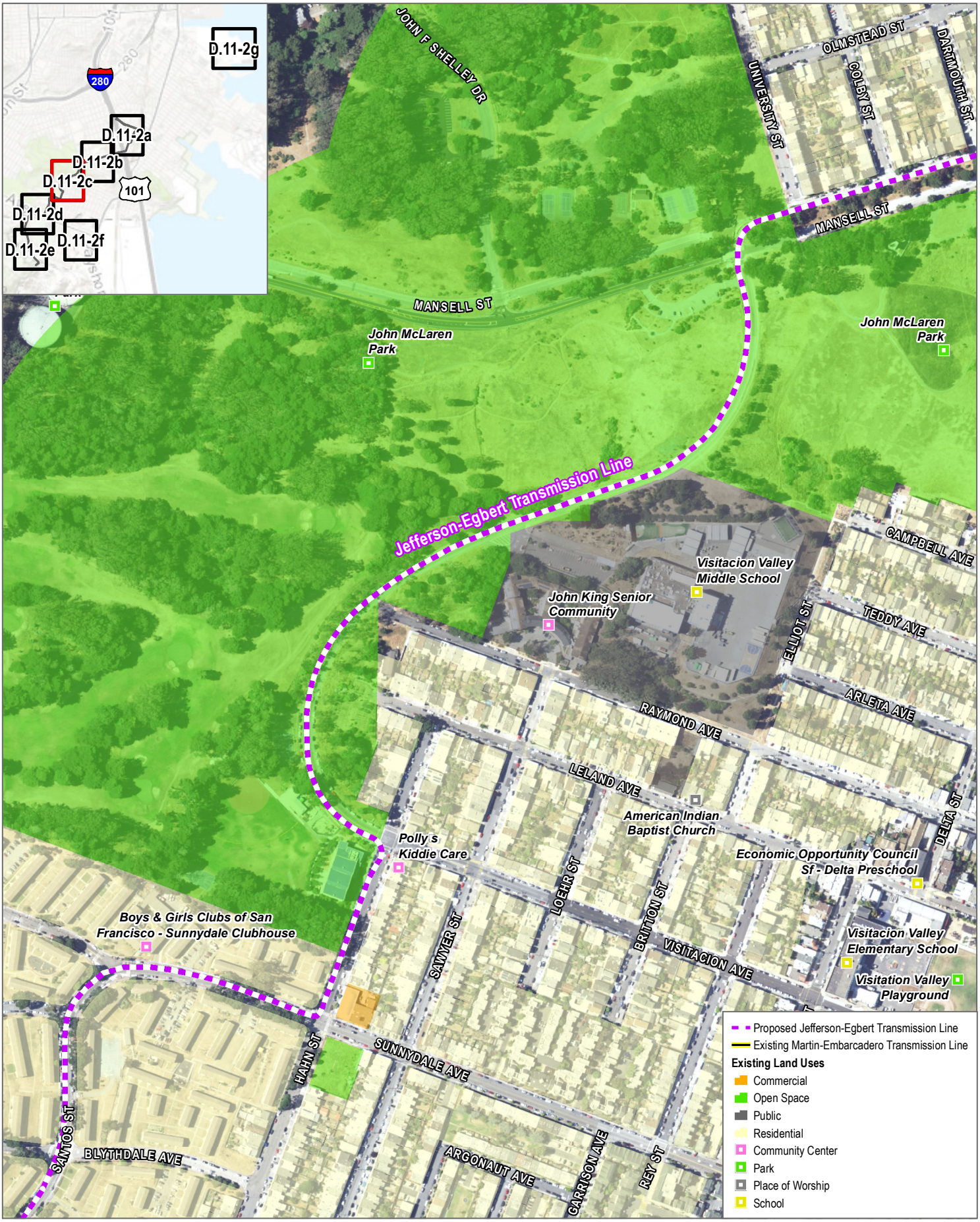
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FIGURE D.11-2b

Detailed Site and Routes

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

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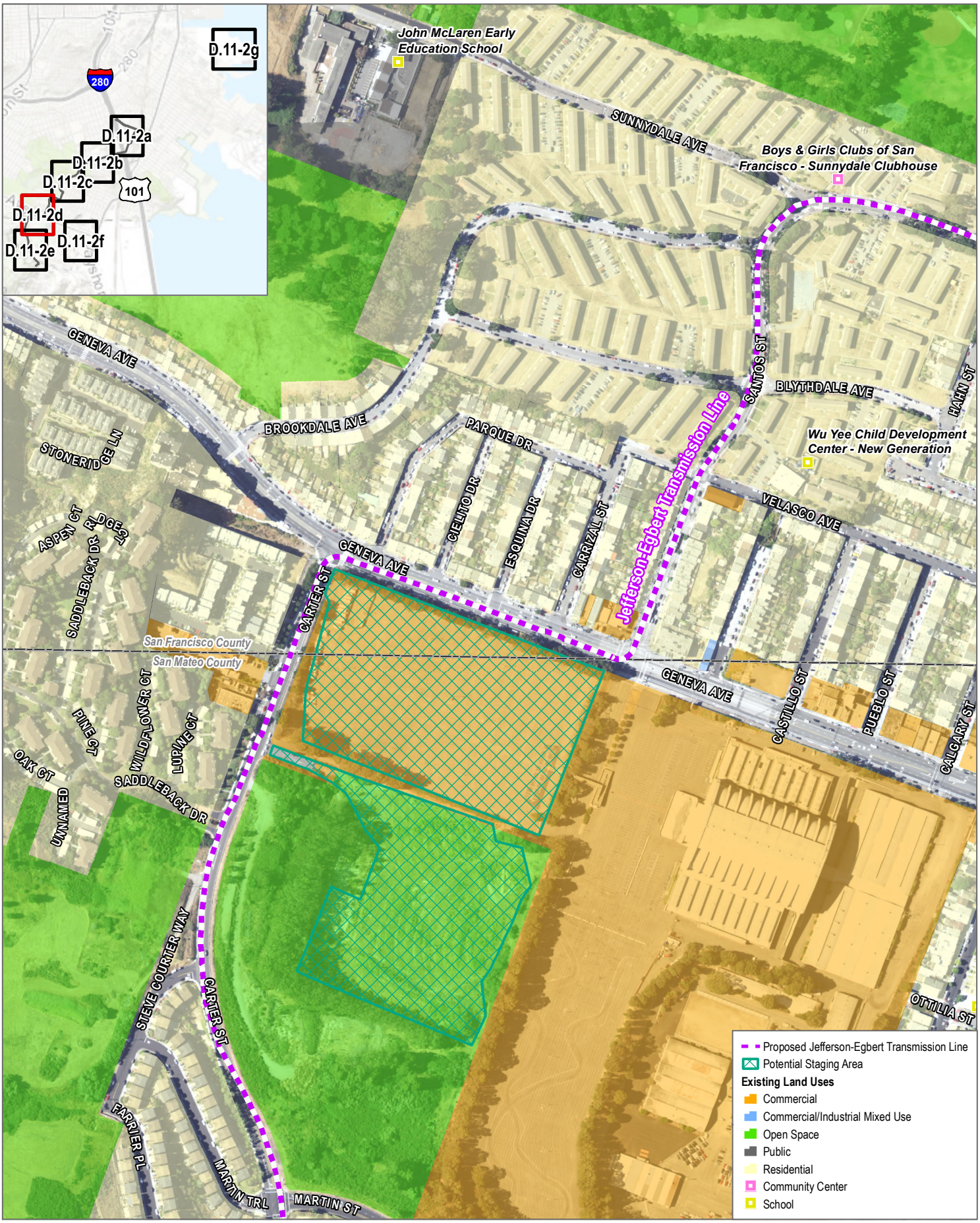
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FIGURE D.11-2c

Detailed Site and Routes

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

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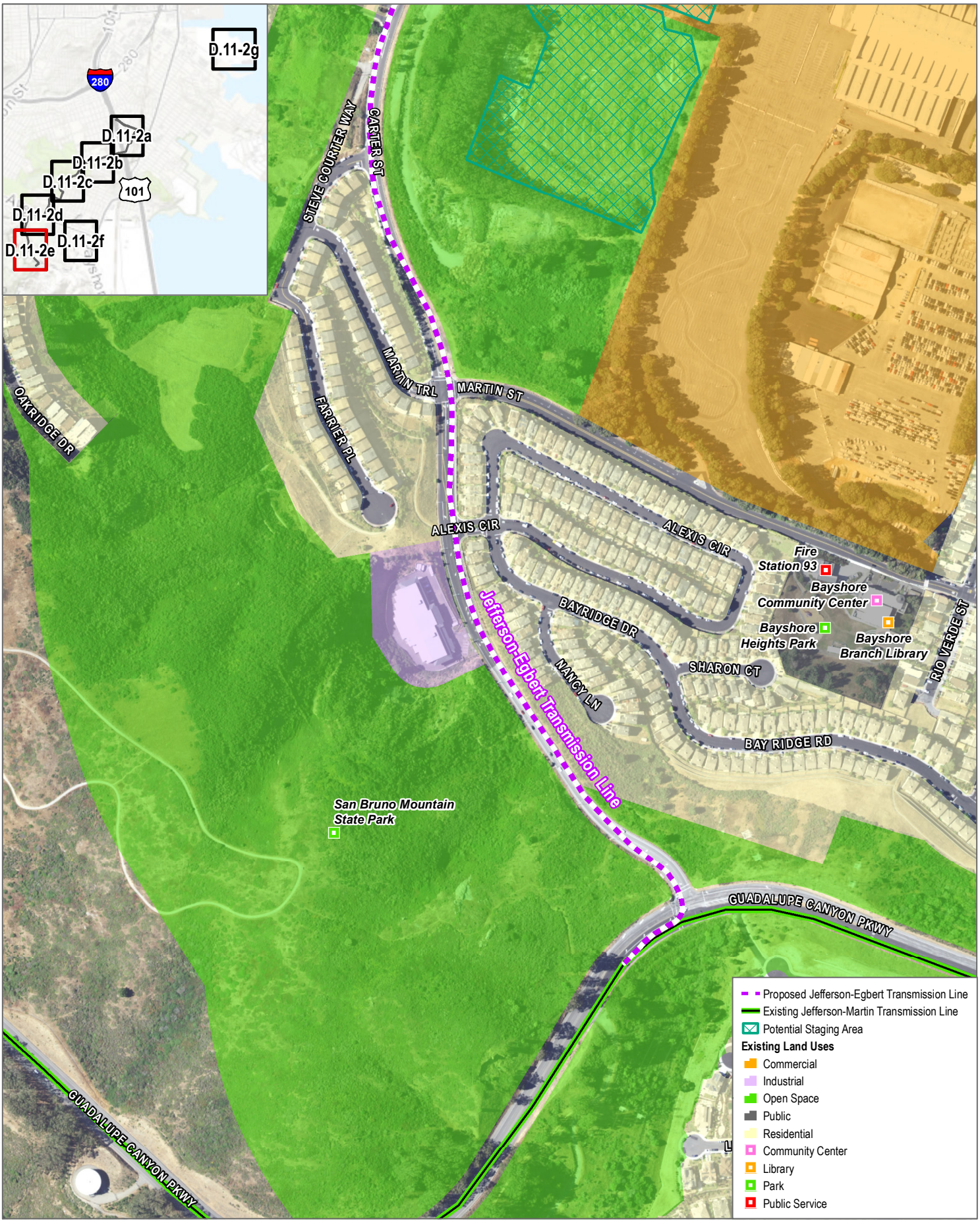
0 200 400 Feet

FIGURE D.11-2d

Detailed Site and Routes

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

DUDEK

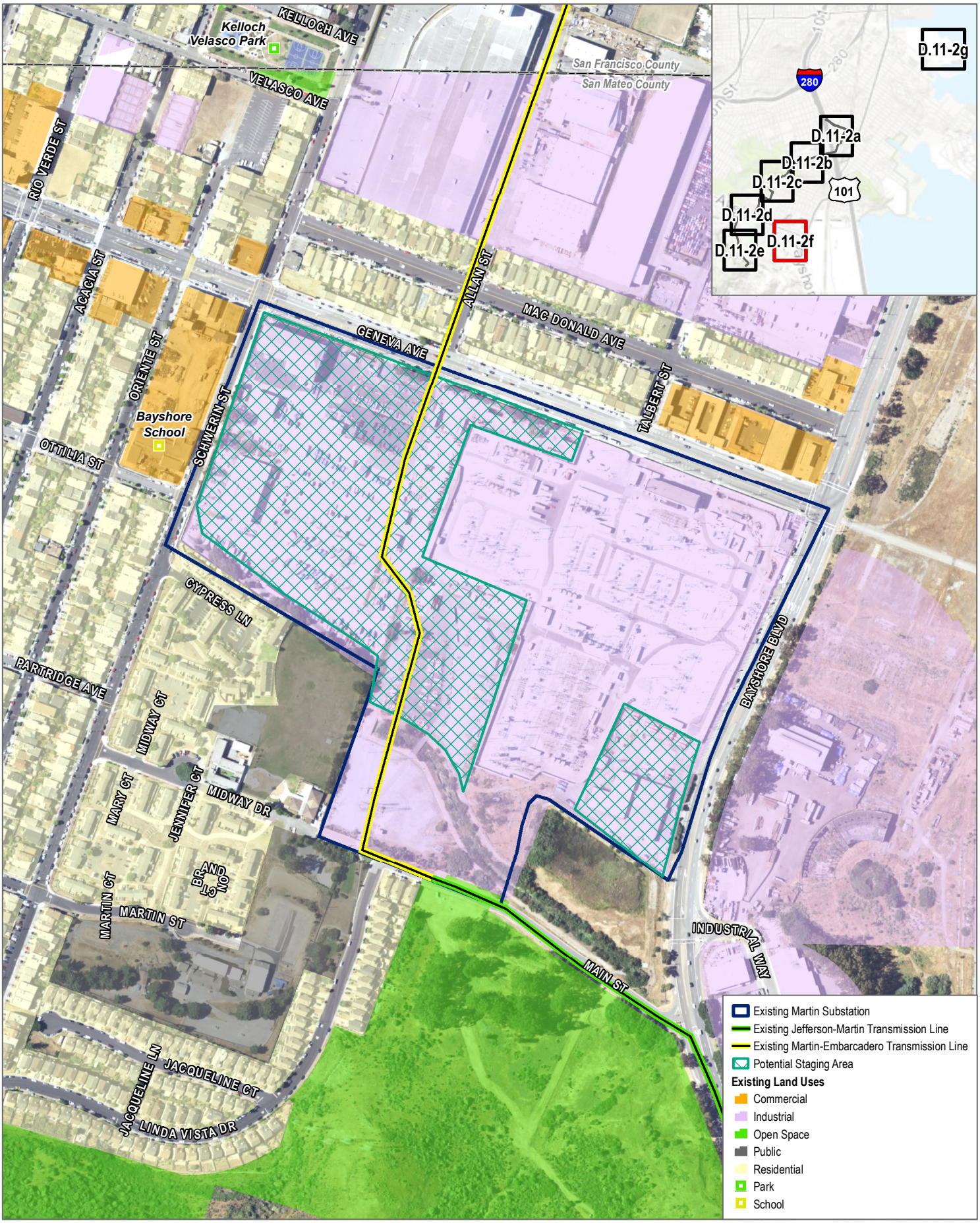
0 200 400 Feet

FIGURE D.11-2e

Detailed Site and Routes

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

DUDEK

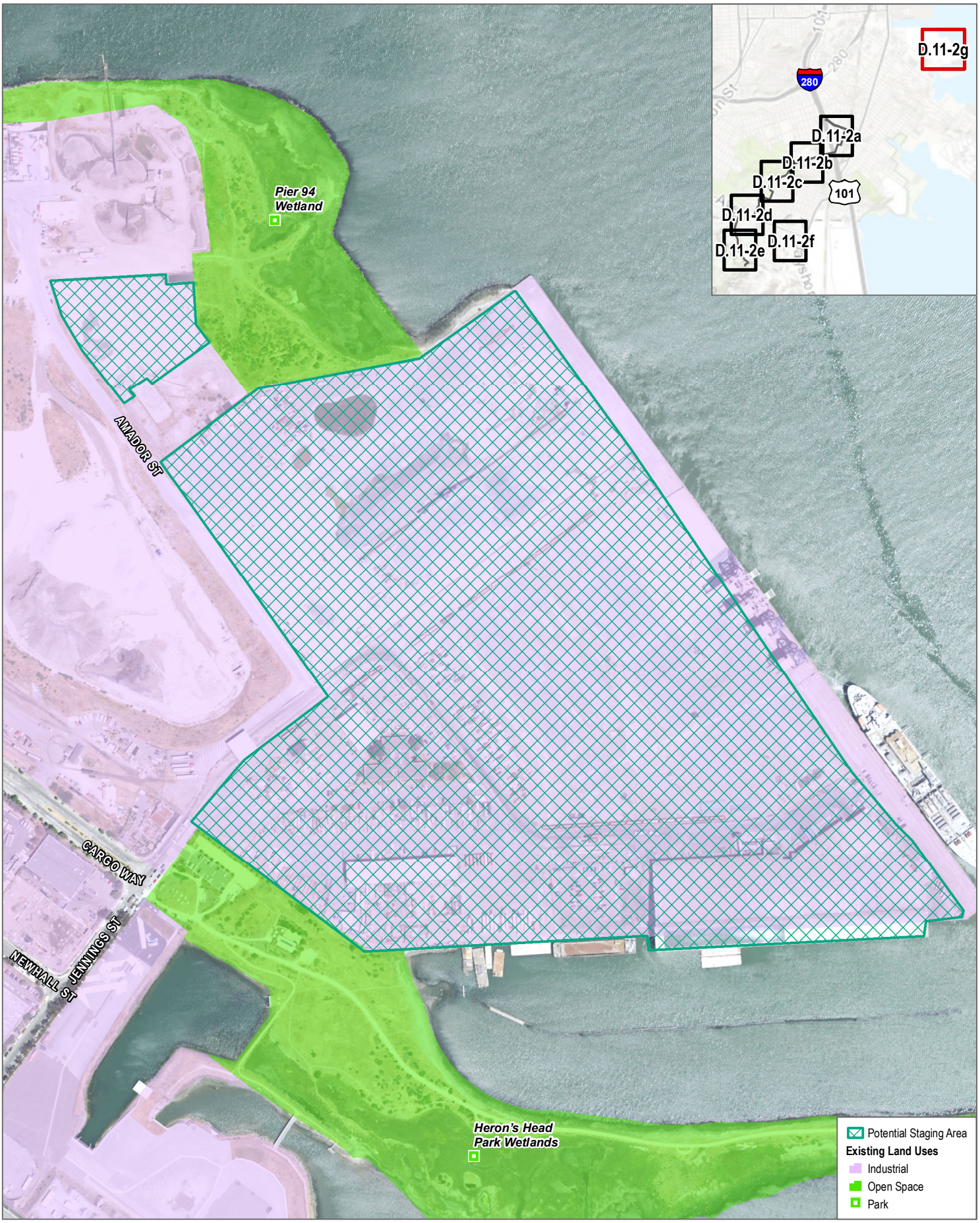
0 200 400 Feet

FIGURE D.11-2f

Detailed Site and Routes

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

DUDEK

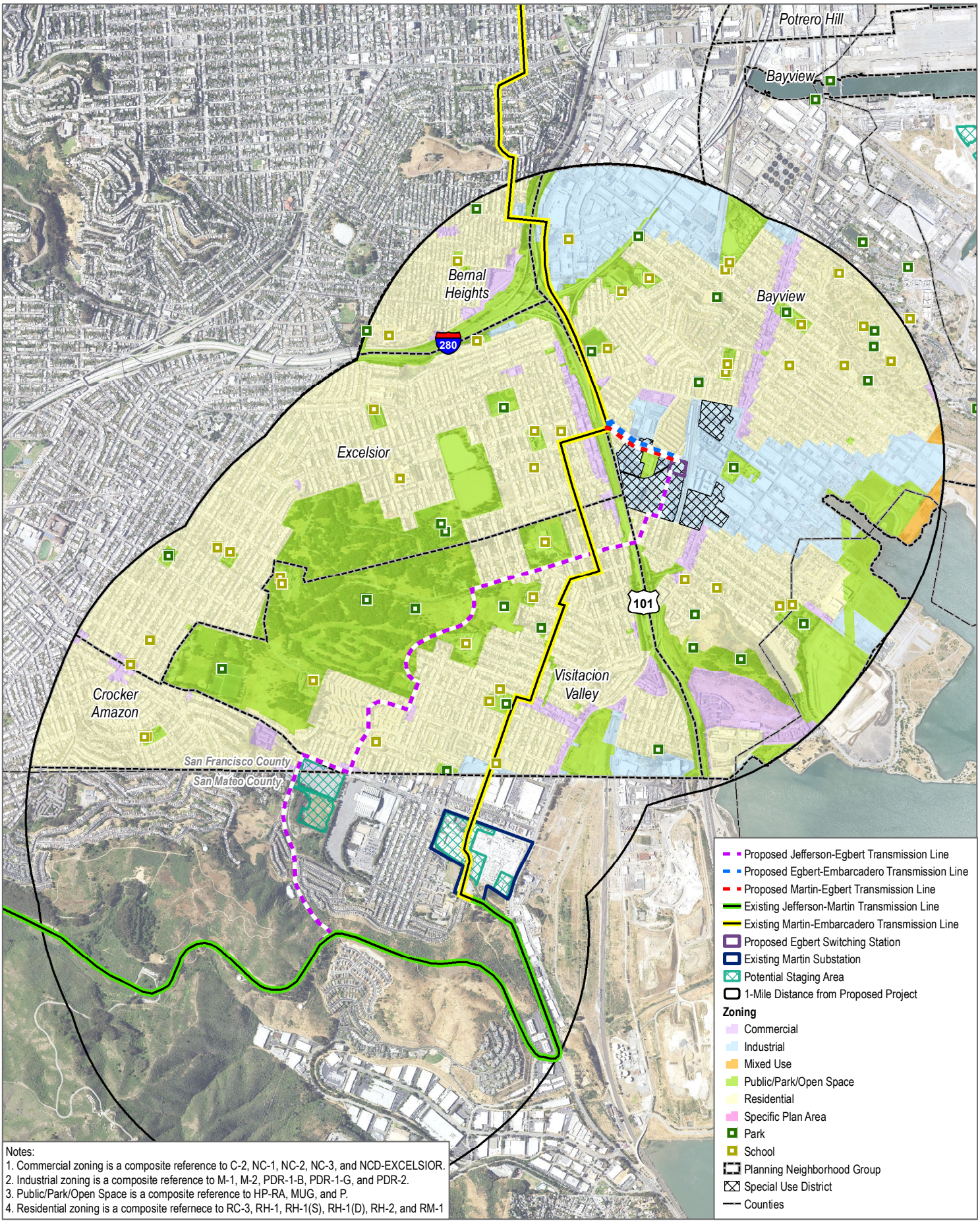
0 200 400 Feet

FIGURE D.11-2g

Detailed Site and Routes

Egbert Switching Station (Martin Substation Extension) Project

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SOURCE: USDA 2016; PG&E 2017; San Francisco County 2018

DUDEK

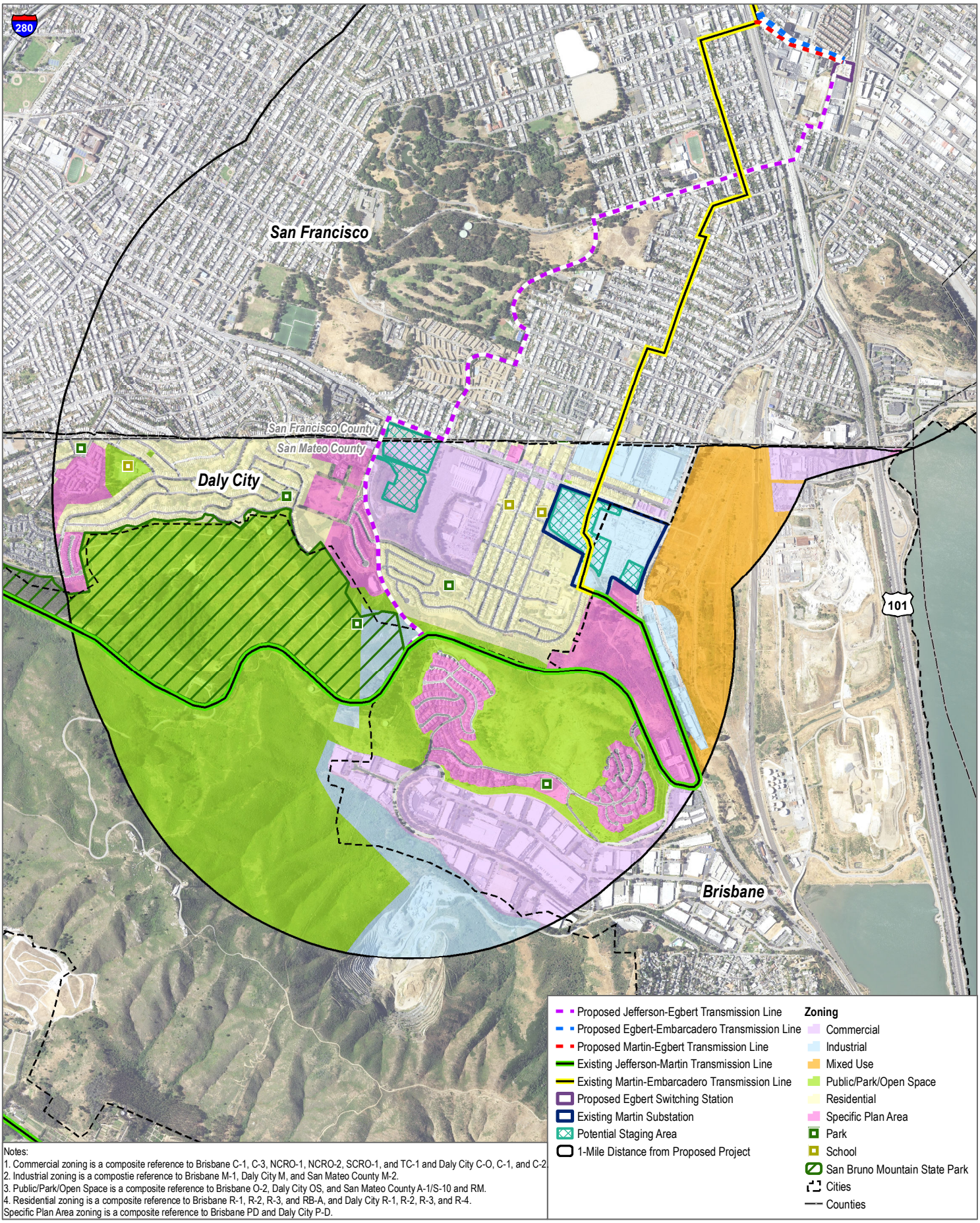
0 1,500 3,000 Feet

FIGURE D.11-3

City and County of San Francisco Zoning

Egbert Switching Station (Martin Substation Extension) Project

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Notes:
1. Commercial zoning is a composite reference to Brisbane C-1, C-3, NCRO-1, NCRO-2, SCRO-1, and TC-1 and Daly City C-O, C-1, and C-2.
2. Industrial zoning is a compostie reference to Brisbane M-1, Daly City M, and San Mateo County M-2.
3. Public/Park/Open Space is a composite reference to Brisbane O-2, Daly City OS, and San Mateo County A-1/S-10 and RM.
4. Residential zoning is a composite reference to Brisbane R-1, R-2, R-3, and RB-A, and Daly City R-1, R-2, R-3, and R-4.
Specific Plan Area zoning is a composite reference to Brisbane PD and Daly City P-D.

SOURCE: USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

DUDEK

0 1,500 3,000 Feet

FIGURE D.11-4

Cities of Daly City and Brisbane - Zoning

Egbert Switching Station (Martin Substation Extension) Project

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D.12 NOISE

This section evaluates the potential for the Egbert Switching Station (Martin Substation Extension) Project (proposed project) to affect the community noise environment or cause disruptions from vibration. Section D.12.1 provides a description of the existing noise setting, and includes a technical background of the fundamentals of environmental noise. Section D.12.2 introduces the applicable noise ordinances and limitations, and Section D.12.3 provides an analysis of potential project noise impacts and measures to mitigate any impacts determined to be potentially significant under California Environmental Quality Act (CEQA). Section D.12.4 describes the noise and vibration impacts related to alternatives, and D.12.5 provides the mitigation monitoring, compliance, and reporting table. Finally, Section D.12.6 lists the references cited in this section. Cumulative effects associated with noise are analyzed in Section F.5.2.11 of this Environmental Impact Report.

D.12.1 Environmental Setting for the Proposed Project

D.12.1.1 Noise Background and Terminology

Fundamentals of Environmental Noise

Vibrations, traveling as waves through air from a source, exert a force perceived by the human ear as sound. Sound-pressure level (referred to as sound level) is measured on a logarithmic scale in decibels (dB) that represent the fluctuation of air pressure above and below atmospheric pressure. Frequency, or pitch, is a physical characteristic of sound and is expressed in units of cycles per second or hertz. The normal frequency range of hearing for most people extends from about 20 to 20,000 hertz. The human ear is more sensitive to middle and high frequencies, especially when the noise levels are quieter. As noise levels get louder, the human ear starts to hear the frequency spectrum more evenly. To accommodate for this phenomenon, a weighting system that approximates the manner in which human hearing responds to varying frequencies across different sound levels was developed and is called the "A" weighting system. This A-weighted sound level is called the "noise level" and is referenced in units of A-weighted decibel (dBA).

Because sound is measured on a logarithmic scale, a doubling of sound energy results in a 3 dBA increase in the noise level. Changes in a community noise level of less than 3 dBA are not typically noticed by the human ear (Caltrans 2011). Changes from 3 to 5 dBA may be noticed by some individuals who are extremely sensitive to changes in noise. A 5 dBA increase is readily noticeable (EPA 1973). The human ear perceives a 10 dBA increase as a doubling of the sound level (i.e., 65 dBA sounds twice as loud as 55 dBA to a human ear) (Caltrans 2011).

An individual's noise exposure occurs over a period of time; however, noise level is a measure of noise at a given instant in time. Community noise sources vary continuously, being the

product of many noise sources at various distances, all of which constitute a relatively stable background or ambient noise environment. The background, or ambient noise level, gradually changes throughout a typical day, corresponding to distant noise sources, such as traffic volume, as well as changes in atmospheric conditions.

Noise levels are generally higher during the daytime and early evening when traffic (including airplanes), commercial, and industrial activity is the greatest. However, noise sources experienced during nighttime hours when background levels are generally lower can be potentially more conspicuous and irritating to the receiver. In order to evaluate noise in a way that considers periodic fluctuations experienced throughout the day and night, a concept termed "Community Noise Equivalent Level" (CNEL) was developed; a complete definition of CNEL is provided below.

Different types of metrics are used to characterize the time-varying nature of sound. These metrics include the equivalent sound level (L_{eq}), the minimum and maximum sound levels (L_{min} and L_{max}), the day–night sound level (L_{dn}), and CNEL. Below are brief definitions of these metrics and other terminology used in this section:

- **Decibel** (dB) is a unitless measure of sound on a logarithmic scale that indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micropascals.
- **A-weighted decibel** (dBA) is an overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- **Equivalent sound level** (L_{eq}) is the constant level that, over a given time period, transmits the same amount of acoustic energy as the actual time-varying sound. Equivalent sound levels are the basis for both the L_{dn} and CNEL scales.
- **Maximum sound level** (L_{max}) is the maximum sound level measured during the measurement period.
- **Minimum sound level** (L_{min}) is the minimum sound level measured during the measurement period.
- **Day–night average sound level** (L_{dn}) is a 24-hour average A-weighted sound level with a 10 dB penalty added to the nighttime hours from 10:00 p.m. to 7:00 a.m. The 10 dB penalty is applied to account for increased noise sensitivity during the nighttime hours; resulting values from application of L_{dn} versus CNEL rarely differ by more than 1 dB, and therefore these two methods of describing average noise levels are often considered interchangeable.
- **Community Noise Equivalent Level** (CNEL) is the average equivalent A-weighted sound level during a 24-hour day. CNEL accounts for the increased noise sensitivity during the evening hours (7:00 p.m. to 10:00 p.m.) and nighttime hours (10:00 p.m. to

7:00 a.m.) by adding 5 dB to the sound levels in the evening and 10 dB to the sound levels at night. CNEL and L_{dn} are often considered equivalent descriptors.

Exterior Noise Distance Attenuation

Noise sources are classified in two forms: (1) point sources, such as stationary equipment or a group of construction vehicles and equipment working within a spatially limited area at a given time, and (2) line sources, such as a roadway with a large number of pass-by sources (motor vehicles). Sound generated by a point source typically diminishes (attenuates) at a rate of 6.0 dBA for each doubling of distance from the source to the receptor at acoustically "hard" sites and at a rate of 7.5 dBA for each doubling of distance from source to receptor at acoustically "soft" sites. Sound generated by a line source (i.e., a roadway) typically attenuates at a rate of 3 dBA and 4.5 dBA per doubling distance, for hard and soft sites, respectively. Sound levels can also be attenuated by human-made or natural barriers. For the purpose of sound attenuation discussion, a "hard" or reflective site does not provide any excess ground-effect attenuation and is characteristic of asphalt or concrete ground surfaces, as well as very hard-packed soils. An acoustically "soft" or absorptive site is characteristic of unpaved loose soil or ground with a vegetation cover.

Fundamentals of Vibration

Vibration is an oscillatory motion that can be described in terms of displacement, velocity, or acceleration. The response of humans to vibration is very complex; however, it is generally accepted that human response is best approximated by the vibration velocity level associated with the vibration occurrence.

Heavy equipment operation, including stationary equipment that produces substantial oscillation or construction equipment that causes percussive action against the ground surface, may be felt by building occupants as vibration. It is also common for ground-borne vibration to cause windows, pictures on walls, or items on shelves to rattle. Although the perceived vibration from such equipment operation can be intrusive to building occupants, the vibration is seldom of sufficient magnitude to cause even minor cosmetic damage to buildings.

To avoid confusion with sound decibels, the abbreviation VdB is used for vibration decibels. The vibration threshold of perception for most people is around 65 VdB. Vibration levels in the 70 to 75 VdB range are often noticeable, but generally deemed acceptable; levels in excess of 80 VdB are often considered unacceptable (FTA 2006).

Vibration impacts to buildings are generally discussed in terms of peak particle velocity (PPV), which describes particle movement over time (in terms of physical displacement of mass). Groundborne vibration generated by construction projects is usually highest during pile driving, rock

blasting, soil compacting, jack hammering, and demolition-related activities. Next to pile driving, grading activity has the greatest potential for vibration impacts if large bulldozers, large trucks, or other heavy equipment are used. The California Department of Transportation (Caltrans) maximum vibration level standard is 0.2 inches per second PPV for the prevention of structural damage to typical residential buildings (Caltrans 2013).

Characteristics of Corona Discharge Noise

Corona discharge results from the partial breakdown of the electrical insulating properties of the air surrounding electricity conductors. When the intensity of the electric field at the surface of the conductor exceeds the insulating strength of the surrounding air, a corona discharge occurs at the conductor surface, representing a small dissipation of heat and energy. Some of the energy may dissipate in the form of small local pressure changes that result in audible noise, or in radio or television interference. Audible noise generated by corona discharge is characterized as a hissing or crackling sound that may be accompanied by a hum.

Slight irregularities or water droplets on the conductor and/or insulator surface accentuate the electric field strength near the conductor surface, making corona discharge and the associated audible noise more likely. Therefore, audible noise from transmission lines is generally a foul weather (wet conductor) phenomenon and would not likely result in the potential for nuisance noise levels outside the transmission line right-of-way.

Nonetheless, in order to dismiss the potential significance of corona noise, research was conducted to determine the sound level associated with this phenomenon. Veneklasen Associates conducted noise measurements of a 500-kilovolt (kV) double-circuit transmission line. Since corona noise is relative to the capacity of the transmission line, the noise level from a 500 kV transmission line would be greater than for the proposed project's 230 kV transmission line. Veneklasen conducted noise measurements on a 15-minute average for a 500 kV double-circuit transmission line near Serrano Substation in Anaheim Hills, when humidity was greater than 80% and temperatures were in the range of 60°F (conditions that contribute to high corona noise). Directly under the transmission line tower, the measured level of corona noise, when ideal conditions existed for this phenomenon to occur, were 46 dBA L_{eq} (Veneklasen Associates Inc. 2004).

D.12.1.2 Existing Conditions

The proposed project is located in San Mateo County within the limits of the City of Brisbane and City of Daly City, and within the City and County of San Francisco. The proposed project is located in a densely populated urban residential setting intermixed with commercial, industrial, and open space areas. Land uses surrounding the proposed project are summarized below, including the presence of noise-sensitive receptors within 0.25 miles of the project site.

The proposed project is not located within a designated airport land use plan area, and it is not within 2 miles of a public airport or within the vicinity of a private airstrip. Therefore, airport-related noise is not discussed further in this section.

Martin Substation

Pacific Gas & Electric Company's (PG&E's) existing Martin Substation is located in the Cities of Brisbane and Daly City. Properties north of and adjacent to the existing Martin Substation are a mix of residential and commercial uses. The area east of the substation, across Bayshore Boulevard, is predominantly vacant industrial land, and a mixture of commercial and industrial uses are located southeast of the site along the eastern side of Bayshore Boulevard. Residential use and open space at the top of San Bruno Mountain abuts the site to the south. The areas west and northwest of the existing Martin Substation consist predominantly of residential uses with scattered commercial, public, and open space uses. The proposed project work within Martin Substation would occur at the location of the existing Jefferson-Martin transmission line connection within the substation. The southern extent of this work area is approximately 375 feet from the substation property line in the City of Brisbane.

Proposed Jefferson-Egbert Transmission Line

The proposed Jefferson-Egbert transmission line would connect the existing Jefferson-Martin transmission line to the proposed Egbert Switching Station. The proposed Jefferson-Egbert transmission line would begin at a connection point with the existing Jefferson-Martin transmission line in the City of Brisbane on Guadalupe Canyon Parkway. The proposed transmission line would continue for approximately 300 feet and then would enter the city limits of the City of Daly City on Carter Street. The proposed transmission line would continue northwest on Carter Street around the western side of the Cow Palace before entering the City and County of San Francisco, about 300 feet south of Geneva Avenue. Lands directly adjacent to Guadalupe Canyon Parkway and Carter Street are predominantly a mixture of open space and residential uses. The closest residence to the construction of the proposed Jefferson-Egbert transmission line in the City of Brisbane is approximately 250 feet from the edge of Guadalupe Canyon Parkway. Along Carter Street in the City of Daly City and several streets in San Francisco, residences are located directly adjacent to the roadway, with setback distance from the roadway edge as close as 15 feet.

In San Francisco, the proposed Jefferson-Egbert transmission line would turn east along Geneva Avenue and north onto Santos Street. The portion of Geneva Avenue to be crossed by the proposed Jefferson-Egbert transmission line consists of residential and light commercial uses directly adjacent to the north and the Cow Palace complex to the south. From Santos Street, the transmission line would angle east to Sunnydale Avenue and then north onto Hahn Street. On

Hahn Street, the transmission line would pass John McLaren Park to the west and enter the park before connecting to Visitacion Avenue. On Visitacion Avenue, the transmission line would cross directly in front of an entrance point and parking lot for the Visitacion Valley Middle School, which is bound to the west by Visitacion Avenue. Once the transmission line crosses John McLaren Park, it would connect to Mansell Street and turn east approaching U.S. Highway 101. The proposed Jefferson-Egbert transmission line would cross U.S. Highway 101 using a trenchless auger bore method.

With regard to the U.S. Highway 101 crossing, the western work zone for the auger bore area is located west of the intersection of Mansell Street (westbound) and San Bruno Avenue on a landscaped median in a residential area approximately 90 feet from U.S. Highway 101. The eastern work zone is located at the intersection of Bayshore Boulevard and Crane Street in a residential area approximately 90 feet from the highway. The auger bore would run underneath U.S. Highway 101 for approximately 420 feet.

The proposed Jefferson-Egbert transmission line would then continue north through a residential area in Crane Street to cross Paul Avenue, continuing north through a private industrial parcel until connecting to the southern side of the proposed Egbert Switching Station site.

Existing sound levels were measured approximately 400 feet from U.S. Highway 101 in 2009, during the evaluation of a subarea plan (City and County of San Francisco 2010). Short- and long-term measurements were collected at Blanken Avenue East at Nueva Avenue, 15 feet from the roadway centerline. The short-term daytime measurement yielded an L_{eq} of 65 dBA, an L_{max} of 85 dBA, and an L_{90} of 51 dBA. The measured hourly L_{eq} during the long-term (24-hour) measurement varied from approximately 53 dBA to 68 dBA. Measurements closer to another vicinity highway (Interstate 280) were collected during the evaluation of a housing project in 2015 (Charles M. Salter Associates Inc. 2015). The calculated 24-hour average L_{dn} at locations approximately 80 feet from the highway were 82 dBA. These measured sound levels are comparable to the typical sound levels described in Table D.12-1, Typical Sound Levels Measured in the Environment and Industry.

Proposed Egbert-Embarcadero and Martin-Egbert Transmission Lines

The proposed Martin-Egbert and Egbert-Embarcadero transmission lines would be installed between the existing Martin-Embarcadero transmission line near the intersection of Bayshore Boulevard and Bacon Street and the proposed Egbert Switching Station. From Bayshore Boulevard, the proposed transmission lines would head east in Egbert Avenue to the proposed Egbert Switching Station site.

Proposed Egbert Switching Station

The proposed Egbert Switching Station site lies in the southeastern part of San Francisco within a setting characterized by a mixture of commercial, residential, and industrial land uses bisected by well-travelled local and regional transportation corridors. In the immediate vicinity of the site, established urban features include transportation corridors, industrial and warehouse facilities, and utility systems (including numerous overhead power lines) interspersed with semi-detached and multi-unit residential buildings. Bordering the site's eastern perimeter is a Union Pacific Railroad right-of-way that is used by Caltrain as a regional passenger transportation corridor. The site is approximately 750 feet west of 3rd Street, a major north–south arterial.

As discussed in Section B, Project Description, the proposed project includes installation of a new 230 kV switching station on a previously disturbed site that is currently occupied by a paved storage yard. Unlike conventional switching stations where the equipment is mostly outdoors and largely visible to the public, switchgear components would be housed in an approximately 11,000-square-foot building, while a 230 kV series reactor, two 230 kV shunt reactors, oil pump house, and their respective cable-to-air bushing connections would be located outdoors. A 12-foot-high perimeter fence would surround the site. Along the Egbert Avenue frontage, the site fence would be set back 5 to 10 feet from the property line to allow an area for new sidewalk and new landscaping, and would also include at least one 20-foot-wide entry gate.

Existing sound levels on Egbert Avenue were measured over a 24-hour period during the evaluation of a proposed data center (Illingsworth & Rodkin Inc. 2013). Sound monitoring equipment was located on a utility pole approximately 200 feet west of the proposed switching station site boundary, adjacent to the residential property line, approximately 20 feet from the roadway centerline and 12 feet above the ground. Hourly average (L_{eq}) daytime levels were reported to vary between 56 to 67 dBA, while hourly average levels ranged from 50 to 68 dBA L_{eq} during the nighttime. Maximum (L_{max}) levels varied from 75 to 91 dBA during the day and from 61 to 94 dBA during the night. Background sound levels (L_{90}) ranged from 53 to 61 dBA during the daytime and from 47 to 58 dBA during the nighttime. The calculated 24-hour average L_{dn} was 67 dBA for the 24-hour measurements conducted at the residential property boundary approximately 200 feet east of the site on Egbert Avenue.

Existing sound levels were measured approximately 350 feet southeast of the site boundary in 2012 and 2014, during the evaluation of new roof top mechanical equipment for a Data Center at 200 Paul Avenue (CSDA Design Group 2015). The monitoring equipment was located approximately 280 feet west of the 3rd Street centerline, 400 feet east of the Union Pacific Railroad centerline, and 12 feet above grade. Background sound levels (L_{90}) ranged from 52 to 64 dBA during the daytime and from 49 to 59 dBA during the nighttime. These measured sound levels are consistent with the typical sound levels described in Table D.12-1.

Table D.12-1
Typical Sound Levels Measured in the Environment and Industry

Noise Source at a Given Distance	Sound Level in A-weighted Decibels (dBA)	Qualitative Description
Carrier deck jet operation	140	
	130	Pain threshold
Jet takeoff (200 feet)	120	
Auto horn (3 feet)	110	Maximum vocal effort
Jet takeoff (1,000 feet) Shout (0.5 feet)	100	
New York subway station Heavy truck (50 feet)	90	Very annoying; Hearing damage (8-hour, continuous exposure)
Pneumatic drill (50 feet)	80	Annoying
Freight train (50 feet) Freeway traffic (50 feet)	70 to 80 70	Intrusive (telephone use difficult)
Air conditioning unit (20 feet)	60	
Light auto traffic (50 feet)	50	Quiet
Living room Bedroom	40	
Library Soft whisper (5 feet)	30	Very quiet
Broadcasting/recording studio	20	
	10	Just audible

Source: New York Department of Environmental Conservation 2001.
Notes: dBA = A-weighted decibel.

D.12.1.3 Sensitive Receptors

Noise-sensitive receptors are generally defined as locations where people reside or where the presence of unwanted sound may adversely affect the existing land use. Noise-sensitive land uses typically include residences, hospitals, lodging facilities, places of worship, and schools; the first three categories involve inhabitants that would typically be attempting to sleep during nighttime hours, when noise could be particularly disturbing. Noise-sensitive exterior use areas can include wildlife preserves, recreational areas, and parks. Sensitive receptors within 0.5 miles of the proposed Egbert Switching Station are included in the evaluation of potential impacts that may occur as a result of proposed project construction and operation. Sensitive receptors within 0.25 miles of the proposed project transmission line alignment were analyzed for potential impacts as a result of proposed project construction and operation.

The nearest noise-sensitive receptors to the existing Martin Substation and Service Center are the multifamily residences located adjacent to and approximately 20 feet southwest of the site boundary on Schwerin Street. Nearby single-family residences are also located approximately 60 feet south of the site on Linda Vista Drive and approximately 115 feet north of the site opposite Geneva Avenue and between Allan Street and Talbert Street. The nearest school to the existing Martin Substation and Service Center are the Bayshore School, located approximately 65 feet west of the site boundary on Oriente Street.

Single- and multifamily residences are the most prominent noise-sensitive receptors along the proposed Jefferson-Egbert, Martin-Egbert, and Egbert-Embarcadero transmission lines. At their nearest point, residential property boundaries are within 25 feet of the centerlines of the various streets where the proposed Jefferson-Egbert, Martin-Egbert, and Egbert-Embarcadero transmission lines would be constructed. The nearest residences to the auger bore activities are estimated to be approximately 50 feet from the proposed eastern work area and approximately 65 feet from the western work area.

The nearest noise-sensitive receptors to the proposed Egbert Switching Station are single-family residences located within 50 feet of the site boundary to the north of Egbert Avenue on Kalmanovitz Street. Multifamily residences are also located approximately 140 feet from the site boundary across the Union Pacific Railroad tracks to the east. The Bayview Playground is the nearest recreational area, and the Southeast Health Center Clinic is the nearest health center; both are located approximately 0.15 miles east of the proposed site boundary. Cornerstone Missionary Baptist Church is the nearest place of worship to the proposed Egbert Switching Station, located approximately 0.16 miles from the proposed site boundary.

D.12.2 Applicable Regulations, Plans, and Standards

Regulating environmental noise is generally the responsibility of local governments. The U.S. Environmental Protection Agency once published guidelines on recommended maximum noise levels to protect public health and welfare (EPA 1974), and the State of California maintains recommendations for local jurisdictions in the General Plan Guidelines published by the Governor's Office of Planning and Research (OPR 2003). The following information summarizes federal and state recommendations and local requirements.

Federal Regulations, Plans, and Standards

Federal Transit Administration and Federal Railroad Administration Standards

Although the Federal Transit Administration (FTA) standards are intended for federally funded mass-transit projects, the impact assessment procedures and criteria included in the FTA's *Transit Noise and Vibration Impact Assessment* (FTA 2006) are routinely used to evaluate

construction noise and vibration effects from projects proposed by local government and private developers. The FTA threshold for architectural damage to conventionally built structures is 0.2 inches per second PPV.

State Regulations, Plans, and Standards

California Government Code Section 65302(f) requires each local jurisdiction to include a noise element in its general plan. Generally speaking, noise levels less than 60 L_{dn} are acceptable for all land uses, including residences, schools, and other noise-sensitive receptors. Noise levels greater than 70 L_{dn} are normally unacceptable for most noise-sensitive land uses, and levels between 60 and 70 L_{dn} are usually considered conditionally acceptable because the structures where the receptors reside normally provide some level of insulation (OPR 2003).

California Noise Control Act of 1973

Sections 46000–46080 of the California Health and Safety Code, known as the California Noise Control Act of 1973, declares that excessive noise is a serious hazard to the public health and welfare, and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also identifies a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the state to provide an environment for all Californians free from noise that jeopardizes their health or welfare.

Local Regulations, Plans, and Standards

The California Public Utility Commission maintains exclusive jurisdiction over the siting, design, and construction of the proposed project, and therefore local discretionary noise requirements are not directly applicable to the proposed project. However, for informational purposes and to assist with California Environmental Quality Act (CEQA) review, this section includes a summary of local noise standards or ordinances enforced by local communities in which project components would be located. Airport Land Use Compatibility Plans are discussed in Section D.11, Land Use and Planning, and safety concerns around airports are discussed in Section D.9, Hazards and Hazardous Materials.

City of Brisbane

<u>City of Brisbane Code of Ordinances</u>

The City of Brisbane Code of Ordinances (CBCO), Chapter 8.28 (Noise Control), establishes provisions to protect the peace, health, safety, and welfare of citizens from excessive, unnecessary,

and unreasonable noises resulting from sources in the community (City of Brisbane 2018). The City of Brisbane establishes operational noise limits based on limiting the increase over existing ambient levels in single-family and multifamily residential, commercial, and industrial zoning districts. Noise sources in these zoning districts may not exceed a 10 dBA increase above existing ambient levels for a cumulative period of more than 10 minutes in any hour ($L_{16.7}$); a 20 dBA increase above existing ambient levels for a cumulative period of more than 3 minutes in any hour (L_5); or, an increase of more than 30 dBA over existing ambient levels at any receiver. Construction noise limits between the hours of 7:00 a.m. and 7:00 p.m. on weekdays and between 9:00 a.m. and 7:00 p.m. on weekends and holidays are established based on limiting noise from individual powered construction equipment sound levels to 83 dBA when measured at 25 feet, or not to exceed 86 dBA outside the project property line. Pursuant to CBCO 8.28.080, the Planning Director may issue a permit to allow exceptions from these limitations with appropriate conditions to minimize impacts to the public. The complete operational and construction noise regulations from Chapter 8.28 of the CBCO are presented below for reference.

Section 8.28.020 of the CBCO (City of Brisbane 2018) defines "ambient noise" as follows:

> A. "Ambient noise" means the all-encompassing noise associated with a given environment, usually being a composite of sounds from many sources, near and far. Local ambient is the noise level obtained when the noise level is averaged over a period of ten (10) minutes without inclusion of noise from exceptional isolated identifiable sources at the location and time of day near that at which a comparison is to be made, and when the noise source at issue is silent. However, for purposes of this chapter, in no case shall the local ambient be considered or determined to be less than:
>
> 1. Thirty-five (35) dBA for interior noise in Section 8.28.030;
> 2. Forty-five (45) dBA in all other sections of this chapter.

Section 8.28.030 of the CBCO (City of Brisbane 2018) establishes operational noise levels for residential zoning districts as follows:

> A. No person shall cause, produce, suffer or allow to be produced by any machine, animal or device or any combination of same, in a single-family residential zoning district, a noise level more than ten (10) dBA above the local ambient to any receiver for a cumulative period of more than ten (10) minutes in any hour, a noise level more than twenty (20) dBA above the local ambient to any receiver for a cumulative period of more than three (3) minutes in any hour, or a noise level more than thirty (30) dBA above the local ambient to any receiver.

> B. No person shall cause, produce, suffer or allow to be produced by any machine, animal or device or any combination of same, in a multi-family residential zoning district, a noise level more than ten (10) dBA above the local ambient three (3) feet from any wall, floor or ceiling inside any dwelling unit on the same property, except within the dwelling unit in which the noise source or sources may be located to any receiver for a cumulative period of more than ten (10) minutes in any hour, a noise level more than twenty (20) dBA above the local ambient to any receiver for a cumulative period of more than three (3) minutes in any hour, or a noise level more than thirty (30) dBA above the local ambient to any receiver.

Section 8.28.040 of the CBCO (City of Brisbane 2018) establishes operational noise levels for commercial and industrial zoning districts as follows:

> No person shall cause, produce, suffer or allow to be produced by any machine, animal or device or any combination of same, in any commercial or industrial zoning district, a noise level more than ten (10) dBA above the local ambient to any receiver for a cumulative period of more than ten (10) minutes in any hour, a noise level more than twenty (20) dBA above the local ambient to any receiver for a cumulative period of more than three (3) minutes in any hour, or a noise level more than thirty (30) dBA above the local ambient to any receiver.

Section 8.28.060 of the CBCO (City of Brisbane 2018) establishes regulations pertaining to construction activities as follows:

> Except as set forth in Section 8.28.050A, notwithstanding any other provision of this chapter, construction shall be allowed only between the hours of seven (7:00) a.m. and seven (7:00) p.m. on weekdays and nine (9:00) a.m. to seven (7:00) p.m. on weekends and holidays. Construction, alteration or repair activities which are authorized by a valid city permit shall be allowed if they meet at least one of the following noise limitations:
>
> A. No individual piece of equipment shall produce a noise level exceeding eighty-three (83) dBA at a distance of twenty-five (25) feet from the source thereof. If the device or other source is housed within a structure on the property, the measurement shall be made outside the structure, but at a distance as close to the equipment or source as possible.
>
> B. The noise level at any point outside of the property plane of the project shall not exceed eighty-six (86) dBA.

City of Daly City

Daly City Code of Ordinances

Section 9.22.030 of the Daly City Code of Ordinances (City of Daly City 2018) establishes the following provision to limit noise disturbances beyond the confines of the source property between the hours of 10:00 p.m. and 6:00 a.m.:

> Between the hours of ten p.m. and six a.m. of the following day, no person shall cause, create or permit any noise, music, sound or other disturbance upon his property which may be heard by, or which noise disturbs or harasses, any other person beyond the confines of the property, quarters or apartment from which the noise, music, sound or disturbance emanates.

Daly City 2030 General Plan – Noise Element

The Noise Element in the Daly City 2030 General Plan (City of Daly City 2013) describes temporary noise generated from construction activities. Construction noise is regulated in the City of Daly City through the environmental review process by the Engineering and Planning Divisions, and is typically restricted to daytime hours between 8:00 a.m. and 5:00 p.m. and prohibited on weekends and holidays. The full ordinance text is provided below:

> Construction noise is intrusive and can reach up to 105 decibels at fifty feet from the source for pile driving. Earthmoving equipment such as compactors, backhoes, tractors, trucks and graders range from 70 to 95 dBA at 50 feet from the source. Impact equipment such as pneumatic wrenches, jack hammers and pile drivers generate higher levels of noise. The noise range for this type of equipment is 80 to 105 dBA at 50 feet from the source. Construction noise is shorter in duration than noise associated with fixed land uses. The typical time frame for construction noise is three to nine months. Construction noise is regulated in Daly City through the environmental review process by the Engineering and Planning Divisions. Typically, construction activities are limited to the daytime hours, 8:00 a.m. to 5:00 p.m., and prohibited on weekends and holidays. The time limitation protects residents near the construction activity from the higher noise levels during the noise sensitive times of the day (evening and nighttime) and noise sensitive times of the week (weekends when people are usually home).

City and County of San Francisco

City of San Francisco Police Code

Article 29 of the City of San Francisco's Police Code establishes the regulatory framework for addressing operational and construction-related noise; it was amended to become effective in April 2017 (City and County of San Francisco 2013a). Operational noise limits are established based on limiting the increase over existing ambient levels. Noise sources located on commercial and industrial properties are allowed up to an 8 dBA increase over the existing local ambient as measured outside the property plane. Construction noise limits between the hours of 7:00 a.m. and 8:00 p.m. are established based on limiting noise from individual powered construction equipment sound levels to 80 dBA when measured at 100 feet. Additional limitations are imposed on impact equipment (including pavement breakers and jackhammers) that requires intake and exhaust silencers in addition to acoustically attenuated shields or shrouds. Nighttime construction noise (between 8:00 p.m. and 7:00 a.m.) is limited to 5 dBA above the existing local ambient at the property plane; however, the Director of Public Works or Building Inspection may grant a special permit that can consider, among other items, if the proposed night work is in the general public interest. The complete operational and construction noise regulations from Article 29 are presented below for reference.

Section 2901 of Article 29: Regulation of Noise in the San Francisco City Ordinance Code (City and County of San Francisco 2012) defines "ambient noise" as follows:

> (a) "Ambient" means the lowest sound level repeating itself during a minimum ten-minute period as measured with a type 1, precision sound level meter, using slow response and "A" weighting. The minimum sound level shall be determined with the noise source at issue silent, and in the same location as the measurement of the noise level of the source or sources at issue. However, for purposes of this chapter, in no case shall the ambient be considered or determined to be less than: (1) Thirty-five dBA for interior residential noise, and (2) Forty-five dBA in all other locations. If a significant portion of the ambient is produced by one or more individual identifiable sources of noise that contribute cumulatively to the sound level and may be operating continuously during the minimum ten-minute measurement period, determination of the ambient shall be accomplished with these separate identifiable noise sources silent or otherwise removed or subtracted from the measured ambient sound level.

Section 2909 of Article 29: Regulation of Noise in the San Francisco City Ordinance Code (City and County of San Francisco 2013b) establishes operational noise limits as follows:

(b) Commercial and Industrial Property Noise Limits. No person shall produce or allow to be produced by any machine or device, music or entertainment or any combination of same, on commercial or industrial property over which the person has ownership or control, a noise level more than 8 dBA above the local ambient at any point outside of the property plane.

(d) Fixed Residential Interior Noise Limits. In order to prevent sleep disturbance, protect public health and prevent the acoustical environment from progressive deterioration due to the increasing use and influence of mechanical equipment, no fixed noise source may cause the noise level measured inside any sleeping or living room in any dwelling unit located on residential property to exceed 45 dBA between the hours of 10:00 p.m. to 7:00 a.m. or 55 dBA between the hours of 7:00 a.m. to 10:00 p.m. with windows open except where building ventilation is achieved through mechanical systems that allow windows to remain closed.

(e) Noise Caused By Activities Subject To Permits From the City and County of San Francisco. None of the noise limits set forth in this Section apply to activity for which the City and County of San Francisco has issued a permit that contains noise limit provisions that are different from those set forth in this Article.

Section 2907 of Article 29: Construction Equipment in the San Francisco City Ordinance Code (City and County of San Francisco 2008a) defines regulations pertaining to daytime construction equipment noise as follows:

(a) Except as provided for in Subsections (b), (c), and (d) hereof, it shall be unlawful for any person to operate any powered construction equipment if the operation of such equipment emits noise at a level in excess of 80 dBA when measured at a distance of 100 feet from such equipment, or an equivalent sound level at some other convenient distance.

(b) The provisions of Subsections (a) of this Section shall not be applicable to impact tools and equipment, provided that such impact tool and equipment shall have intake and exhaust mufflers recommended by the manufacturers thereof and approved by the Director of Public Works or the Director of Building Inspection as best accomplishing maximum noise attenuation, and that pavement breakers and jackhammers shall also be equipped with acoustically attenuating shields or shrouds recommended by the manufacturers thereof and approved by the Director

of Public Works or the Director of Building Inspection as best accomplishing maximum noise attenuation.

(c) The provisions of Subsection (a) of this Section shall not be applicable to construction equipment used in connection with emergency work.

(d) Helicopters shall not be used for construction purposes for more than two hours in any single day or more than four hours in any single week.

Section 2908 of Article 29: Construction Work at Night in the San Francisco City Ordinance Code (City and County of San Francisco 2008b) defines regulations pertaining to building- or structure-related construction during the evening and nighttime hours as follows:

(a) It shall be unlawful for any person, between the hours of 8:00 p.m. of any day and 7:00 a.m. of the following day to erect, construct, demolish, excavate for, alter or repair any building or structure if the noise level created thereby is in excess of the ambient noise level by 5 dBA at the nearest property plane, unless a special permit has been applied for and granted by the Director of Public Works or the Director of Building Inspection. In granting such special permit the Director of Public Works or the Director of Building Inspection shall consider: if construction noise in the vicinity of the proposed work site would be less objectionable at night than during daytime because of different population levels or different neighboring activities; if obstruction and interference with traffic, particularly on streets of major importance, would be less objectionable at night than during daytime; if the kind of work to be performed emits noise at such a low level as to not cause significant disturbance in the vicinity of the work site; if the neighborhood of the proposed work site is primarily residential in character wherein sleep could be disturbed; if great economic hardship would occur if the work were spread over a longer time; if the work will abate or prevent hazard to life or property; and if the proposed night work is in the general public interest. The Director of Public Works or the Director of Building Inspection shall prescribe such conditions, working times, types of construction equipment to be used, and permissible noise emissions, as required in the public interest.

D.12.3 Environmental Impacts and Mitigation Measures

D.12.3.1 Definition and Use of Significance Criteria

Significance of noise impacts depends on whether a project would increase noise levels above the existing ambient levels by introducing new sources of noise. The following significance

criteria are based on the CEQA checklist identified in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.). In accordance with Appendix G, the proposed project's noise effects would be considered a significant impact if the proposed project would:

Impact NO-1 Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies

Impact NO-2 Generate excessive ground-borne vibration or ground-borne noise levels

Impact NO-3 Be located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, and expose people residing or working in the project area to excessive noise levels

D.12.3.2 Applicant Proposed Measures

Table D.12-2 presents the applicant proposed measures (APMs) proposed by PG&E to reduce project impacts related to noise.

Table D.12-2
Applicant Proposed Measures for Noise

APM No.	Description
APM NO-1	**Noise Minimization with Portable Barriers.** Compressors and other small stationary equipment used during construction will be shielded with portable barriers if appropriate and if located within 200 feet of a residence.
APM NO-2	**Noise Minimization with Quiet Equipment.** Quiet equipment will be used during construction whenever possible (e.g., equipment that incorporates noise-control elements into the design, such as quiet model compressors, can be specified).
APM NO-3	**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 NO-4	**Noise Disruption Minimization through Residential Notification.** In the event that nighttime construction is necessary, such as if certain activities such as line splicing or augerboring in certain soil conditions 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.

Table D.12-2
Applicant Proposed Measures for Noise

APM No.	Description
APM NO-5	**Auger Bore Noise Minimization Measures.** Temporary barriers utilizing materials such as intermodal containers or frac tanks, plywood walls, mass-loaded vinyl (vinyl impregnated with metal), sound-absorbing blankets, hay bales, or similar materials will be used to reduce noise generated by the auger bore operations. Auger bore activities will be limited to daylight hours unless a situation arises where ceasing the activity would compromise safety (both human health and environmental) and/or the integrity of the project. If nighttime auger bore activities are required, the project will monitor actual noise levels from auger bore activities between 8:00 p.m. and 7:00 a.m. If the nighttime noise levels created by the auger bore operation are found to result in a complaint and are in excess of the ambient noise level by 5 dBA at the nearest residential property plane, PG&E will, within 24 hours of the excess measurement, employ additional minimization measures to the extent practicable. Such measures may include ensuring that semi-permanent stationary equipment (e.g., generators) are stationed as far from sensitive areas as practicable, utilizing sound attenuated "quiet" or "Hollywood/Movie Studio" silencing packages, or modifying barriers to further reduce noise levels.
APM NO-6	**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 NO-7	**Incorporate Vibration Assessment into Project Construction**. Where pile driving may be required within streets with adjacent residential 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, or modifying hammer frequency 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.

D.12.3.3 Impact Discussion

Impact NO-1 **Would the project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?**

Construction

Construction of the proposed project would produce temporary, short-term noise that would be limited to daytime hours to the extent practicable. The overall construction period is expected to last a total of approximately 18 to 19 months along the transmission lines and within the new switching station, with work occurring 5 days per week, during daytime hours, progressing from one area to another along the transmission lines. The expected duration of the auger bore

activities is approximately 6 weeks, as described in Section B.6.7, Construction Methods, under the subsection Trenchless (Auger Bore). Workweeks and workdays might include 6 days per week and 10 hours per day, but 24-hour and overnight construction is not anticipated to be necessary except potentially during the active bore period. The anticipated routine daily construction schedule for the transmission line work and switching station construction is expected to occur between 7:00 a.m. and 8:00 p.m., or as otherwise authorized by the city in which the work is occurring. If nighttime construction is necessary to continue work until a safe stopping point is reached, such as at the auger bore in certain soil conditions, nighttime activities are expected to be infrequent, short term, and limited to equipment used for operation of the auger-bore machine and required supporting equipment.

Review of the typical construction equipment noise levels presented in Table D.12-3 indicates that the loudest equipment generally emits noise in the range of 80 to 90 dBA at 50 feet with usage factors of 40% to 50%.

Table D.12-3
Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor (%)	Specified L_{max} at 50 Feet (dBA)	Actual Measured L_{max} at 50 Feet (dBA)	Number of Actual Data Samples
Auger drill rig	20	85	84	36
Backhoe	40	80	78	372
Bar bender	20	80	N/A	0
Blasting	N/A	94	N/A	0
Boring jack power unit	50	80	83	1
Chain saw	20	85	84	46
Clam shovel (dropping)	20	93	87	4
Compactor (ground)	20	80	83	57
Compressor (air)	40	80	78	18
Concrete batch plant	15	83	N/A	0
Concrete mixer truck	40	85	79	40
Concrete pump truck	20	82	81	30
Concrete saw	20	90	90	55
Crane	16	85	81	405
Dozer	40	85	82	55
Drill rig truck	20	84	79	22
Drum mixer	50	80	80	1
Dump truck	40	84	76	31

Table D.12-3
Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor (%)	Specified L_{max} at 50 Feet (dBA)	Actual Measured L_{max} at 50 Feet (dBA)	Number of Actual Data Samples
Excavator	40	85	81	170
Flatbed truck	40	84	74	4
Front-end loader	40	80	79	96
Generator	50	82	81	19
Generator (less than 25 kV-amperes)	50	70	73	74
Gradall	40	85	83	70
Grader	40	85	N/A	0
Grapple (on backhoe)	40	85	87	1
Horizontal boring hydraulic jack	25	80	82	6
Hydra break ram	10	90	N/A	0
Impact pile driver	20	95	101	11
Jackhammer	20	85	89	133
Man lift	20	85	75	23
Mounted impact hammer (hoe ram)	20	90	90	212
Pavement scarifier	20	85	90	2
Paver	50	85	77	9
Pickup truck	40	55	75	1
Pneumatic tools	50	85	85	90
Pumps	50	77	81	17
Refrigerator unit	100	82	73	3
Rivet buster/chipping gun	20	85	79	19
Rock drill	20	85	81	3
Roller	20	85	80	16
Sand blasting (single nozzle)	20	85	96	9
Scraper	40	85	84	12
Shears (on backhoe)	40	85	96	5
Slurry plant	100	78	78	1
Slurry trenching machine	50	82	80	75
Soil mix drill rig	50	80	N/A	0
Tractor	40	84	N/A	0
Vacuum excavator (vac-truck)	40	85	85	149

Table D.12-3
Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor (%)	Specified L_{max} at 50 Feet (dBA)	Actual Measured L_{max} at 50 Feet (dBA)	Number of Actual Data Samples
Vacuum street sweeper	10	80	82	19
Ventilation fan	100	85	79	13
Vibrating hopper	50	85	87	1
Vibratory concrete mixer	20	80	80	1
Vibratory pile driver	20	95	101	44
Warning horn	5	85	83	12
Welder/torch	40	73	74	5
All other equipment greater than 5 horsepower	50	85	N/A	0

Source: FHWA 2006. Number of Actual Data Samples is from FHWA 2006.
Notes: dBA = A-weighted decibel; L_{max} = maximum level; kV = kilovolt.

Sound levels decrease with increasing distance; Table D.12-4 presents typical construction sound levels at various distances.

Table D.12-4
Construction Equipment Noise Levels Versus Distance

Distance from Construction Activity (feet)	L_{eq} Noise Level (dBA)
50	83
100	79
200	74
400	69
800	63
1,600	58
3,200	52
6,400	46

Notes: L_{eq} = equivalent sound level; dBA = A-weighted decibel.

The switchgear building at the proposed Egbert Switching Station is expected to be supported by a thickened mat slab foundation. If building piers are necessary, approximately 25 drilled piers would be required and would be installed to a depth of 20 feet. The perimeter fence and equipment enclosures are expected to require approximately 60 piers installed to a depth of 15 feet. These piers would be installed using a drill method, and vibratory or impact pile driving is not anticipated.

Transmission line vault excavations (at approximately 1,800- to 2,000-foot intervals along each transmission line extension) and auger bore pits would require shoring components, such as driven sheet piles or slide rail steel sheeting. Shoring type for these locations, and potentially for locations along the trench, would be determined by soil and groundwater conditions. Soil borings obtained during final design work would be used to identify areas of Colma Sand, a soil type that is expected to need driven sheets for excavation shoring.

If pile driving is required, it would generate temporary noise and may result in perceptible vibrations that would be local to the excavation activity where the driven sheet pile or slide rail steel sheeting shoring is required. Pile driving may occur during proposed project construction daytime activities, and would be limited to the installation of sheet piles for shoring at the auger bore excavations or transmission line vault locations, or potentially along the trench in specific sandy soil conditions, which would be determined by soil and groundwater conditions. As listed in Table D.12-3, Typical Construction Equipment Noise Levels, impact and vibratory pile drivers could have a noise level of 101 dBA at 50 feet, which could result in a noise level of 95 dBA at 100 feet. Pile driving activities may therefore exceed the City and County of San Francisco's restriction for construction noise of 80 dBA at 100 feet. Where shoring is required to ensure safety of workers and the public, these activities would be conducted during the daytime hours and would be of limited duration; therefore, the noise generated from limited pile driving associated with shoring installation for the proposed project construction is anticipated to be a less-than-significant impact under this criterion.

Trenchless technology is anticipated to be used to install the portion of the transmission line beneath U.S. Highway 101 because of the lack of available corridors within the existing public right-of-way. Excavation of the auger bore pits would require saw-cutting of asphalt and excavation with a backhoe. Each bore pit is expected to be excavated over 1 workweek within normal daytime construction hours. The boring phase of the operation is anticipated to take approximately 1 week to 10 days. If soil conditions are such that the integrity of the hole cannot be safely maintained with daytime-only activities, auger bore operations would have to proceed on a 24-hour basis. Auger bore activities would be limited to daylight hours unless a situation arises where ceasing the activity would compromise safety (both human health and environmental) and/or the integrity of the proposed project. If nighttime activity is required, equipment use would be limited to the auger-boring machine, located in the bore pit, and supporting equipment required for its operation.

Anticipated equipment to be used at the auger bore pit locations includes the following:

- Auger-boring machine equipped with specialized boring unit, or open face tunnel boring machine
- Large crane

- Large excavator
- Portable air compressor
- Dump trucks
- Pickup trucks
- Mobile generator
- Welding machine
- Pavement saw-cutting equipment
- Semi-truck
- Hydraulic breaker for excavator
- Sheet driver for excavator

City of Brisbane

Construction activities at the existing Martin Substation are 375 feet from the property line, resulting in typical sound levels that are less than 74 dBA at the property line, which conforms to the City of Brisbane's Section 8.28.060(B) requirement of 86 dBA. Construction in the City of Brisbane of the proposed Jefferson-Egbert transmission line is limited to approximately 300 feet within Guadalupe Canyon Parkway. The closest residence to the proposed project in the City of Brisbane is approximately 250 feet from the edge of Guadalupe Canyon Parkway. At the closest residences, 250 feet away, typical sound levels are predicted to be less than 74 dBA. The duration of proposed construction activities in the City of Brisbane along Guadalupe Canyon Parkway is also very limited, a total of approximately 8 working days. Given the limited duration of these activities, that they would take place during the daytime hours, and because the predicted levels at the closest residences (250 feet away) are less than the noise level limits identified in the City of Brisbane's Municipal Code Section 8.28.060, construction in the City of Brisbane would not be anticipated to result in significant noise impacts. However, in the event that construction activities are required to occur during nighttime hours, the predicted 74 dBA construction noise level at the closest residence could interfere with sleep patterns for these residents, thereby constituting a potentially significant impact. Therefore, mitigation measure (MM) NO-1 would be implemented to address nighttime construction noise, as well as daytime construction noise levels that exceed 90 dBA L_{eq} at the closest residences (which equates to levels that could exceed 65 dBA L_{eq} indoors). With implementation of MM NO-1 and APM NO-1 through APM NO-7, potential impacts to noise in the City of Brisbane would be reduced to less than significant with mitigation (Class II).

City of Daly City

As described in Section D.12.2, Applicable Regulations, Plans, and Standards, the City of Daly City does not provide specific construction-related noise limits, but acknowledges various temporary noise sources associated with construction activities. Construction noise is regulated in the City of Daly City through the environmental review process by the Engineering and Planning Divisions. Noise-generating construction activity in the City of Daly City is typically restricted to daytime hours between 8:00 a.m. and 5:00 p.m., and is prohibited on weekends and holidays. In areas that are within the City of Daly City, the proposed project would be constructed during these hours. Therefore, construction in the City of Daly City would not be anticipated to result in significant noise impacts. However, in the event that construction activities are required to occur during nighttime hours, construction noise levels at the closest residences could interfere with sleep patterns for these residents, thereby constituting a potentially significant impact. Therefore, MM NO-1 would be implemented to address nighttime construction noise, as well as daytime construction noise levels that exceed 90 dBA L_{eq} at the closest residences (which equates to levels that could exceed 65 dBA L_{eq} indoors). With implementation of MM NO-1 and APM NO-1 through APM NO-7, impacts to noise in the City of Daly City would be reduced to less than significant with mitigation (Class II).

City and County of San Francisco

While not calculated to exceed the City and County of San Francisco's noise level limits of 80 dBA at 100 feet, proposed construction activities would approach the noise level restriction (79 dBA at 100 feet per Table D.12-4, Construction Equipment Noise Levels Versus Distance). The construction noise level predictions presented in the above-referenced table is representative of long-term averages; instantaneous levels could be higher or lower, depending on the specific activity.

One of the longer duration construction activities occurring in a single area is the auger bore, trenchless crossing work. The nearest residence would be within 50 feet of the proposed eastern work area and within 65 feet of the western work area of proposed auger bore operations. As shown on Figure D.11-2a, these residences are also near a portion of U.S. Highway 101 where there are no highway noise barriers. Auger bore operations are expected to last for approximately 6 weeks. The estimated sound pressure level from the operation of auger bore equipment operating at the entry is assumed to be similar to the Federal Highway Administration estimate for an auger drill rig and other trenchless drilling efforts (such as those conducted for the Embarcadero-Potrero 230 kV Transmission Project), and to generate approximately 83 dBA at a distance of 100 feet without barriers (PG&E 2017). Table D.12-5, summarizes the predicted noise levels during auger bore activities, assuming a minimal barrier effectiveness of 5 dBA. Barrier effectiveness of 5 dBA is a conservative assumption, given that the use of barriers can routinely reduce noise by up to 20 dBA; further, the auger-boring machine would be located in a

pit 13 to 15 feet below grade. Noise walls affect sound propagation by interrupting its propagation and creating an "acoustic shadow zone." The sound pressure level is lower in the shadow zone than in the respective unobstructed free field. Effectiveness of barriers depends on the following two primary design features:

1. The barrier must be high enough to break the line-of-sight between the observer and source, and long enough to prevent noise leaks around the ends.
2. Noise should not be transmitted through the barrier.

Table D.12-5
Auger Bore Equipment Noise Levels Versus Distance Upon Implementation of Noise Reduction Measures

Distance from Auger Bore Entry Point (feet)	L_{eq} Noise Level without Noise Minimization Measures (dBA)	L_{eq} Noise Level with 5 dBA Noise Minimization Measures (APM NO-5) (dBA)
100	83	78
200	77	72
400	71	66
600	68	63
800	65	60
1,000	63	58
1,500	60	55
2,000	57	52
4,000	51	46

Notes: L_{eq} = equivalent sound level; dBA = A-weighted decibel; APM = applicant proposed measure.
See text narrative preceding this table for the parameters of this noise-modeling scenario.

Table D.12-5 shows that noise associated with the auger bore entry location may reach 78 dBA at 100 feet, even when minimization measures are applied that would be expected to achieve a minimum 5 dBA reduction. This noise level from boring operations would comply with applicable standards, although construction noise could be clearly audible at residences in close proximity to the bore entry locations. The nearest residence would be within 50 feet of the proposed eastern work area and within 65 feet of the western work area of proposed auger bore operations, and such residences could therefore be exposed to auger bore noise levels up to 84 dBA during boring activity. Current plans anticipate that auger bore activities would take place during daytime hours, a period where many nearby residents may be away from their residence and when construction noise would be less noticeable against higher daytime background noise levels. Because the controlled noise level for auger bore activities would reach levels very close to the 100 dBA at 100 feet limit, and because the closest homes could be exposed to noise levels

up to 84 dBA, potentially significant construction noise impacts could occur, especially if it becomes necessary to conduct these activities during nighttime hours.

Implementation of APM NO-1 through APM NO-7 would reduce noise impacts from construction. Additionally, APM TR-1 would further minimize noise impacts during construction by identifying haul routes and developing circulation and detour plans for local streets. However, even with APM NO-1 through APM NO-7, it may not be feasible in all cases to reduce noise to a level that is consistent with applicable noise standards (i.e., San Francisco's criteria of 80 dBA at 100 feet), and therefore construction noise within the City and County of San Francisco is considered a potentially significant impact for which additional mitigation is required. With implementation of MM NO-1 and APM NO-1 through APM NO-7, impacts to noise in the City and County of San Francisco would be reduced to less than significant with mitigation (Class II).

MM NO-1 For construction occurring within the City and County of San Francisco, in the event noise levels during daytime (7 AM to 8 PM) construction activities are expected to exceed 80 dBA L_{eq} at 100 feet (for portions of the project alignment where noise-sensitive areas are located, Pacific Gas & Electric Company (PG&E) shall implement noise reduction measures to reduce noise levels to below 80 dBA L_{eq} at 100 feet. For construction occurring within the Cities of Daly City and Brisbane, in the event noise levels during daytime (8 AM to 5 PM) construction activities are expected to exceed 90 dBA L_{eq} at the closest residences (for portions of the project alignment where noise-sensitive areas are located within 190 feet of the alignment), PG&E shall implement noise reduction measures to reduce noise levels to below 90 dBA L_{eq} at the closest residences. For nighttime construction (8 PM to 7 AM) in all jurisdictions, PG&E shall implement noise reduction measures to reduce construction noise levels at residences adjacent to the construction area to no greater than 5 dBA L_{eq} above ambient noise levels. Measures to be implemented could include: (1) portable noise barriers erected temporarily to reduce noise impacts at specific locations; or (2) if noise barriers would not reduce daytime construction noise levels to below 80 dBA L_{eq} at 100 feet (City and County of San Francisco) or to 90 dBA L_{eq} at the closest residence (Cities of Daly City and Brisbane), or to no greater than 5 dBA L_{eq} above ambient noise levels (nighttime), depending on the location of residences and the level of construction noise, PG&E shall offer to relocate affected residents until the impact has been determined to not be adverse.

Operation and Maintenance

Operation and maintenance activities would be supported by existing PG&E staff as part of their scheduled work in the area. This work would include routine inspections at the switching station (monthly) and detailed inspections (annually) at the switching station and vault locations along the transmission lines.

Potential sources of operational noise associated with this proposed project are the series and shunt reactors and the building ventilation system located at the proposed Egbert Switching Station, as well as vehicle noise from operation and maintenance vehicles, which would be infrequent (monthly). The infrequent noise from operation and maintenance vehicles would not substantially change ambient noise levels within the environment surrounding the proposed Egbert Switching Station, which is predominantly influenced by commercial and industrial noise sources.

The series and shunt reactors would be located outside of the proposed Egbert Switching Station building. The sound level of the series reactor is expected to be 74 dBA at 2 meters (6.6 feet), and the closest residential property line to the series reactor location would be approximately 265 feet to the north; the sound level from the series reactor would be approximately 43 dBA at this distance. The anticipated shunt reactor sound level is similar (less than 75 dBA at 2 meters [6.6 feet]); the distance from the shunt reactors to the closest residential property line would be approximately 145 feet to the north; the sound level from an individual shunt reactor at this distance would be approximately 46 dBA. The building ventilation system would likely consist of an exhaust fan on the gas-insulated switchgear building, which has an expected sound level of 82 dBA at 5 feet and an air conditioning condenser on the control room roof, which has an expected sound level of 63 dBA at 5 feet; the distance from the closest point of the main building where this equipment could be installed to the nearest residential property line is approximately 185 feet; noise levels from the exhaust fan would be much greater than the condenser and would be approximately 51 dBA at the closest residential property line. Adding the individual noise levels from all of the above equipment at the closest residential property line, a sound level of less than 60 dBA (approximately 55 dBA) would result at the fence line of the closest residence, without consideration of noise minimization measures or reductions potentially afforded by intervening structures. Equipment specifications and construction details would be incorporated into the design during detailed engineering to minimize sound levels, such as specifying lower noise equipment, directing exhausts in a less sensitive direction, addition of exhaust vent silencers, installation of sound barrier walls, or incorporating acoustically absorptive materials to reflective surfaces. Continuous operation of all of this equipment on a 24-hour basis would result in a CNEL or L_{dn} level of approximately 62 dBA.

Corona generates audible noise during operation of aboveground high-voltage transmission lines. The noise is generally characterized as a crackling, hissing, or humming noise. However, the new proposed 230 kV transmission lines associated with the proposed project would be installed underground. Audible noise from buried lines is not anticipated, and no increases in noise from the existing Martin Substation are expected from the proposed modifications because the modifications would remove the existing Jefferson-Martin transmission line terminal equipment and would not install new major equipment at the site. The proposed Egbert Switching Station is in an area with primarily industrial and commercial uses and some residential use. Noise from the proposed Egbert Switching Station would be minimized by enclosure of the switchgear equipment within a building. In addition, equipment specifications and construction details would be incorporated during detailed engineering to minimize sound levels, such as specifying lower noise equipment, directing exhausts in a less sensitive direction, addition of exhaust vent silencers, installation of sound barrier walls, or incorporating acoustically absorptive materials to reflective surfaces. PG&E's final design for the proposed Egbert Switching Station (including the new outdoor series and shunt reactors) would incorporate measures to comply with the noise standards at the existing residential uses. This would include two types of shielding walls for each of the two shunt reactors: (1) reinforced concrete between the reactors and to the south against the switchgear building, and (2) expanded metal mesh to the north and the outside (west side of the western shunt reactor, and east side of the eastern shunt reactor). The reinforced concrete would be a solid surface and the expanded metal mesh is a 76% solid aluminum surface. The perimeter fence would be constructed of expanded metal mesh for three sides of the site (west, north, and east) and a solid perimeter wall to the south. Preliminary calculations of the proposed exterior equipment noise levels at the nearest residential property boundary indicated that facility operation noise should be less than 60 dBA L_{eq} at the residential property boundary. Shielding provided by the proposed expanded metal walls would reduce these levels further.

Periodic inspection and maintenance activities would be performed at the proposed Egbert Switching Station and new transmission lines. Maintenance activities would typically occur once a month, typically during daytime hours, and generate minimal noise. As with existing maintenance activities involving noise-generating equipment or vehicles, noise reduction measures would be employed to reduce temporary noise impacts, as described in APM NO-1 through APM NO-7. Therefore, during operation and maintenance, no exposure of persons to or generation of noise levels in excess of standards established in the local general plans or noise ordinances, or applicable standards of other agencies, is anticipated; and maintenance and operations would have a less-than-significant noise impact (Class III).

Impact NO-2 Would the project generate of excessive groundborne vibration or groundborne noise levels?

Construction

Construction activities (e.g., ground-disturbing activities, including grading and movement of heavy construction equipment) may generate localized groundborne vibration and noise. Line construction in roadways and construction of the new proposed Egbert Switching Station could be within 25 to 100 feet of residences, potentially creating perceptible vibration. Earthmoving equipment that may result in groundborne vibration or noise would occur during daytime hours, and would be of short-term duration.

Depending on soil and groundwater conditions, impact or vibratory pile driving may occur during proposed project construction, and would be limited to the installation of sheet piles for shoring at transmission line vault excavation and the auger bore pits, or potentially along the trench, as soil conditions require. Pile driving is the activity with the greatest likelihood of creating perceptible off-site vibrations. In their analysis, California Energy Commission staff typically reference the FTA guidance manual criteria for damage (FTA 2006). In addition to the FTA guidance manual, the Federal Railroad Administration provides thresholds for various land uses (FRA 2005, 2012). Both the FTA and Federal Railroad Administration provide a methodology for the assessment of potential vibration resulting from rail operations, in addition to potential vibrations from construction activities. Caltrans has also published a Transportation and Construction Vibration Guidance Manual (Caltrans 2013). Caltrans has not established a standard for vibration; rather, Caltrans presents a range of potential criteria. For continuous vibration from traffic, the California Energy Commission staff's proposed criteria of a PPV of 0.2 inches per second is indicated in the Caltrans guidance to be "annoying," but not "unpleasant;" and a level of 0.1 inches per second is indicated as "begins to annoy." It is also noted that "thresholds for perception and annoyance are higher for transient vibration than for continuous vibration" (Caltrans 2013). Pile driving does not represent a continuous source of vibration, and it is also a short-term daytime construction activity; therefore, it is not unreasonable to expect people to be less sensitive to it and for a higher threshold to be considered.

The criteria for damage from construction activities was established by FTA using the PPV metric; these criteria and corresponding and approximate VdB levels are provided in Table D.12-6.

Table D.12-6
Construction Vibration Damage Criteria

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

Source: FTA 2006.
Notes: PPV = peak particle velocity; in/sec = inches per second; VdB = vibration decibel.

The vibration levels produced from various construction equipment, as established by the FTA, are provided in Table D.12-7.

Table D.12-7
Vibration Source Levels for Construction Equipment

Equipment		PPV at 25 feet (in/sec)	Approximate VdB at 25 feet
Pile Driver (impact)	upper range	1.518	112
	typical	0.644	104
Pile Driver (sonic)	upper range	0.734	105
	typical	0.170	93
Clam shovel drop (slurry wall)		0.202	94
Hydromill (slurry wall)	in soil	0.008	66
	in rock	0.017	75
Vibratory Roller		0.210	94
Hoe Ram		0.089	87
Large bulldozer		0.089	87
Calsson drilling		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79
Small bulldozer		0.003	58

Source: FTA 2006, Table 12-2.
Notes: PPV = peak particle velocity; in/sec = inches per second; VdB = vibration decibel.

Table D.12-7 shows that the typical sonic pile driver operation generates a vibration level at a distance of 25 feet, which results in a PPV not exceeding the 0.2 inches per second damage criteria for non-engineered timber or masonry structures. Using the upper range for an impact pile driver and typical values for a sonic pile driver found in Table D.12-7, the PPV and VdB at various distances has been tabulated in Table D.12-8.

Table D.12-8
Predicted Vibrations from Pile Driving Equipment at Various Distances

Distance (feet)	PPV (Upper Range, Impact)	PPV (Typical Sonic)	VdB (Upper Range, Impact)	VdB (Typical Sonic)
50	0.537	0.060	103	84
75	0.292	0.033	98	79
100	0.190	0.021	94	75
125	0.136	0.015	91	72
150	0.103	0.012	89	70
175	0.082	0.009	87	68
200	0.067	0.008	85	66
225	0.056	0.006	83	64

Source: FTA 2006.
Notes: PPV = peak particle velocity; VdB = vibration decibel.

Regardless of the criteria used, the potential for damage from impact pile driving is limited to areas very close to the activity. Impact pile driving associated with the proposed project is not expected to occur within 150 feet of residential structures. Therefore, vibration levels at residences would fall below the 0.2 inches per second PPV significance threshold.

Pile driving activities may result in groundborne vibration perceptible at nearby residences, but it is anticipated that the pile installation required for shoring can be accomplished with vibratory methods. Implementation of APM NO-7 would consider site-specific factors and appropriate driving technologies to reduce the potential effects of off-site vibration. Therefore, impacts associated with exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels during construction of the proposed project would result in less-than-significant impacts (Class III).

Operation and Maintenance

Equipment associated with normal operation and maintenance of the proposed project would not produce any groundborne noise or vibration; therefore, operation and maintenance of the proposed project would result in no impact.

Impact NO-3 **Would the project be 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, and would the project expose people residing or working in the project area to excessive noise levels?**

Construction, operation, and maintenance of the proposed project would occur at a distance greater than 2 miles from a public airport or private airstrip. Project improvements within San Mateo County would be within Airport Influence Area A of the of the airport land use compatibility plan for the San Francisco International Airport (C/CAG 2012). However, no portion of the proposed project is located within Noise Compatibility Zones identified in the airport land use compatibility plan. Therefore, the proposed project would result in no impact under this criterion (No Impact).

D.12.4 Project Alternatives

D.12.4.1 Bayshore Switching Station Alternative

Environmental Setting

The Bayshore Switching Station Alternative is located in San Mateo County, within the Cities of Brisbane and Daly City. The Bayshore Switching Station Alternative is located within a largely undeveloped area in the City of Brisbane that the City intends to redevelop as a mixed-use area, dominated by commercial and industrial development, intermixed with open space areas. Land uses surrounding the Bayshore Switching Station Alternative are described in Section D.11.4.1.

The Bayshore Switching Station Alternative would be developed within San Mateo County, within Airport Influence Area A of the airport land use compatibility plan for the San Francisco International Airport. No special land use restrictions are in effect within Area A (C/CAG 2012).

Sensitive Receptors

The nearest sensitive receptors to the alternative switching station site are single-family residences approximately 1,200 feet to the south and approximately 1,500 feet to the northwest. The Brisbane Community Park is located approximately 870 feet south of the alternative switching station site.

The alternative transmission line segments within and east of Bayshore Boulevard are primarily bounded by commercial, industrial, and open space land uses. The nearest sensitive receptors along Bayshore Boulevard would be single-family residences approximately 750 feet to the west. Existing single- and multi-family residences are the most prominent noise-sensitive receptors along the alternative Bayshore-Embarcadero transmission line segment west of Bayshore

Boulevard. At their nearest point, residential property boundaries are within 20 feet of the centerline of Main Street; multi-family residences and the Bayshore Child Care Services preschool are within 15 feet of the centerline of Midway Drive. Single- and multi-family residences and the Bayshore School are also located approximately 20 feet from the centerline of Schwerin Street, west of the Martin Substation.

Applicable Regulations, Plans, and Standards

All applicable federal and state regulations, plans, and standards described in Section D.12.2 would apply to the Bayshore Switching Station Alternative. Local noise control provisions are outlined in Chapter 8.28 of the Brisbane Code of Ordinances. Additionally, the Noise Element of the Daly City 2030 General Plan describes allowable temporary noise generated from construction activities. For the portion of the alternative transmission lines in the City of Daly City, Section 9.22.030 of the Daly City Code of Ordinances and the Noise Element of the Daly City 2030 General Plan established noise requirements within Daly City. All local noise regulations for the City of Brisbane and Daly City are described in Section D.12.2.

Environmental Impacts and Avoidance/Mitigation Measures

Impact NO-1: Construction of the proposed project would produce temporary, short-term noise that would be limited to daytime hours to the extent practicable. For the purposes of this analysis, the overall construction period is expected to last a total of 18–19 months, consistent with the proposed project, but the Bayshore Switching Station Alternative could result in a shorter construction schedule than the proposed project due to shorter overall length of transmission lines.

City of Brisbane

As described in Section C.5.1, the alternative switching station site would be larger than the proposed project (approximately 6.6 acres). The nearest sensitive receptor (Brisbane Community Park) to the alternative switching station site is located approximately 870 feet to the south. At the Brisbane Community Park, 870 feet away, typical construction noise levels are predicted to be less than 63 dBA; however, actual noise levels perceived at the park would be much lower due to topography, mature trees, and buildings between the two locations.

Construction of underground transmission lines associated with the alternative switching station site and installation of alternative transmission lines by means of trenching would result in similar noise-generating construction activities as described in Section D.12.3.3. Construction of the alternative transmission lines within the City of Brisbane would be 750 feet from the nearest sensitive receptor (single-family residence). At the nearest residence, 750 feet away, typical construction sound levels are predicted to be approximately 63 dBA, but actual noise levels

perceived at the residence would be much lower due to topography, mature trees, and buildings between the two locations.

Potential sources of operational noise associated with this alternative project site are the series and shunt reactors and the building ventilation system located at the proposed Bayshore Switching Station, as well as vehicle noise from operation and maintenance vehicles, which would be infrequent (monthly). The infrequent noise from operation and maintenance vehicles would not substantially change ambient noise levels within the environment surrounding the proposed Bayshore Switching Station, which is predominantly influenced by nearby industrial noise sources, the Caltrain, and traffic noise on Bayshore Boulevard. Operational noise would not be perceptible from the nearest sensitive receptor to the alternative switching station, 870 feet to the south.

Construction activities described above would conform to the CBCO Section 8.28.060 requirement of 86 dBA, and operational activities are anticipated to conform with Section 8.28.040 of the CBCO. Construction activities would take place during daytime hours, noise levels would not exceed limits established in the City's Municipal Code, and construction in the City of Brisbane would not be anticipated to result in a significant noise impact. However, in the event that construction activities are required to occur during nighttime hours, construction noise levels at the closest residences along the alignment routes could interfere with sleep patterns for these residents, thereby constituting a potentially significant impact. With implementation of MM NO-1 and APM NO-1 through APM NO-7, impacts of nighttime construction noise, as well as daytime construction noise levels that exceed 90 dBA L_{eq} at the closest residences (which equates to levels that could exceed 65 dBA L_{eq} indoors), would be reduced to less than significant with mitigation (Class II).

City of Daly City

Construction of the alternative Bayshore-Embarcadero transmission line west of Bayshore Boulevard would impact sensitive receptors adjacent to the alternative line segment along Main Street, Midway Drive, and Schwerin Street. At the nearest sensitive receptor, approximately 15 feet from the centerline of the roadway, typical construction levels are predicted to be greater than 83 dBA. Construction of the alternative transmission line within Daly City (approximately 2,000 linear feet; 0.37 miles) would be completed in approximately 50 days. As described in Section D.12.2, the City of Daly City does not provide specific construction-related noise limits but acknowledges various temporary noise sources associated with construction activities. Construction noise is regulated in the City of Daly City through the environmental review process by the Engineering and Planning Divisions. Noise-generating construction activity in the City of Daly City is typically restricted to daytime hours between 8:00 a.m. and 5:00 p.m. and is prohibited on weekends and holidays. Construction activities within Daly City would be limited

to these hours. Therefore, construction in the City of Daly City would not be anticipated to result in a significant noise impact. However, in the event that construction activities are required to occur during nighttime hours, construction noise levels at the closest residences could interfere with sleep patterns for these residents, thereby constituting a potentially significant impact. Therefore, MM NO-1 would be implemented to address nighttime construction noise, as well as daytime construction noise levels that exceed 90 dBA L_{eq} at the closest residences (which equates to levels that could exceed 65 dBA L_{eq} indoors).

With implementation of MM NO-1 and APM NO-1 though APM NO-7, noise impacts associated with construction and operation of the Bayshore Switching Station and transmission line segments in the Cities of Brisbane and Daly City would be less than significant with mitigation (Class II).

Impact NO-2: Construction activities (e.g., ground-disturbing activities, including grading and movement of heavy construction equipment) may generate localized groundborne vibration and noise. Construction of the alternative switching station would be approximately 800 feet from the nearest residence, and impacts associated with groundborne vibration are not anticipated for construction of the alternative switching station. Equipment associated with normal operation and maintenance would not produce any groundborne noise or vibration.

Construction of alternative transmission line segments could be within 15 feet of a residence, specifically along the alternative Bayshore-Embarcadero transmission line segment in the City of Daly City. Earthmoving equipment that may result in groundborne vibration or noise during daytime hours and would be of short-term duration. Depending on soil and groundwater conditions, impact or vibratory pile driving may occur during construction and would be limited to the installation of sheet piles for shoring along the alternative transmission line trench, as soil conditions require. Pile driving is the activity with the greatest likelihood of creating perceptible off-site vibrations. Pile-driving activities may result in groundborne vibration perceptible at nearby residences, but it is anticipated that the pile installation required for shoring can be accomplished with vibratory methods. Implementation of APM NO-7 would consider site-specific factors and appropriate driving technologies to reduce the potential effects of off-site vibration. Therefore, impacts associated with exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels during construction of the Bayshore Switching Station Alternative would result in less-than-significant impacts (Class III).

Impact NO-3: This alternative is within San Mateo County and would be within Airport Influence Area A of the airport land use compatibility plan for the San Francisco International Airport (C/CAG 2012). No portion of the alternative switching station site or transmission line segments are located within Noise Compatibility Zones identified in the airport land use compatibility

plan. Therefore, the Bayshore Switching Station Alternative would result in no impact under this criterion (No Impact).

Comparison to the Proposed Project

Compared to the proposed project, the Bayshore Switching Station Alternative would have reduced noise and vibration impacts associated with construction and operation, because the alternative switching station is located further from the nearest sensitive receptors. In localized areas, construction of the alternative transmission lines could result in greater noise and vibration impacts to individual land uses that are located a minimum of 15 feet from the affected roadway, but overall, the proposed project would have greater noise impacts during construction of the proposed transmission line, because a greater number of sensitive receptors would be impacted during construction activities. In addition, the Bayshore Switching Station Alternative would not require trenchless technology, avoiding any potential noise impacts associated with auger boring operations required by the proposed project. Although any operational noise from both the proposed project and the Bayshore Switching Station Alternative would be less than significant, the Bayshore Switching Station is farther from the nearest sensitive receptors than the proposed project's switching station.

D.12.4.2 Geneva Switching Station Alternative

Environmental Setting

The Geneva Switching Station Alternative is located in San Mateo County, within the City of Daly City, and within the City and County of San Francisco. The Geneva Switching Station Alternative is located within an urban residential setting intermixed with commercial, industrial, and open space areas. Land uses surrounding the Geneva Switching Station Alternative are described in Section D.11.4.2.

The portion of the Geneva Switching Station Alternative within San Mateo County would be developed within San Mateo County, within Airport Influence Area A of the airport land use compatibility plan for the San Francisco International Airport (C/CAG 2012). No special land use restrictions are in effect within Area A.

Sensitive Receptors

The nearest sensitive receptors to the alternative switching station site is the residential development approximately 125 feet west of the alternative switching station site, west of Carter Street.

Single-family residences are the most prominent noise-sensitive receptors along the alternative transmission lines. At their nearest point, residential property boundaries are within 50 feet of the

centerline of Carter Street and within 75 feet of the centerline of Geneva Avenue. The Bayshore School is located approximately 350 feet south of Geneva Avenue, on Schwerin Street. The Mt. Vernon Christian Academy is located approximately 600 feet south of Geneva Avenue, within a residential area.

Applicable Regulations, Plans, and Standards

All applicable federal and state regulations, plans, and standards described in Section D.12.2 would apply to the Geneva Switching Station Alternative. Local limitations on noise disturbance are outlined in Section 9.22.030 of the Daly City Code of Ordinances. Additionally, the Noise Element of the Daly City 2030 General Plan describes temporary noise generated from construction activities. For the portion of the alternative transmission lines in the City and County of San Francisco, Article 29 establishes the regulatory framework for addressing operational and construction-related noise. All local noise regulations for Daly City and the City and County of San Francisco are described in Section D.12.2.

Environmental Impacts and Avoidance/Mitigation Measures

Impact NO-1: Construction of the Geneva Switching Station Alternative would produce temporary, short-term noise that would be limited to daytime hours to the extent practicable. For the purposes of this analysis, the overall construction period is expected to last a total of 18–19 months, consistent with the proposed project, but the Geneva Switching Station Alternative could result in a shorter construction schedule than the proposed project due to shorter overall length of transmission lines.

City of Daly City

As described in Section C.5.1, the alternative switching station site would be larger than the proposed project (approximately 11.1 acres), and the nearest sensitive receptor (existing multi-family residence) to the alternative switching station site is located approximately 125 feet to the west. At the nearest residence, typical construction sound levels are predicted to be less than 79 dBA, but actual noise levels perceived would likely be lower due to topography and mature trees between the two locations.

Construction of underground transmission lines (at approximately 1,800- to 2,000-foot intervals along each transmission line extension) associated with the Geneva Switching Station Alternative would result in similar noise-generating construction activities as the proposed project, except no trenchless technology would be required for this alternative. Construction of the alternative transmission lines within the City of Daly City would be 50 feet from the nearest sensitive receptor (multi-family residence). At the nearest residence, typical construction sound levels are predicted to be approximately 83 dBA.

Construction noise is regulated in the City of Daly City through the environmental review process by the Engineering and Planning Divisions. Noise-generating construction activity in the City of Daly City is typically restricted to daytime hours between 8:00 a.m. and 5:00 p.m. and is prohibited on weekends and holidays. Construction activities within Daly City would be limited to these hours. Therefore, construction in the City of Daly City would not be anticipated to result in a significant noise impact. However, in the event that construction activities are required to occur during nighttime hours, construction noise levels at the closest residences could interfere with sleep patterns for these residents, thereby constituting a potentially significant impact. Therefore, MM NO-1 would be implemented to address nighttime construction noise, as well as daytime construction noise levels that exceed 90 dBA L_{eq} at the closest residences (which equates to levels that could exceed 65 dBA L_{eq} indoors).

With implementation of MM NO-1 and APM NO-1 though APM NO-7, noise impacts associated with construction and operation of the Geneva Switching Station and transmission line segments in the City of Daly City would be less than significant with mitigation (Class II).

Potential sources of operational noise associated with the Geneva Switching Station Alternative are consistent with the proposed project and would be limited to the alternative switching station site. Continuous operation of all equipment on a 24-hour basis within the alternative switching station site would result in a CNEL or L_{dn} level of approximately 62 dBA. The City of Daly City considers activities with a CNEL level of 70 dBA or lower to be "normally acceptable" at multi-family residential land uses (City of Daly City 2013). Therefore, operation activities associated with the Geneva Switching Station would be consistent with the Daly City General Plan Noise Compatibility Guidelines, resulting in less-than-significant operational noise impacts (Class III).

City and County of San Francisco

The alternative Jefferson-Geneva and Geneva-Embarcadero transmission lines would require construction of approximately 1,500 feet of underground transmission lines within the City and County of San Francisco, at the intersection of Carter Street and Geneva Avenue. At the nearest sensitive receptor (multi-family residence), approximately 25 feet from the centerline of Carter Street, typical construction levels are predicted to be greater than 83 dBA. While not calculated to exceed the City and County of San Francisco's noise level limits of 80 dBA at 100 feet, proposed construction activities would approach the noise level restriction (79 dBA at 100 feet per Table D.12-4, Construction Equipment Noise Levels Versus Distance).

Implementation of APM NO-1 through APM NO-7 would reduce noise impacts from construction. However, even with APM NO-1 through APM NO-7, it may not be feasible in all cases to reduce noise to a level that is consistent with applicable noise standards (i.e., San Francisco's criteria of 80 dBA at 100 feet); therefore, construction noise within the City and County of San Francisco under

this alternative is considered a potentially significant impact. With implementation of MM NO-1 and APM NO-1 through APM NO-7, impacts to noise in the City and County of San Francisco would be reduced to less than significant with mitigation (Class II).

Impact NO-2: Construction activities (e.g., ground-disturbing activities, including grading and movement of heavy construction equipment) may generate localized groundborne vibration and noise. Construction of the Geneva Switching Station Alternative could be within 25 to 100 feet of residences, potentially creating perceptible vibration. Earthmoving equipment that may result in groundborne vibration or noise would occur during daytime hours and would be of short-term duration.

Depending on soil and groundwater conditions, impact or vibratory pile driving may occur during construction and would be limited to the installation of sheet piles for shoring along the alternative transmission line trench, as soil conditions require. Pile driving is the activity with the greatest likelihood of creating perceptible off-site vibrations. Pile-driving activities may result in groundborne vibration perceptible at nearby residences, but it is anticipated that the pile installation required for shoring can be accomplished with vibratory methods. Implementation of APM NO-7 would consider site-specific factors and appropriate driving technologies to reduce the potential effects of off-site vibration. Therefore, impacts associated with exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels during construction of the Geneva Switching Station Alternative would result in less-than-significant impacts (Class III).

Impact NO-3: No portion of the alternative switching station site or transmission line segments are located within Noise Compatibility Zones identified in the airport land use compatibility plan. Therefore, the Geneva Switching Station Alternative would result in no impacts under this criterion (No Impact).

Comparison to the Proposed Project

Compared to the proposed project, the Geneva Switching Station Alternative would have similar noise and vibration impacts associated with construction and operation of the alternative switching station. Construction of the alternative transmission lines could result in similar noise and vibration impacts to individual land uses, but overall, the Geneva Switching Station would have reduced noise impacts during construction of the alternative transmission lines, because compared to the proposed project, a smaller number of sensitive receptors would be impacted during construction of the alternative lines. Additionally, the Geneva Switching Station Alternative would not require trenchless technology, avoiding any potential noise impacts associated with auger boring operations required by the proposed project.

D.12.4.3 Sunnydale HOPE SF Avoidance Line Alternative Option A

Environmental Setting

The Sunnydale HOPE SF Avoidance Line Alternative Option A (Sunnydale Option A Alternative) is located in the City and County of San Francisco and the City of Daly City. The Sunnydale Option A Alternative is located within an urban residential setting with commercial land uses primarily along Geneva Avenue. The Sunnydale Option A Alternative is limited to the alternative line segment. Existing conditions (Section D.12.1) and environmental impacts (Section D.12.3) would remain unchanged for the Egbert Switching Station, Martin-Egbert transmission line, Egbert-Embarcadero transmission line, Martin Substation, and the remainder of the Jefferson-Egbert transmission line.

Approximately 0.2 miles of the Sunnydale Option A Alternative line segment along Geneva Avenue within San Mateo County would be developed within Airport Influence Area A of the airport land use compatibility plan for the San Francisco International Airport (C/CAG 2012). No special land use restrictions are in effect within Area A.

Sensitive Receptors

The entire Sunnydale Option A Alternative would be developed with existing paved streets. The nearest sensitive receptors to the Sunnydale Option A Alternative are the single-family residences. At their nearest point, residential property boundaries are within 17.5 feet of the centerline of Sawyer Street.

The nearest sensitive receptors to the alternative switching station site is the residential development approximately 125 feet west of the alternative switching station site, west of Carter Street.

Applicable Regulations, Plans, and Standards

All applicable federal and state regulations, plans, and standards described in Section D.12.2 would apply to the Sunnydale Option A Alternative. Article 29 establishes the regulatory framework for addressing operational and construction-related noise in the City and County of San Francisco. For the portion of the Sunnydale Option A Alternative line segment within Daly City, local limitations on noise disturbance are outlined in Section 9.22.030 of the Daly City Code of Ordinances. Additionally, the Noise Element of the Daly City 2030 General Plan describes temporary noise generated from construction activities. All local noise regulations for Daly City and the City and County of San Francisco are described in Section D.12.2.

Environmental Impacts and Avoidance/Mitigation Measures

Impact NO-1: Construction of the Sunnydale Option A Alternative would produce temporary, short-term noise that would be limited to daytime hours to the extent practicable. For the purposes of this analysis, the overall construction period is expected to last a total of 75 days along 0.56 miles of roadway.

City of Daly City

Construction of the Sunnydale Option A Alternative line segment would require construction of approximately 1,425 feet of underground transmission lines within the City of Daly City, along Calgary Street and Geneva Avenue. At the nearest sensitive receptor (single-family residence), approximately 17.5 feet from the centerline of Calgary Street, typical construction levels are predicted to be greater than 83 dBA.

Construction noise is regulated in the City of Daly City through the environmental review process by the Engineering and Planning Divisions. Noise-generating construction activity in the City of Daly City is typically restricted to daytime hours between 8:00 a.m. and 5:00 p.m. and is prohibited on weekends and holidays. Construction activities within Daly City would be limited to these hours. Therefore, construction in the City of Daly City would not be anticipated to result in a significant noise impact. However, in the event that construction activities are required to occur during nighttime hours, construction noise levels at the closest residences could interfere with sleep patterns for these residents, thereby constituting a potentially significant impact. Therefore, MM NO-1 would be implemented to address nighttime construction noise, as well as daytime construction noise levels that exceed 90 dBA L_{eq} at the closest residences (which equates to levels that could exceed 65 dBA L_{eq} indoors).

With implementation of MM NO-1 and APM NO-1 through APM NO-7, noise impacts associated with construction of the Sunnydale Option A Alternative line segment in the City of Daly City would be less than significant with mitigation (Class II).

City and County of San Francisco

Construction of the Sunnydale Option A Alternative line segment would require construction of approximately 1,550 feet of underground transmission lines within the City and County of San Francisco, along Sunnydale Avenue and Sawyer Street and Calgary Street. At the nearest sensitive receptor (single-family residence), approximately 17.5 feet from the centerline of Sawyer Street, typical construction levels are predicted to be greater than 83 dBA. While not calculated to exceed the City and County of San Francisco's noise level limits of 80 dBA at 100 feet, proposed construction activities would approach the noise level restriction (79 dBA at 100 feet per Table D.12-4). Implementation of APM NO-1 through APM NO-7 would reduce noise impacts from

construction. However, even with APM NO-1 through APM NO-7, it may not be feasible in all cases to reduce noise to a level that is consistent with applicable noise standards (i.e., San Francisco's criteria of 80 dBA at 100 feet); therefore construction noise within the City and County of San Francisco under this alternative is considered a potentially significant impact. With implementation of MM NO-1 and APM NO-1 through APM NO-7, impacts to noise in the City and County of San Francisco would be reduced to less than significant with mitigation (Class II).

Operation of the Sunnydale Option A Alternative would not yield any noise impacts, because all improvements would be located subsurface.

Impact NO-2: Construction activities (e.g., ground-disturbing activities, including grading and movement of heavy construction equipment) may generate localized groundborne vibration and noise. Construction of the Sunnydale Option A Alternative could be within 17.5 feet of the nearest residential properties, potentially creating perceptible vibration. Earthmoving equipment that may result in groundborne vibration or noise would occur during daytime hours and would be of short-term duration.

Depending on soil and groundwater conditions, impact or vibratory pile driving may occur during construction and would be limited to the installation of sheet piles for shoring along the alternative transmission line trench, as soil conditions require. Pile driving is the activity with the greatest likelihood of creating perceptible off-site vibrations. Pile-driving activities may result in groundborne vibration perceptible at nearby residences, but it is anticipated that the pile installation required for shoring can be accomplished with vibratory methods. Implementation of APM NO-7 would consider site-specific factors and appropriate driving technologies to reduce the potential effects of off-site vibration. Therefore, impacts associated with exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels during construction of the Sunnydale Option A Alternative would result in less-than-significant impacts (Class III).

Impact NO-3: The portion of the Sunnydale Option A Alternative within San Mateo County would be within Airport Influence Area A of the airport land use compatibility plan for the San Francisco International Airport (C/CAG 2012). No portion of the alternative transmission line segment is located within a Noise Compatibility Zone identified in the airport land use compatibility plan. Therefore, the Sunnydale Option A Alternative would result in no impact under this criterion (No Impact).

Comparison to the Proposed Project

Compared to the proposed project, the Sunnydale Option A Alternative would have similar noise and vibration impacts associated with construction and operation of the alternative transmission lines, because the Sunnydale Option A Alternative line segment would be installed adjacent to

existing residential development, consistent with the segment of the proposed Jefferson-Egbert transmission line it would bypass.

D.12.4.4 No Project Alternative

Under the No Project Alternative, none of the facilities associated with the proposed project or alternatives would be constructed, and therefore, none of the impacts described in this section would occur.

D.12.5 Mitigation Monitoring, Compliance, and Reporting

Table D.12-9, shows the mitigation monitoring, compliance, and reporting program for noise. The CPUC is responsible for ensuring compliance with provisions of the monitoring program. The APMs that PG&E has incorporated as part of the proposed project, as well as the mitigation measure developed as part of the EIR analysis, are listed in the following table.

Table D.12-9
Mitigation Monitoring, Compliance, and Reporting Program for Noise

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
Impact NO-1 Temporary noise increase associated with construction activities	MM NO-1	—	In the event noise levels during daytime (7 AM to 7 PM) construction activities are expected to exceed an 8-hour L_{eq} of 75 dBA at the nearest property line or within 190 feet of the existing and proposed project alignment where noise-sensitive areas are located, Pacific Gas & Electric Company (PG&E) shall implement noise reduction measures to reduce noise levels to below 75 dBA. For nighttime construction (7 PM to 7 AM), PG&E shall implement noise reduction measures to reduce construction noise levels at residences adjacent to the construction area to no greater than 5 dBA Leq above ambient noise levels. Measures to be implemented could include: (1) portable noise barriers erected temporarily to reduce noise impacts at specific locations; or (2) if noise barriers would not reduce levels to below 75 dBA, depending on the location of residences and the level of construction noise, PG&E shall offer to relocate affected residents until the impact has been determined to not be adverse.	Include sensitive receptor locations/nearest property lines on final design plans.	Monitor noise where noise sensitive areas are located during construction to verify compliance with specified noise levels.	Noise level monitoring during construction. Construction work areas adjacent to sensitive receptor for PG&E's proposed project and all alternatives.
Impact NO-1 Temporary noise increase associated with construction activities	—	APM NO-1	**Noise Minimization with Portable Barriers.** Compressors and other small stationary equipment used during construction will be shielded with portable barriers if appropriate and if located within 200 feet of a residence.	Include this condition in the construction specifications and on construction staging plans.	Check specifications and plans; spot check periodically during construction to verify compliance.	Check plans once (office review) prior to contractor notice to proceed; periodic spot checks during construction.
Impact NO-1 Temporary noise increase associated with construction activities	—	APM NO-2	**Noise Minimization with Quiet Equipment.** Quiet equipment will be used during construction whenever possible (e.g., equipment that incorporates noise-control elements into the design, such as quiet model compressors, can be specified).	Include this condition in the construction specifications and on construction staging plans.	Check specifications and plans; spot check periodically during construction to verify compliance.	Check plans once (office review) prior to contractor notice to proceed; periodic spot checks during construction.

Table D.12-9
Mitigation Monitoring, Compliance, and Reporting Program for Noise

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
Impact NO-1 Temporary noise increase associated with construction activities	—	APM NO-3	**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.	Include this condition in the construction specifications and on construction staging plans.	Check specifications and plans; spot check periodically during construction to verify compliance.	Check plans once (office review) prior to contractor notice to proceed; periodic spot checks during construction.
Impact NO-1 Temporary noise increase associated with construction activities	—	APM NO-4	**Noise Disruption Minimization through Residential Notification.** In the event that nighttime construction is necessary, such as if certain activities such as line splicing or augerboring in certain soil conditions 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.	Identify construction areas in close proximity to residences, determine the risk for nighttime construction necessity, prepare notification materials to use if night work is deemed necessary, draft communication plan.	Review areas with nighttime risk, review communication plan, Confirm notification is provided in advance of night work.	Check notification materials and communication plan (office review) prior to contractor notice to proceed; periodic spot checks during construction.
Impact NO-1 Temporary noise increase associated with construction activities	—	APM NO-5	**Auger Bore Noise Minimization Measures.** Temporary barriers utilizing materials such as intermodal containers or frac tanks, plywood walls, mass-loaded vinyl (vinyl impregnated with metal), sound-absorbing blankets, hay bales, or similar materials will be used to reduce noise generated by the auger bore operations. Auger bore activities will be limited to daylight hours unless a situation arises where ceasing the activity would compromise safety (both human health and environmental) and/or the integrity of the project. If nighttime auger bore activities are required, the project will monitor actual noise levels from auger bore activities between 8:00 p.m. and 7:00 a.m. If the nighttime noise levels	Include this condition in the construction specifications and on construction staging plans.	Check specifications and plans; spot check periodically during construction to verify compliance.	Check plans once (office review) prior to contractor notice to proceed; periodic spot checks during construction.

Table D.12-9
Mitigation Monitoring, Compliance, and Reporting Program for Noise

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
			created by the auger bore operation are found to result in a complaint and are in excess of the ambient noise level by 5 dBA at the nearest residential property plane, PG&E will, within 24 hours of the excess measurement, employ additional minimization measures to the extent practicable. Such measures may include ensuring that semi-permanent stationary equipment (e.g., generators) are stationed as far from sensitive areas as practicable, utilizing sound attenuated "quiet" or "Hollywood/Movie Studio" silencing packages, or modifying barriers to further reduce noise levels.			
Impact NO-1 Temporary noise increase associated with construction activities	—	APM NO-6	**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.	Include this condition in the construction specifications and on construction staging plans.	Check specifications and plans; spot check periodically during construction to verify compliance.	Check plans once (office review) prior to contractor notice to proceed; periodic spot checks during construction.
Impact NO-2 Localized groundbourne vibration could be generated during construction activities	—	APM NO-7	**Incorporate Vibration Assessment into Project Construction.** Where pile driving may be required within streets with adjacent residential 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, or modifying hammer frequency will be	Prepare site specific geotechnical analyses for locations where pile driving is proposed. Select pile driver equipment/ method with least vibration potential, and suited to identified soil characteristics. Provide vibration monitoring during pile driving activities, at least until it is demonstrated	Review/accept geotechnical; report and resulting pile driving specifications. Review vibration monitoring plan associated with pile driving activity.	Review geotechnical report, pile driving specifications, and vibration monitoring plan once (office review) prior to contractor notice to proceed; periodic spot checks during construction.

Table D.12-9
Mitigation Monitoring, Compliance, and Reporting Program for Noise

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
			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.	that vibration levels will be within acceptable levels.		

Notes: MMCRP = mitigation monitoring, compliance, and reporting program; MM = mitigation measure; APM = applicant proposed measure; dBA = decibel; PG&E = Pacific Gas & Electric Company.

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D.13 TRANSPORTATION

This section evaluates the potential transportation impacts associated with the Egbert Switching Station (Martin Substation Extension) Project (proposed project). Section D.13.1 describes the environmental setting and Section D.13.2 describes the regulatory conditions related to transportation associated with the proposed project. Section D.13.3 includes an analysis and discussion of environmental impacts resulting from the proposed project and Section D.13.4 presents impact analysis for the alternatives. Mitigation monitoring, compliance, and reporting are discussed in Section D.13.5 and Section D.13.6 lists the references cited in this section. Cumulative effects are analyzed in Section F.5.2.12 of this Environmental Impact Report.

D.13.1 Environmental Setting for the Proposed Project

This section evaluates impacts to the transportation system associated with implementation of the proposed project. Project activities during construction and operation were evaluated within the context of surrounding transportation facilities to determine whether the proposed project may result in changes that would directly or indirectly affect those facilities. The changes were evaluated against the California Environmental Quality Act (CEQA) checklist to determine potential impacts.

Roadways and intersections are rated at varying levels of service (LOS). LOS is a measure of roadway operating conditions, ranging from LOS A, which represents the best range of operating conditions, to LOS F, which represents the worst. Basic definitions are presented in Table D.13-1.

Traffic volumes were obtained from the California Department of Transportation (Caltrans) Traffic Data Branch website, and LOS data were obtained from the San Francisco Congestion Management Plan (CMP) (SFCTA 2017) and the San Mateo County CMP (C/CAG 2017).

Both the San Francisco and San Mateo CMPs use average operating speed data to calculate roadway LOS. The San Francisco County Transportation Authority has historically used the 1985 Highway Capacity Manual methodology to monitor LOS on the CMP network, and continues to calculate LOS using this method for freeways. The 1985 Highway Capacity Manual methodology was utilized in the baseline monitoring cycle, and it is necessary to use the methodology to maintain historical comparisons, identify exempt segments, and monitor potential network deficiencies. Since 2009, all the arterial segments have also been evaluated using the Highway Capacity Manual 2000 classification. The City/County Association of Governments of San Mateo County uses the Highway Capacity Manual 1994 methodology for roadway segment LOS. Using the calculated average speed for arterials and freeways, the Highway Capacity Manual lookup tables are applied to determine the roadway LOS (Table D.13-1 through Table D.13-4). Both CMPs contain LOS data from 2015; therefore, no new LOS calculations were performed as part of this analysis.

Table D.13-1
Level of Service Definition

Level of Service	Roadway Segment (Daily)
A	Completely free flow
B	Free flow, presence of other vehicles noticeable
C	Ability to maneuver and select operating speed affected
D	Unstable flow, speeds and ability to maneuver restricted
E	At or near capacity, flow quite unstable
F	Forced flow, breakdown

Source: Transportation Research Board 2000.

Table D.13-2
Freeway Segment Level of Service

Level of Service	Density (PC/MI/LN)	Speed (MPH)	V/C Ratio	Saturation Flow (PCPHPL)
A	≤12	≥60	0.35	700
B	≤20	≥55	0.58	1,000
C	≤30	≥49	0.75	1,500
D	≤42	≥41	0.90	1,800
E	≤67	≥30	1.00	2,000
F	>67	<30	—	—

Source: Transportation Research Board 1985.
Notes: PC = passenger car; MI = mile(s); LN = lane; V/C = volume to capacity; PCPHPL = passenger car per hour per lane.

Table D.13-3
Level of Service Criteria for Arterials

Free-Flow Speeds Parameter	Urban Street Class		
	I	*II*	*III*
Range of FFS	45 to 35 mph	35 to 30 mph	35 to 25 mph
Typical FFS	40 mph	33 mph	27 mph
LOS	*Average Travel Speed*		
A	>35 mph	>30 mph	>25 mph
B	>28–35 mph	>24–30 mph	>19–25 mph
C	>22–28 mph	>18–24 mph	>13–19 mph
D	>17–22 mph	>14–18 mph	>9–13 mph
E	>13–17 mph	>10–14 mph	>7–9 mph
F	≤13 mph	≤10 mph	≤7 mph

Source: Transportation Research Board 1994.
Notes: FFS = free-flow speed; LOS = level of service.

Table D.13-4
Urban Street Level of Service by Class, Highway Capacity Manual 2000

Free-Flow Speeds Parameter	Urban Street Class			
	I	*II*	*III*	*IV*
Range of FFS	55 to 45 mph	45 to 35 mph	35 to 30 mph	35 to 25 mph
Typical FFS	50 mph	40 mph	35 mph	30 mph
LOS	*Average Travel Speed*			
A	>42 mph	>35 mph	>30 mph	>25 mph
B	>34–42 mph	>28–35 mph	>24–30 mph	>19–25 mph
C	>27–34 mph	>22–28 mph	>18–24 mph	>13–19 mph
D	>21–27 mph	>17–22 mph	>14–18 mph	>9–13 mph
E	>16–21 mph	>13–17 mph	>10–14 mph	>7–9 mph
F	≤16 mph	≤13 mph	≤10 mph	≤7 mph

Source: Transportation Research Board 2000.
Notes: FFS = free-flow speed; LOS = level of service.

The following includes a description of the roadways that would be used for the proposed project. This includes those roads that would be used to transport materials to the site and those that may be affected by construction activities associated with the proposed project. Access routes would vary depending on the origin of the worker or truck, and the type of activity that day. Therefore, the roads that are most likely to be affected are described. The highest-volume roadways are described first. The existing regional and local road network is presented on Figure B-1, Regional Map, and Figure B-2, Project Location. The proposed transmission lines traverse through the City and County of San Francisco, City of Brisbane, and City of Daly City.

The proposed project consists of minor modifications to the existing Martin Substation, construction of the new Egbert Switching Station, and extensions to two existing 230-kV transmission lines. The proposed project would reroute two existing underground 230-kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero transmission lines) to Egbert Switching Station. An underground transmission line extension would connect the Jefferson-Martin transmission line to Egbert Switching Station, creating a Jefferson-Egbert transmission line. The existing Martin-Embarcadero transmission line would be bisected and extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert transmission line and an Egbert-Embarcadero transmission line. Operation and maintenance activities would be supported by existing Pacific Gas & Electric Company (PG&E) staff as part of their scheduled work in the area with routine inspections at the switching station (monthly) and detail inspections (annually) at the switching station and vault locations along the transmission lines.

Existing Regional Roadway Network

Interstate (I) 80 provides regional access from the north to the existing Martin Substation and proposed Egbert Switching Station site via U.S. Highway 101. I-80 begins at its intersection with U.S. Highway 101 just north of the project site. I-80 connects the City and County of San Francisco to the East Bay and points further east via the San Francisco–Oakland Bay Bridge. I-80 is 10 lanes wide across the Bay Bridge, and 6 to 8 lanes wide south of downtown San Francisco. Caltrans (2016) reports an average of 172,000 vehicles per day on I-80 near the U.S. Highway 101 interchange.

U.S. Highway 101 provides north–south regional access along the San Francisco Peninsula between Santa Clara Valley and the City of San Jose to the south and the City and County of San Francisco to the north. U.S. Highway 101 is 8 to 10 lanes wide. From the south, the closest interchange to the existing Martin Substation is provided at U.S. Highway 101 and Bayshore Boulevard, near Oyster Point. From the north, the nearest interchange is provided at U.S. Highway 101 and Bayshore Boulevard, near Hester Avenue. Access to and from the proposed Egbert Switching Station site is provided at U.S. Highway 101 and Silver Avenue (from the north), U.S. Highway 101 and Alemany Boulevard (to the north), U.S. Highway 101 and Bayshore Boulevard near Hester Avenue (to the south), and U.S. Highway 101 and Bayshore Boulevard near 3rd Street (from the south). Caltrans (2016) reports an average of 229,000 vehicles per day on U.S. Highway 101 near the I-280 interchange, and 105,000 vehicles per day near the I-80 interchange.

I-280 provides regional north–south access to the project site. I-280 is a regional freeway that connects the City and County of San Francisco with the greater San Jose area and serves as a major commuter route between the two cities. I-280 and U.S. Highway 101 merge approximately 2 miles north of Candlestick Point. Caltrans (2016) reports an average of 171,000 vehicles per day on I-280 west of U.S. Highway 101, and 174,000 vehicles per day east of U.S. Highway 101.

Table D.13-5 provides a summary of the AM and PM peak-hour LOS for the primary road segments anticipated to be used by the construction workforce to access the work and potential staging areas. Traffic data are not available for the majority of the local roads along the proposed transmission lines.

Table D.13-5
Summary of Peak-Hour Levels of Service on Primary Study Roadways

Roadway	Description	AM Peak-Hour LOS[a]		PM Peak-Hour LOS[a]	
		NB or WB	*SB or EB*	*NB or WB*	*SB or EB*
I-280[b]	Between Junipero Serra Boulevard and Bayshore Boulevard	A	F	D	A
	Between Bayshore Boulevard and 6th Street	B	E	E	F

Table D.13-5
Summary of Peak-Hour Levels of Service on Primary Study Roadways

Roadway	Description	AM Peak-Hour LOS[a]		PM Peak-Hour LOS[a]	
		NB or WB	*SB or EB*	*NB or WB*	*SB or EB*
U.S. Highway 101[b,c]	Between I-380 and the San Francisco County Line	E	E	E	E
	Between the San Francisco County Line and Cortland Avenue	F	E	C	B
	Between Cortland Avenue and I-80	F	E	F	D
	Between I-80 and Market Street	F	F	F	F
I-80[b]	Between U.S. Highway 101 and Fremont Street	D	D	F	F
	Between Fremont Street and Treasure Island	B	D	E	F
3rd Street	Between Jamestown Avenue and Evans Street	C	C	C	C
	Between Evans Street and Terry A. Francois Boulevard	C	C	C	C
	Between Terry A. Francois Boulevard and Market Street	D	D	E	N/A
Bayshore Boulevard	Between Geneva Avenue and the San Francisco County Line	A	A	A	A
	Between the San Francisco County Line and Industrial Street	D	B	C	C
	Between Industrial Street and Cesar Chavez Street	C	B	C	C
Cesar Chavez Street	Between Guerrero Street and Bryant Street	D	D	D	D
	Between Bryant Street and Kansas Street	B	B	C	B
	Between Kansas Street and 3rd Street	C	C	C	C
Evans Avenue	Between Cesar Chavez Street and 3rd Street	C	D	B	C
Geneva Avenue	Between Bayshore Boulevard and the San Francisco County Line	A	A	A	A
	Between Santos Street and Paris Street	C	C	C	B

Sources: PG&E 2017; SFCTA 2017; C/CAG 2017.
Notes: LOS = level of service; NB = northbound; WB = westbound; SB = southbound; EB = eastbound; I = Interstate.
[a] LOS presented by direction.
[b] All segments of I-280, U.S. Highway 101, and I-80 within the City and County of San Francisco that are operating at LOS F are exempt from the LOS standard because they either were operating at LOS F in the first congestion management plan in 1991 or are within Infill Opportunity Zones.
[c] U.S. Highway 101, in the County of San Mateo between I-380 and the county line, is operating at LOS F during both peak hours. However, the City/County Association of Governments of San Mateo County Congestion Management Plan allows for a reduction in volume (or exemption) on segments where trips originate from outside the county. With the exemption, U.S. Highway 101 operates at LOS E and within the county's LOS standard.

Within the project site, I-80, I-280, and U.S. Highway 101 are exempt from the LOS standards because they were either operating at LOS F in the first CMP in 1991 or are within

Infill Opportunity Zones. Within the project site, Geneva Avenue, Bayshore Boulevard, and 3rd Street are the only local roadways that are part of the CMP network. Geneva Avenue and Bayshore Boulevard are within Infill Opportunity Zones, as are portions of 3rd Street, and they are also exempt from LOS standards.

Local Roadways

Except for Visitacion Avenue, all of the streets where the proposed transmission lines are located allow for on-street parking with generally no restrictions.

Arterial Roads

3rd Street is the principal north–south arterial in the southeastern part of the City and County of San Francisco, extending from its interchange with U.S. Highway 101 and Bayshore Boulevard to Market Street in downtown. It is the main commercial street in the Bayview Hunters Point neighborhood and serves as a through street and an access way to the industrial areas north and east of U.S. Highway 101. In the project vicinity, 3rd Street has two travel lanes in each direction. On-street parking is generally permitted on one side of the street. The T-Third light rail operates in an exclusive median right-of-way (ROW) with the exception of the segment between Kirkwood and Thomas Avenues, where the light rail shares the travel lane with vehicles.

Bayshore Boulevard is a decommissioned state highway and is now a city-owned and maintained principal arterial. It serves as the transportation spine, connecting the City of Brisbane to the City and County of San Francisco, City of Daly City, and southern San Francisco. Bayshore Boulevard runs north–south and generally parallels U.S. Highway 101 within the vicinity of the proposed project. Together with its connecting minor arterial streets, Bayshore Boulevard also provides linkages to and from U.S. Highway 101. Within the project site, between Martin Substation and the proposed Egbert Switching Station, Bayshore Boulevard is generally a four-lane divided roadway.

Cesar Chavez Street is an east–west arterial connecting the northern end of the Bernal Heights neighborhood to the Central Waterfront area of the City and County of San Francisco. Supporting two lanes of traffic and an on-street bicycle path in each direction, this arterial provides access to and from U.S. Highway 101 and I-280 and is along a connecting route to the potential staging areas on Amador Street. On-street parking is provided along the majority of its length. This street would only be affected if a potential staging area on Amador Street is utilized.

Geneva Avenue is an east–west, four-lane arterial with its eastern terminus at Bayshore Boulevard. The existing Martin Substation is located on the southwestern corner of Geneva Avenue and Bayshore Boulevard. Geneva Avenue traverses the City of Daly City and the City and County of San Francisco. Upon development of the Baylands, Geneva Avenue would be extended east to U.S. Highway 101 and serve as an important east–west arterial connection to

U.S. Highway 101. This would replace the current U.S. Highway 101 on- and off-ramp interchange at Alana Way and Harney Way.

Guadalupe Canyon Parkway is an east–west, four-lane divided arterial with its eastern terminus at Bayshore Boulevard. Guadalupe Canyon Parkway traverses through the city limits of the City of Brisbane and City of Daly City.

San Bruno Avenue is a north–south arterial located in the City of Daly City and southern San Francisco. The arterial supports two to four lanes of traffic as well as Class II and Class III bicycle facilities and on-street parking. Extending from its southern terminus at Bayshore Boulevard just north of the Bayshore Caltrain Station, San Bruno Avenue parallels U.S. Highway 101 on its western side until reaching its northern terminus adjacent to the I-280 and U.S. Highway 101 interchange.

Local Roads

The following roads are either along a proposed transmission line or provide access to the proposed switching station or the potential staging areas.

Amador Street is a local access road located just east of 3rd Street and I-280 near the India Basin neighborhood of the City and County of San Francisco. Stretching for less than 1 mile, this local road provides access to the industrial complexes, which are common to this area, and also provides a connection to the potential staging areas on Amador Street. This street has one lane of traffic in each direction as well as on-street parking. Amador Street would only be affected if a staging area on Amador Street is used.

Bacon Street is an east–west local street stretching for roughly 1 mile through southeastern San Francisco. Bacon Street provides a local connection through a large residential community, and crosses underneath U.S. Highway 101 at its eastern terminus before merging with Egbert Avenue. Bacon Street supports one lane of traffic in each direction as well as on-street parking for residents and business owners.

Cargo Way is a local east–west street stretching for roughly 0.5 miles in the India Basin neighborhood of the City and County of San Francisco. Bounded on the west by 3rd Avenue and by Jennings Street to the east, Cargo Way supports two lanes of traffic in each direction and provides access to this largely industrial area.

Carter Street is a local two-lane street that serves as a connection from Guadalupe Canyon Parkway to the Bayshore Heights residential neighborhood located in the City of Brisbane. It runs for roughly 1 mile from its southern terminus at Guadalupe Canyon Parkway north to Geneva Avenue.

Crane Street is a local one-lane, one-way southbound street that extends for approximately 0.1 miles connecting Bayshore Boulevard to Paul Avenue. Located just south of the proposed Egbert Switching Station site in southern San Francisco, Crane Street provides on-street parking for local residents.

Egbert Avenue is bisected by Union Pacific Railroad tracks, upon which Caltrain operates. The Egbert Switching Station site is proposed to be located on the southern side of Egbert Avenue, immediately west of the railroad tracks. This section of Egbert Avenue is located between the railroad tracks to the east and Bacon Street/Phelps Street to the northwest.

Evans Avenue is a local street that provides a roughly 1.5-mile connection between its northwestern terminus at its intersection with Cesar Chavez and its southeastern terminus in the India Basin neighborhood adjacent to the potential staging areas on Amador Street. This roadway supports two lanes in each direction as well as on-street parking near businesses and residences. South of Jennings Street, Evans Avenue becomes Hunters Point Blvd, an access to the neighborhood of Hunters Point.

Hahn Street is a local north–south street that serves as a connection between Sunrise Way (southern terminus) and Leland Avenue (northern terminus). Hahn Street supports two lanes of traffic in each direction as well as on-street parking.

Jennings Street is a local north–south roadway located in the India Basin neighborhood of southern San Francisco. This roadway supports one lane of traffic in each direction and on-street parking. Gated access to Amador Street is provided by way of this street, which is how the potential Amador Street staging areas would be accessed.

Mansell Street is an east–west local roadway located in southern San Francisco. This local roadway supports one travel lane in each direction and includes large shoulders for on-street parking as well as dedicated bicycle lanes for both travel directions. Stretching for roughly 2 miles, Mansell Street passes through John McLaren Park and connects the Cayuga Terrace Neighborhood near its western terminus to U.S. Highway 101 at its eastern terminus.

Paul Avenue is an east–west local roadway located just south of the proposed Egbert Switching Station site in southern San Francisco. While supporting two lanes of traffic and on-street parking, Paul Avenue extends north from 3rd Street (southern terminus) and crosses underneath U.S. Highway 101 before reaching its northern terminus of San Bruno Avenue.

Santos Street is a north–south local roadway that supports two lanes of traffic and on-street parking in a residential neighborhood. Santos Street extends from Geneva Avenue (southern terminus) north to Sunnydale Avenue at its northern end.

Sunnydale Avenue provides a local connection to the Sunnydale residential neighborhood area located along the southern border of the Gleneagles International Golf Course in southern San Francisco. It is the main access road to the golf course. It runs for just over 0.5 miles and accommodates one lane of traffic in each direction.

Visitacion Avenue is a primarily east–west street located in southern San Francisco. It runs from Bayshore Boulevard at its eastern extent to Hahn Street on the western side, and then turns north, passing along the boundary of Gleneagles International Golf Course and merging with Mansell Street. Visitacion Avenue supports one lane of traffic in each direction, and on-street parking is permitted along both sides of the street for its entire span of roughly 1.2 miles.

Bicycle Facilities

Bicycle facilities are a significant part of the existing San Francisco Peninsula road network. Existing bicycle facilities in the project site include routes that are part of the San Francisco Bicycle Network and regional routes that are part of the San Francisco Bay Trail system. Bicycle facilities are typically classified as Class I, Class II, or Class III. Class I facilities are bicycle paths with exclusive ROW for use by bicyclists or pedestrians. Class II facilities are bicycle lanes striped within the paved areas of roadways and established for the preferential use of bicycles; Class III facilities are signed bicycle routes that allow bicycles to share travel lanes with vehicles.

Within the City and County of San Francisco, bicycle facilities that cross or are along streets where the underground transmission lines are proposed include a newly constructed Class I facility parallel to Mansell Avenue west of its intersection with Visitacion Avenue, a Class I facility on the southbound side and a Class II facility on the northbound side of Bayshore Boulevard, and Class II facilities along Geneva Avenue, Mansell Street, and San Bruno Avenue, as well as a Class III facility along Paul Avenue (SFMTA 2016; San Francisco Public Works 2017). Proposed bicycle facilities are planned to be constructed in the City of Daly City along Carter Street between Martin Street and Geneva Avenue (Class II) where the proposed Jefferson-Egbert transmission line would be located (City of Daly City 2011). Bicycle facilities within the City of Brisbane limits would not be impacted by the proposed project and therefore are not discussed.

Pedestrian Facilities

Pedestrian facilities are found along many of the streets located within the project site, including the majority of streets along the proposed transmission lines. Except for Guadalupe Canyon Parkway, Carter Street, Visitacion Avenue, and Egbert Avenue, all of the streets along the proposed transmission lines have continuous sidewalk facilities. The proposed Jefferson-Egbert transmission line would cross a sidewalk between the parcel at 400 Paul Avenue and the street section of Paul Avenue. The majority of intersections along the proposed transmission lines are

signalized and include marked crosswalks. Along Geneva Avenue, an unsignalized marked pedestrian crosswalk exists at the intersection with Esquina Drive.

Transit and Rail Services

Figure D.13-1, Transit Routes, provides a map of the existing transit routes in the area (SamTrans 2017). Public transit service near the proposed switching station along the proposed transmission lines and the potential staging areas is provided by the San Francisco Municipal Transit Agency (SF Muni Bus) and by SamTrans. Caltrain runs immediately east of the proposed Egbert Switching Station site. Also located near the project site are public commuter shuttles, which operate within the City of Brisbane and provide access to and from the Bayshore Caltrain station to nearby residential areas. The transit agencies are described as follows.

San Francisco Municipal Transit Agency (SF Muni Bus)

SF Muni is the transit division of the San Francisco Municipal Transit Agency. It provides local bus service within the project site (SFMTA 2017). There are seven SF Muni bus lines along the proposed transmission lines, including Routes 29, 24, 8X, 8BX, 90, 54, and 56. Several bus stops serving San Francisco Municipal Transit Agency buses are located along the proposed transmission lines; they include two stops along Santos Street, two stops along Sunnydale Avenue, two stops along Hahn Street, one stop along Visitacion Avenue, seven stops along Mansell Street, one stop along Paul Avenue, one stop on the corner of Phelps Street and Egbert Avenue, and two stops on Bacon Street. There are also two stops along Geneva Avenue and along Bayshore Boulevard. There is one bus stop adjacent to the freeze pit on Bacon Street, which serves Route 54. Local bus service is approximately 0.5 miles from the potential staging areas on Amador Street where Route 19 stops along Evans Avenue.

San Mateo County Transit District

SamTrans provides regional bus service between the City and County of San Francisco and the southern Bay Area communities from the City of Daly City to Palo Alto. Within the project site, SamTrans provides service to the municipalities of the City of Daly City, the City of Brisbane, and the City and County of San Francisco. Three SamTrans bus routes travel along the proposed transmission lines, including Routes 9, 292, and 397. One SamTrans bus stop, adjacent to the intersection of Geneva Avenue and Santos Street, is located along the proposed Jefferson-Egbert transmission line.

Caltrain

Caltrain provides rail passenger service on the peninsula and the Santa Clara Valley between Gilroy and the City and County of San Francisco. The Peninsula Corridor Joint Powers Board, a joint powers agency consisting of San Francisco, San Mateo, and Santa Clara Counties, operates

the service. Caltrain currently operates approximately 90 trains each weekday, with a combination of Baby Bullet, express, and local services. During the peak periods, trains arrive approximately every 10 to 30 minutes. While Caltrain runs immediately east of the proposed Egbert Switching Station site, the closest active Caltrain station in the project site is the Bayshore Station in the City of Brisbane at the San Mateo/San Francisco border. The station is on Tunnel Avenue, just southeast of Bayshore Boulevard. Not all trains stop at the Bayshore Station. During the peak commute periods, one train per hour in each direction stops at the Bayshore Station. There are no direct connections with other transit services; however, Muni and SamTrans can be accessed by walking two to three blocks to bus stops along Bayshore Boulevard.

Airports

There are no airports or heliports within the project site. However, the project site is located within the Airport Influence Area of San Francisco International Airport (C/CAG 2012). The project site is within Area A, which requires the disclosure of the airport and related annoyances or inconveniences for property sales or leases per the Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport. No special land use restrictions are in effect within Area A.

D.13.2 Applicable Regulations, Plans, and Standards

Federal Regulations, Plans, and Standards

Airports and navigable airspace not administered by the Department of Defense are under the jurisdiction of the Federal Aviation Administration. Federal Regulation Title 14, Section 77, establishes the standards and required notification for objects affecting navigable airspace (14 CFR 77). In general, construction projects exceeding 200 feet in height above ground level or extending at a ratio greater than 50 to 1 (horizontal to vertical) from a public or military airport runway less than 3,200 feet long out to a horizontal distance of 20,000 feet are considered potential obstructions and require Federal Aviation Administration notification. In addition, the Federal Aviation Administration requires a Helicopter Lift Plan for operating a helicopter within 1,500 feet of residential dwellings. All helicopter construction activities would be required to comply with all appropriate regulations of the Federal Aviation Administration.

Americans with Disabilities Act Standards for Accessible Design

The proposed project would involve the reconstruction of sidewalks at pole locations and would be required to comply with Americans with Disabilities Act standards. The U.S. Department of Justice enacted the Americans with Disabilities Act in 1990, which adopted enforceable accessibility standards for facility design. The revised Americans with Disabilities Act 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 follow the requirements of the 2010 Standards. The 2010 Standards include the 2010 Standards for State and Local Government Facilities: Title II, including the following:

- Title II regulations at 28 CFR 35.151
- 2004 Americans with Disabilities Act Accessibility Guidelines at 36 CFR part 1191, Appendices B and D

State Regulations, Plans, and Standards

Caltrans is the state agency tasked with improving and maintaining roads in the state of California. Caltrans manages interregional transportation, including management of construction activities within or above state roadways. Caltrans is also responsible for permitting and regulating the use of state roadways. In areas with designated state routes, the state has the responsibility to maintain these roadways, while the local jurisdiction is responsible for maintaining local roads. Local jurisdictions work with Caltrans to designate transportation network requirements and critical areas in need of improvement.

Caltrans has the following requirements for project proponents: Caltrans requires that permits be obtained for transportation of oversized loads and transportation of certain materials, and for construction-related traffic disturbances (California Vehicle Code, Division 15). Caltrans regulations would apply to the transportation of oversized loads on state routes associated with the construction of the proposed project. Further, the Caltrans Construction Manual requires temporary traffic control planning "during any time the normal function of a roadway is suspended" (Caltrans 2001). Prior to project construction, Caltrans would require PG&E to obtain all necessary transportation and encroachment permits in accordance with the Caltrans Transportation Permit Manual and Encroachment Permit Manual. Conditions of such permits would require the proposed project to implement Caltrans best management practices to minimize impacts to traffic and transportation. Caltrans is also the administrating agency for regulations related to traffic safety, including the licensing of drivers, weight and load limitations, transportation of hazardous and combustible materials, and the safe operation of vehicles.

Local Regulations, Plans, and Standards

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 regulations. The following analysis of local regulations relating to transportation is provided for informational purposes and to assist with CEQA review.

The following provides a brief summary of local transportation policies, plans, and programs to assist in framing the discussion and analysis of potential traffic or transportation impacts that could result from implementation of the proposed project.

PG&E is a member of the California Joint Utility Traffic Control Committee, which in April 2010 published the California Joint Utility Traffic Control Manual (California Joint Utility Traffic Control Committee 2010). The traffic control plans and associated text depicted in this manual conform to the guidelines established by the California Manual on Uniform Traffic Control Devices for Street and Highways (Caltrans 2014) regarding basic standards for the safe movement of traffic upon highways and streets in accordance with Section 21400 of the California Vehicle Code. These recommendations include provisions for safe access of police, fire, and other rescue vehicles. In addition, PG&E would apply for an Excavation Permit and a Special Traffic Permit from the City and County of San Francisco, City of Brisbane, and City of Daly City.

2017 San Francisco Congestion Management Program

The 2017 San Francisco CMP (SFCTA 2017) guides the City and County of San Francisco agencies involved in congestion management, sets forth policies and technical tools to implement the CMP work program, and ensures the City and County of San Francisco's conformance with CMP legislation created by the State of California. The 2017 San Francisco CMP establishes LOS standards consistent with CMP-mandated criteria. The LOS standard was established at LOS E in the initial 1991 CMP network. Facilities that were already operating at LOS F at the time of baseline monitoring conducted to develop the first CMP in 1991 are legislatively exempt from the LOS standards. CMP segments that are within a designated Infill Opportunity Zone are also exempt from LOS conformance requirements.

San Francisco General Plan

The Transportation Element of the San Francisco General Plan (San Francisco Planning Department 2010a) is composed of objectives and policies that relate to the eight aspects of the citywide transportation system: general regional transportation, congestion management, vehicle circulation, transit, pedestrian, bicycles, citywide parking, and goods management. The Transportation Element references the City and County of San Francisco's "Transit First" Policy in its introduction, and contains the following objectives and policies that are directly pertinent to consideration of the proposed project:

- **Objective 1:** Meet the needs of all residents and visitors for safe, convenient, and inexpensive travel within San Francisco and between the city and other parts of the region while maintaining the high-quality living environment of the Bay Area.
    - **Policy 1.2:** Ensure the safety and comfort of pedestrians throughout the city.
    - **Policy 1.3:** Give priority to public transit and other alternatives to the private automobile as the means of meeting San Francisco's transportation needs, particularly those of commuters.
    - **Policy 1.4:** Increase the capacity of transit during the off-peak hours.

  - **Policy 1.5:** Coordinate regional and local transportation systems and provide for interline transit transfers.
  - **Policy 1.6:** Ensure choices among modes of travel and accommodate each mode when and where it is most appropriate.
- **Objective 2:** Use the transportation system as a means for guiding development and improving the environment.
  - **Policy 2.1:** Use rapid transit and other transportation improvements in the city and region as the catalyst for desirable development, and coordinate new facilities with public and private development.
  - **Policy 2.4:** Organize the transportation system to reinforce community identity, improve linkages among interrelated activities, and provide focus for community activities.
- **Objective 9:** Improve bicycle access to San Francisco from all outlying corridors.
  - **Policy 9.2:** Where bicycles are prohibited on roadway segments, provide parallel routes accessible to bicycles or shuttle services that transport bicycles.
- **Objective 11:** Establish public transit as the primary mode of transportation in San Francisco and as a means through which to guide future development and improve regional mobility and air quality.
- **Objective 14:** Develop and implement a plan for operational changes and land use policies that will maintain mobility and safety, despite a rise in travel demand that could otherwise result in system capacity deficiencies.
  - **Policy 14.2:** Ensure that traffic signals are timed and phased to emphasize transit, pedestrian, and bicycle traffic as part of a balanced multimodal transportation system.
  - **Policy 14.3:** Improve transit operation by implementing strategies that facilitate and prioritize transit vehicle movement and loading.
  - **Policy 14.4:** Reduce congestion by encouraging alternatives to the single-occupancy auto through the reservation of right-of-way and enhancement of other facilities dedicated to multiple modes of transportation.
  - **Policy 14.7:** Encourage the use of transit and other alternative modes of travel to the private automobile through the positioning of building entrances and the convenient location of support facilities that prioritizes access from these modes.
- **Objective 19:** Provide for convenient movement among districts in the city during off-peak travel periods and safe traffic movement at all times.
  - **Policy 19.2:** Promote increased traffic safety, with special attention to hazards that could cause personal injury.

- **Objective 23:** Improve the city's pedestrian circulation system to provide for efficient, pleasant, and safe movement.
    - **Policy 23.2:** Widen sidewalks where intensive commercial, recreational, or institutional activity is present and where residential densities are high.
    - **Policy 23.3:** Maintain a strong presumption against reducing sidewalk widths, eliminating crosswalks, and forcing indirect crossings to accommodate automobile traffic.
    - **Policy 23.6:** Ensure convenient and safe pedestrian crossings by minimizing the distance pedestrians must walk to cross a street.
- **Objective 24:** Improve the ambiance of the pedestrian environment.
- **Objective 28:** Provide secure and convenient parking facilities for bicycles.
    - **Policy 28.1:** Provide secure bicycle parking in new governmental, commercial, and residential developments.
    - **Policy 28.3:** Provide parking facilities which are safe, secure, and convenient.

Transit-First Policy

In 1998, the City and County of San Francisco voters amended the City Charter (Charter Article 8A, Section 8A.115) to include a transit-first policy, which was first articulated as a city priority policy by the Board of Supervisors in 1973. The transit-first policy is a set of principles that underscores the city's commitment that travel by transit, bicycle, and foot be given priority over the private automobile. These principles are embodied in the policies and objectives of the Transportation Element of the San Francisco General Plan (San Francisco Planning Department 2010a). All city boards, commissions, and departments are required by law to implement transit-first principles in conducting city affairs.

San Francisco Bicycle Plan

The San Francisco Bicycle Plan (SFMTA 2009) describes a city program to provide the safe and attractive environment needed to promote bicycling as a transportation mode. The bicycle plan identifies the citywide bicycle route network and establishes the level of treatment on each route. The bicycle plan also identifies near-term improvements that could be implemented within the next 5 years, as well as policy goals, objectives, and actions to support these improvements. It also includes long-term and minor improvements that would be implemented to facilitate bicycling in the City and County of San Francisco.

Better Streets Plan

The San Francisco Better Streets Plan (San Francisco Planning Department 2010b) focuses on creating a positive pedestrian environment through measures such as careful streetscape design and traffic calming to increase pedestrian safety. The Better Streets Plan includes guidelines for the pedestrian environment, which the plan defines as the areas of the street where people walk, shop, sit, play, or interact. Generally speaking, the guidelines are for design of sidewalks and crosswalks; however, in some cases, the Better Streets Plan includes guidelines for certain areas of the roadway, particularly at intersections.

San Mateo County Congestion Management Program

The City/County Association of Governments of San Mateo County is the Congestion Management Agency for the County of San Mateo; it prepares and adopts the CMP. The purpose of the San Mateo County CMP (C/CAG 2017) is to identify strategies to respond to future transportation needs, develop procedures to alleviate and control congestion, and promote countywide solutions. The CMP includes City/County Association of Governments of San Mateo County's programs and policies regarding transportation systems management and transportation demand management, which address efforts to increase efficiency of the existing system and encourage utilization of alternative modes of transportation. The 2017 CMP, which is developed to be consistent with Metropolitan Transportation Commission's Plan Bay Area, provides updated program information and performance monitoring results for the CMP roadway system.

Daly City Circulation Element

The Circulation Element of the Daly City 2030 General Plan (City of Daly City 2011) identifies policies for ensuring that adequate transportation facilities are maintained throughout the planning period, that the facilities in which the city plans to invest reflect the land uses contemplated by the Land Use Element, and that the transportation system provides a range of transportation choices. The Circulation Element accomplishes these objectives by describing the existing transportation system and areas that need improvement, and proposing policies and tasks to ensure the safe and efficient transport of people and goods throughout the city. Topics that are given special attention in this plan are traffic improvements, public transit, bicycle facilities, and techniques to mitigate impacts from individual development proposals.

Task CE-1.6 of the Circulation Element establishes a minimum standard of LOS D to be maintained at all principal intersections. Task CE-1.6 further states that where a traffic study identifies that a discretionary project would degrade the LOS at any of the City of Daly City's principal intersections to below acceptable levels, the City of Daly City shall, through

the environmental review process, require measures to mitigate the anticipated impact to a level of insignificance.

City of Brisbane Circulation Element

The City of Brisbane General Plan (City of Brisbane 2015) highlights the overall goals for future development in the city, and cites specific policy points and objectives. The City of Brisbane Circulation Element was updated in 2015, and it addressed how the City of Brisbane would maintain, enhance, and expand its circulation system to best meet the needs of its residents, business community, and visitors travelling to, from, or through the City of Brisbane. The Circulation Element provides guidance relating to the following:

- Safety and connectivity for users
- Reliable public transportation
- Balanced parking needs to encourage walkable neighborhoods, economic vitality, safety, and convenience

The plan emphasizes the incorporation of "Complete Streets" policies to accommodate not only vehicular traffic but also bicyclists, pedestrians, and transit users. These accommodations would also include the provision of Americans with Disabilities Act–compliant infrastructure for the disabled.

Policy C.2 states that the LOS for all arterial streets within the city shall not be less than LOS D except for the intersections on Bayshore Boulevard at Old County Road and San Bruno Avenue, which shall not be less than LOS C. The two intersections having LOS C shall not be degraded below that level as a result of increased impacts from other intersections within the city, and such impacts shall be mitigated as necessary to maintain the LOS C standard at the identified intersections.

D.13.3 Environmental Impacts and Mitigation Measures

A transmission substation and relocation of transmission facilities are more likely to affect the transportation facilities during construction than during operation, because there is only a minimal amount of surface activity required to operate a transmission substation and lines. Routine maintenance is expected to necessitate approximately six trips per year by a two- to four-person crew. Consequently, the transportation analysis is devoted to the potential impacts during the construction phase.

D.13.3.1 Definition and Use of Significance Criteria

The significance criteria are based on the CEQA checklist in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.), a review of environmental documentation for other utility

projects in California, and input from staff at the public agencies responsible for the transportation facilities. Traffic/transportation impacts would be significant if one or more of the following conditions resulted from construction: In accordance with Appendix G of the CEQA Guidelines, the proposed project's traffic/transportation impacts would be considered significant if the proposed project would:

Impact TRA-1 Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities

Impact TRA-2 Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)

Impact TRA-3 Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)

Impact TRA-4 Result in inadequate emergency access

D.13.3.2 Applicant Proposed Measure

Table D.13-6 presents the applicant proposed measure (APM) proposed by PG&E to reduce project impacts related to transportation.

Table D.13-6
Applicant Proposed Measure for Transportation

APM No.	Description
APM TR-1	**Traffic Management Implementation.** PG&E will 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 will coordinate construction traffic access at the proposed switching station and proposed transmission lines within the city and county of San Francisco with SFMTA during project construction. Access during project construction to Martin Substation and the transmission lines within the cities of Brisbane and Daly City, respectively, will be coordinated with SamTrans. PG&E is a member of the California Joint Utility Traffic Control Committee, which published the California Joint Utility Traffic Control Manual (2010). PG&E will 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. These recommendations include provisions for safe access of police, fire, and other rescue vehicles. In addition, PG&E will apply for an Excavation Permit and a Special Traffic Permit from each of the cities (San Francisco, Brisbane, and Daly City), and will also submit a Traffic Management Plan as part of each application. The Traffic Management Plan will include the following elements and activities: Consult with SF Muni and SamTrans at least 1 month prior to construction to coordinate bus stop relocation (as necessary) and to reduce potential interruption of transit service. Include a discussion of work hours, haul routes, limits on lengths of open trench, work area delineation, traffic control, and flagging. Identify all access and parking restrictions and signage requirements, including any bicycle route or pedestrian detours, should the need for these arise during final design. Lay out a plan for notifications and a process for communicating with affected residents and businesses

Table D.13-6
Applicant Proposed Measure for Transportation

APM No.	Description
	prior to the start of construction. Advance public notification would include postings of notices and appropriate signage of construction activities. The written notification will include the construction schedule, the exact location and duration of activities within each street (i.e., which lanes and access points/driveways would be blocked on which days and for how long), and a toll-free telephone number for receiving questions or complaints. Include a plan to coordinate all construction activities with emergency service providers in the area at least 1 month in advance. Emergency service providers will be notified of the timing, location, and duration of construction activities. All roads will remain passable to emergency service vehicles at all times. Include the requirement that all open trenches be covered with metal plates at the end of each workday to accommodate traffic and access. Specify the street restoration requirements pursuant to PG&E's franchise agreements with the City and County of San Francisco, City of Brisbane, and City of Daly City. Identify all roadway locations where special construction techniques (e.g., trenchless techniques or night construction) would be used to minimize impacts to traffic flow. Develop circulation and detour plans to minimize impacts to local street circulation. This may include the use of signing and flagging to guide vehicles through and/or around the construction zone. These plans will also address loading zones. Consult Caltrans and obtain an encroachment permit if necessary per final construction and engineering design.

Note: APM = applicant proposed measure; PG&E = Pacific Gas & Electric Company; SFMTA = San Francisco Municipal Transit Agency.

D.13.3.3 Impact Discussion

Impact TRA-1 Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

Construction Impacts

Construction of the proposed project is anticipated to take approximately 21 months to complete and would result in a temporary short-term increase in local traffic as a result of construction-related workforce traffic and equipment and material deliveries. Activities associated with the construction phases would be distributed across the regional and local road network instead of being concentrated in one location. Construction would occur within and across a number of roadways, which could temporarily disrupt existing transportation and circulation in the vicinity. The potential traffic impacts from the construction-related activities are described below.

Construction-Added Trips

Construction-related trips would include trips related to the construction of underground transmission line sections and retirement of remnant line segments; trenchless crossing (auger bore) construction for the portion beneath U.S. Highway 101; construction of the switching

station; minor modification to Martin Substation; system protection scheme updates at Embarcadero, Jefferson, and Martin Substations; and overall cable system testing and commissioning. Traffic-generating construction activities would consist of the daily arrival and departure of construction workers to each work site, trucks hauling equipment and materials to the work site, the hauling of excavated soils or roadway material from each work site, and the import of new fill or roadway restoration material to each work site. Potential increases in vehicle trip generation as a result of project construction would vary based on the construction activity, equipment needs, and other factors. The distribution of project trips on the regional and local road network would also depend on the location of project staging areas. However, the majority of the proposed project's construction-related trips (vehicle and truck trips) would occur on the roadways identified in Table D.13-5.

For this analysis, it is assumed that the number of employees would peak at approximately 64 construction personnel, resulting in a maximum of 64 daily round-trips (128 one-way trips) to the proposed project. A detailed description of the construction workers by activity is presented in Section B, Project Description. During the switching station grading and foundation excavation phases, about 85 days total of about 27 to 40 truck trips per day is estimated per phase. Excavation and installation of the transmission lines in Egbert Avenue is expected to occur after the switching station grading and excavation is complete; it is expected to be supported by approximately four truck trips per day for about 180 days. Trucking for the proposed Jefferson-Egbert transmission line is expected for approximately 220 days total with about 8 to 12 truck trips per day. The trenchless activities are estimated to require eight truck trips per day for up to about 10 days at each bore pit. The removal of the Jefferson-Martin transmission line termination equipment in Martin Substation is expected to generate approximately nine truck trips per day for approximately 60 days. The number of light-duty truck trips would peak at approximately 113 trucks, resulting in a maximum of 226 daily trips to the proposed project and the number of heavy duty trucks would peak at approximately 73 trucks, resulting in a maximum of 145 daily round-trips (or 290 passenger-car equivalent trips) to the proposed project. Construction would typically occur between 7:00 a.m. and 8:00 p.m. or during times that would be set through coordination with the City and County of San Francisco and with the Cities of Daly City and Brisbane.

Based on the proposed project's construction phasing and schedule, a vehicular trip generation for project's peak construction month was provided by PG&E in response to California Public Utilities Commission Application Data Request No. 3, dated June 7, 2018. Table D.13-7 summarizes the peak construction vehicle trip generation for the proposed project.

Table D.13-7
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	64	128	12	0	12	0	12	12
Light Trucks (1.0 PCE)	113	226	10	10	20	10	10	20
Medium and Heavy Trucks (2.0 PCE)	approx. 73	290	8	8	16	8	8	16
Total Construction Traffic in PCE	NA	644	30	18	48	18	30	48

Notes: ADT = average daily traffic; PCE = passenger-car Equivalent.; NA = Not applicable.
Trip generation was estimated from a conservative average trips based on duration of use from AQ-GHG workbook (see Appendix 5.3-1, Construction Emissions Summary). Total workforce and truck trips would peak in the year 2020 in month 9.

As shown in Table D.13-7, during peak construction, the proposed project would generate approximately 644 average daily passenger-car equivalent trips, 48 AM peak-hour passenger-car equivalent trips, and 48 PM peak-hour passenger-car equivalent trips. These trips would be distributed on the roadway network identified in Table D.13-5.

The proposed project's construction activities would generate slight increases in traffic on interstate highways and local roads; the effects would be minimal, short-term, dispersed, and periodic. With implementation of APM TR-1, potential impacts would be reduced to less than significant (Class III).

Staging Areas/Work Areas

As described in Section B, one to three staging areas of up to 15 acres total may be identified for use once a construction contractor is selected. These staging areas would temporarily generate daily construction-related traffic related to workers traveling to the staging areas from their residences or from the staging areas to their residences (i.e., home–work/work–home trips), and from construction-related trucks destined to/from the staging areas to/from specific work areas along the transmission line. Specific staging area locations would be determined based on areas that are available at the time of construction. It is anticipated that most of the staging areas would be located within approximately 3 miles of the work areas; potential staging area locations are indicated on Figure B-3. Additional staging for the auger bore work is anticipated at the intersection of Bayshore Boulevard and Crane Street and at the intersection of Mansell Street (westbound) and San Bruno Avenue. These two areas would be temporarily fenced, with traffic barriers installed inside the fence around the bore pits, during the trenchless work for approximately 8 weeks. The freeze-pit work areas would be maintained for up to 8 weeks during the freeze activity.

An open trench length of 150 to 300 feet on each street would be typical at any one time, depending on the permitting requirements of the City and County of San Francisco, City of Daly

City, and City of Brisbane. Trench construction typically proceeds at a rate of approximately 40 linear feet per day, depending on soil conditions, existing utilities, and other considerations. Open trench construction of the transmission lines in Egbert Avenue is expected to occur one transmission line at a time. Steel plating would be placed over the trench to maintain vehicular and pedestrian traffic across areas that are not under active construction. While the completed trench sections are being restored, additional trenchline would be opened farther down the street. This process would continue until the entire conduit/pipe system is in place. Cable installation and cable splicing typically take 1 week for each activity to complete per section. Work would occur at adjacent vault locations, which are typically 1,800 to 2,000 feet apart.

Closures Due to Trenching

Project construction would occur within and/or across a number of roadways, and activities associated with construction would temporarily disrupt existing transportation and circulation in the vicinity. No complete long-term road closures are expected, although one-way traffic controls and short-term road closures would be implemented to allow for certain construction activities and to maintain public safety. Impacts would include direct disruption of traffic operations through lane blockages that would result in a reduction in travel lanes and curb parking or detour routing. Exact lane closures can only be determined following detailed investigation into construction activities. However, Table D.13-8 summarizes the anticipated road closures required for project construction.

Table D.13-8
Anticipated Partial Road Closures during Construction

Street	From	To	No. of Intersections	Anticipated Lanes Closed	Transit Route?
Bacon Street	Brussels Street	Girard Street	4	1	Yes
Bayshore Boulevard	North of Bacon Street/Egbert Avenue	Donner Avenue	0	1 parking lane + 1 bicycle lane	Yes
Egbert Avenue	Bayshore Boulevard	Proposed Egbert Switching Station	2	1 parking lane + 1 EB lane, 1 parking lane + 1 WB lane at different times	No
Guadalupe Canyon Parkway	West of Carter Street intersection	Carter Street	1	1 WB lane + shoulder	No
Carter Street	Guadalupe Canyon Parkway	Alexis Circle	2	1 SB lane + shoulder (and turns lanes at intersection)	No
Carter Street	Alexis Circle	Martin Street	1	1 lane (center divide lane or NB lane)	No
Carter Street	Martin Street	Geneva Avenue	3	1 lane (SB) + NB turn lane at Geneva Avenue	No
Geneva Avenue	Carter Street	Carrizal Street	4	1 lane (EB) + median (Left turn lane at Carter Street)	Yes

Table D.13-8
Anticipated Partial Road Closures during Construction

Street	From	To	No. of Intersections	Anticipated Lanes Closed	Transit Route?
Geneva Avenue	Carrizal Street	Santos Street	1	1 lane (EB) + turn lane at Santos Street	Yes
Santos Street	Geneva Avenue	Sunnydale Avenue	4	1 lane (SB) + parking lane	Yes
Sunnydale Avenue	Santos Street	Hahn Street	1	1 lane (EB) + parking one side	Yes
Hahn Street	Sunnydale Avenue	Visitacion Avenue	1	1 lane (SB) + parking lane	Yes
Visitacion Avenue	Hahn Street	Mansell Street	1	1 lane (SB) + shoulder	Yes
Mansell Street	Visitacion Avenue	San Bruno Avenue	10	1–2 lanes (WB and/or parking lane)	Yes
Bayshore Boulevard	Crane Street	Toward Wheat Street	1	1 lane (NB) + parking lane	Yes
Crane Street	Bayshore Boulevard	Paul Avenue	1	parking lane	No

Note: The side of the road without on-street parking is a shoulder, and roads with shoulders have intermittent parking.
EB = eastbound; WB = westbound; SB = southbound; NB = northbound.

Collectively, lane closures due to trenching are anticipated to last approximately 16 months, although the duration of lane closures on individual streets would be dictated by the pace of construction. A minimum of one traffic lane would remain open at all times on all affected streets except potentially on the western-most block of westbound Mansell Avenue. In addition to the road closures, various land uses would be affected during construction. Table D.13-9 identifies a preliminary list of locations that could be affected.

Table D.13-9
Potential Affected Locations

Location	Description of Potential Effects
Sunnydale/Velasco Low-Income Housing Community – HOPE SF Master Plan (HOPE SF)	The transmission line would be installed in Santos Street and Sunnydale Avenue, through the eastern end of the Sunnydale/Velasco community. The HOPE SF Master Plan is a major public housing revitalization project, and as part of HOPE SF development, all streets within the HOPE SF site, including Santos Street and Sunnydale Avenue, are planned to be reconfigured, realigned, and significantly improved with all new utilities infrastructure. If the proposed project and HOPE SF are not coordinated, two impact scenarios could occur: 1) transmission line is installed in existing roadways and HOPE SF is required to relocate the transmission line when the roadways are realigned or 2) HOPE SF is developed and PG&E would demolish their new improvements to install the transmission line.
Sunnydale Boys and Girls Club (within the HOPE SF Master Plan)	The Sunnydale Boys and Girls Club is located at the intersection of Sunnydale Avenue and Santos Street. The club would be impacted by both trench work and vault installation work.

Table D.13-9
Potential Affected Locations

Location	Description of Potential Effects
John McLaren Park	The transmission line would be installed under the following park roadways: 1) Visitacion Avenue, between Hahn Street and Mansell Street and 2) Mansell Street, between Visitacion Avenue and University Street.
Coffman Pool and Herz Playground	The Coffman Pool and Herz Playground (1700 Visitacion Avenue) are located near the intersection of Visitacion Avenue and Hahn Street. There is no on-site parking for the pool and playground, and on-street parking may be affected by construction.
Visitacion Valley Middle School	Visitacion Valley Middle School is located at 1798 Visitacion Avenue. This is the entrance to the faculty parking lot and drop-off zone for children. During pick-up and drop-off times, the area becomes congested with traffic and students. There is no sidewalk on the downhill (southern) side of Visitacion Avenue.
Mansell Street between University Street and Visitacion Avenue	Mansell Street between University Street and Visitacion Avenue may need a traffic reroute. The divided street narrows to one lane in each direction, and construction through the area may require a full road closure for the westbound lane for about 10 days.
Phillip and Sala Burton Academic High School	The high school is located at 400 Mansell Street, between Goettingen Street and Bowdoin Street. During pick-up and drop-off times, the area becomes congested with traffic and students. A school bus pick-up location in front of the school on Mansell Street would be affected. The Traffic Management Plan should take into consideration the high volume of student drivers entering and exiting the school.
Vault on Egbert Avenue	The proposed vault location on Egbert Avenue is located in front of a parking lot at 1825 Egbert Avenue. Entrance into the parking lot would be affected during transmission line and switching station construction activities.
Vault on Geneva Avenue	The proposed vault location on Geneva Avenue would be blocking an access to the parking lot on the northern side. Entrance into the adjacent side of the parking lot located on Santos Street should be maintained for minimal impact to businesses.
Bore pit on Mansell Street	The proposed bore pit on Mansell Street near the intersection of San Bruno Avenue would impact a Muni bus stop on Mansell Street.
Dr. Martin Luther King Jr. Academic Middle School and the Au Co Vietnamese Cultural Center	The freeze pit location on Bacon Street is across the street from Dr. Martin Luther King Jr. Academic Middle School and the Au Co Vietnamese Cultural Center. During school pick-up and drop-off times, the area is congested with traffic and pedestrians. The entrance to the school parking lot is also located off of Bacon Street. The freeze pit is also in proximity to the Indonesian Evangelical Church, which is located on the western corner of Brussels Street and Bacon Street.

Source: Underground Construction Co. Inc. 2017.

Traffic controls would be implemented to direct local traffic safely around the work areas and to minimize impacts to the land uses described in Table D.13-9. PG&E would apply for a permit from San Francisco Municipal Transit Agency and SamTrans, as well as for Special Traffic Permits from the City and County of San Francisco, City of Daly City, and City of Brisbane, as part of APM TR-1. PG&E would also coordinate provisions for emergency vehicle and local access with city personnel. Once the conduits or pipes are installed, the road surface would be restored in compliance with the locally issued permits. The proposed project may require nighttime work to avoid traffic disruption, which would also be coordinated with the local agency.

Several segments of I-80, I-280, and U.S. Highway 101 are operating at LOS E or LOS F. However, the project-added trips represent a minimal increase in traffic compared to the existing highway volumes (0.2% or less), and no changes to the existing LOS are anticipated. Furthermore, within the project site, I-80, I-280, and U.S. Highway 101 are exempt from the LOS standards because they were either operating at LOS F in the first CMP in 1991 or are within Infill Opportunity Zones. Geneva Avenue, Bayshore Boulevard, and 3rd Street are the only local roadways that are part of the CMP network and are currently at acceptable LOS. These roads are also exempt from LOS standards. Existing average daily traffic is not available for other local roadways. However, because of the primarily linear nature of the proposed project, construction project trips would be distributed across the regional road network and would not be concentrated at one location, other than at the proposed switching station site. The proposed switching station and transmission lines are also located close to major arterials and freeways; therefore, travel on local streets by construction personnel would be minimized. Trenchless technology is anticipated to be used to install the portion of the transmission line beneath U.S. Highway 101 because of the lack of available corridors within the existing ROW. No impacts to travel on U.S. Highway 101 would occur, although the U.S. Highway 101 off-ramp at Mansell Road would be temporarily affected during the boring. Coordination with Caltrans would be required as part of APM TR-1.

Although construction activities would generate slight increases in traffic on interstate highways and local roads, the effects would be minimal, short term, and periodic. The majority of the temporary construction-related truck trips are expected to occur outside of peak hours. With the construction workday starting typically at 7:00 a.m., the majority of the workforce would be traveling to the proposed project before the a.m. peak hours. At the end of the workday, the majority of the workers would leave the proposed project before or after the p.m. peak hours depending on the workday. The majority of pick-up truck and haul truck trips typically occur between 10:00 a.m. and 3:00 p.m.

Applicable county, state, and federal regulations, ordinances, and restrictions would be identified and complied with prior to and during construction. Therefore, construction-related traffic would not conflict with any applicable traffic plans, ordinances, or policies that establish measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation. Impacts would be less than significant (Class III).

Sunnydale HOPE SF Master Plan

A potentially significant project impact is the project's proposed alignment through Santos Street and Sunnydale Avenue in the eastern portion of the Sunnydale/Velasco low-income housing community, also known as the Sunnydale HOPE SF project site. This site is generally bounded by Velasco Street to the south, Hahn Street to the east, and McLaren Park to the north and west. The Sunnydale HOPE SF Master Plan is an approved major public housing revitalization project focused on some of the San Francisco's most underserved communities, including the

Sunnydale/Velasco community. As part of this development, all streets are planned to be reconfigured, realigned, and significantly improved with all new utilities infrastructure (largely with publicly funded sources). Because the phasing of the work on Sunnydale HOPE SF is contingent on the availability of funding from a variety of largely public sources, construction schedules are subject to change within the next 5–10 years, which could be difficult to coordinate with the preferred transmission line alignment.

Therefore, if the proposed project and Sunnydale HOPE SF are not coordinated, two impact scenarios specific to traffic could occur: (1) the transmission line would be installed in existing roadways and Sunnydale HOPE SF would be required to relocate the transmission line when the roadways are realigned; or, (2) Sunnydale HOPE SF would be developed and PG&E would demolish their new improvements to install the transmission line within the new street alignments. Any installation within these streets, if not properly coordinated with the Sunnydale HOPE SF construction, could mean delays for both projects, and/or repeated disruptions for the public housing residents within the Sunnydale HOPE SF project site.

If scenario #1 (above) occurs, APM TR-1 (detailed above) would require PG&E to coordinate the transmission alignment and construction activities with the City and County of San Francisco, including the potential construction conflict with the Sunnydale HOPE SF Master Plan, to minimize traffic impacts to the Sunnydale HOPE SF project site to levels of less than significant (Class III).

If scenario #2 (above) occurs, then a potentially significant impact would occur as the proposed project would demolish new street improvements constructed within the HOPE SF Master Plan. The following mitigation measure, MM TR-1, would ensure that new roadways and other improvements in the Sunnydale HOPE SF project site would be restored to their original, pre-project (pre PG&E transmission line) condition (Class II).

MM TR-1 Prior to the permanent operation of the proposed project, as part of the final construction activities of the proposed project (i.e., transmission line installation), Pacific Gas & Electric Company (PG&E) shall restore all removed curbs, gutters, and sidewalks, repave all removed or damaged paved surfaces, restore landscaping or vegetation as necessary, and clean up the job site, including the Sunnydale HOPE SF project site.

Public Transit, Bicycle, and Pedestrian Facilities

Public transit operates in the vicinity of the project site, and project construction could temporarily disrupt transit service. Bicycle facilities also exist in the area of construction. Table D.13-8 identifies the anticipated roads where transit routes and bicycle facilities could be affected. In addition, the sidewalk located on the northern side of Paul Avenue, near the

intersection of Paul Avenue and Crane Street, would be closed during construction of the proposed transmission line.

As specified under APM TR-1, the construction contractor would obtain all necessary road permits prior to construction and would comply with all the applicable conditions of approval. Implementation of APM TR-1 would establish methods for minimizing construction effects on transit service and bicycle facilities by maintaining access to such facilities along the project construction area or by providing an alternate route if one is needed. Implementation of APM TR-1 would include procedures for notifying affected agencies in advance of construction activities, including SF Muni and Sam Trans.

Operation and maintenance of the proposed project would occur within the switching station site, or infrequently within roads where the routes are proposed. Maintenance work at vault locations in roads is expected every 1 to 2 years and PG&E would follow its existing facility maintenance procedure to communicate work plans as appropriate, including any work location communication, such as work barriers or signage supporting a temporary reroute to avoid impact to public facility performance or safety during maintenance activities.

Construction and operation and maintenance of the proposed project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. Impacts would be less than significant (Class III).

Operation and Maintenance

Existing operation and maintenance crews would operate and maintain the new switching station and transmission lines as part of their current operation and maintenance activities. It is estimated that existing operation and maintenance crews would be typically make about 35 vehicle visits per year to the new Egbert Switching Station, Martin-Egbert transmission line, Egbert-Embarcadero transmission line, and Jefferson-Egbert transmission line facilities, which includes the following:

- 12 trips/year by PG&E Substation Maintenance Crew to Egbert Switching Station (monthly inspections)
- 4 trips/year for quarterly inspections of cross-linked polyethylene (XLPE) terminations
- 5 trips/year to inspect 50% of the XLPE vaults (10 total/2 years)
- 12 trips/year to inspect high-pressure, fluid-filled (HPFF) terminals
- 2 trips/year for detailed inspections of HPFF systems

This is a conservative estimate that assumes that no trips are combined with inspections of other existing nearby equipment. The personnel responsible for the operation and maintenance work are stationed at PG&E's existing Martin Service Center, which is in the project site. The estimated number of new trips is based on PG&E's standard normal maintenance and inspections for similar existing facilities and does not include any emergency response or other unanticipated repair work

that is not part of the typical visit activities. No impacts attributable to operation and maintenance activities are anticipated (No Impact).

Impact TRA-2 Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

CEQA Guidelines Section 15064.3, subdivision (b), focuses on specific criteria (vehicle miles traveled) for determining the significance of transportation impacts. It is further divided into four subdivisions: (1) land use projects, (2) transportation projects, (3) qualitative analysis, and (4) methodology. The proposed project, a transmission line project that would generate temporary construction-related traffic and nominal operations and maintenance traffic, would be categorized under subdivision (b)(3), qualitative analysis. Subdivision (b)(3) recognizes that lead agencies may not be able to quantitatively estimate vehicle miles traveled for every project type. In those circumstances, this subdivision encourages lead agencies to evaluate factors such as the availability of transit, proximity to other destinations, and other factors that may affect the amount of driving required by the project.

Construction

As described previously, construction of the proposed project would result in a temporary increase in local traffic as a result of construction-related workforce traffic and material deliveries and construction activities occurring within the public ROW. The primary off-site 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. However, the majority of the proposed transmission lines are located close to major arterials and freeways, and travel on local streets would be minimized.

Potential increases in vehicle-trip generation as a result of project construction would vary based on the construction activity, location, equipment needs, and other factors. However, once construction is completed, construction-related traffic would cease and vehicle miles traveled levels would return to pre-project conditions. Implementation of APM TR-1 would include recommendations for appropriately managing traffic during the construction period using measures such as construction schedule restrictions, signage, and flaggers. The APM TR-1 recommendations would be prepared by a qualified transportation engineer and would be created in coordination with and approved by the appropriate local jurisdiction. The proposed project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). Impacts would be less than significant (Class III).

Operation and Maintenance

No new staff would be required for maintenance or operation at the new switching station and transmission lines; therefore, no increase in vehicle miles traveled would occur. The operations and maintenance phase of the project would not have a substantial impact to VMT as it would

not be increased since no new staff would be required; furthermore, it is not a land use or transportation project. Therefore, project impacts would be less than significant (Class III).

Impact TRA-3 Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Construction

The proposed project would not involve any new permanent design features that could be hazardous or incompatible because, upon completion, the cable would be underground. However, heavy equipment operating adjacent to or within a road ROW could increase the risk of accidents. Construction-generated trucks on project site roadways would interact with other vehicles. Potential conflicts also could occur between construction traffic and bicyclists and pedestrians.

PG&E would obtain all necessary road encroachment permits prior to construction, and would comply with all the applicable conditions of approval. The applicant-prepared Traffic Management Plan (to be prepared in coordination with the City and County of San Francisco, City of Daly, and City of Brisbane) would govern how project construction would comply with roadside safety protocols to reduce the risk of accidents. With these measures, the impact would be less than significant (Class III).

Operation and Maintenance

The proposed switching station would be located at 1755 Egbert Avenue between Portola and Hunters Point on the eastern side of U.S. Highway 101. The neighborhood has a mix of residential, industrial, and commercial uses. There would be very few staff accessing the site, and no changes to the existing street geometry are proposed. No other design features are proposed that could substantially increase hazards. There would be no impact (No Impact).

Impact TRA-4 Would the project result in inadequate emergency access?

Construction and operation and maintenance of the proposed project would not result in inadequate emergency access. Emergency access routes would be maintained to and around the project construction area(s) for the duration of project construction. Typically, only material planned to be installed that day would be staged in a temporarily closed lane. Uninstalled materials would be removed from the lanes before the temporarily closed lanes are re-opened. It is anticipated at this time that the cities would require lanes to be re-opened at the end of each day's work, which would establish the duration of time materials are staged. Construction vehicles and equipment are expected to be staged or parked within the project site ROW and within approved temporary construction work and staging areas. Any road closures would be temporary and short-term, and these closures would be coordinated with the local jurisdictions to reduce the effects of potential temporary and short-term emergency access. Emergency responders would be notified prior to construction; ensuring access for emergency vehicles, all

applicable local, state, and federal traffic control measures would be followed to ensure the safety of the local and construction traffic. Implementation of APM TR-1 would further minimize potential impacts. There would be no changes to the emergency access at the existing substations. Switching station operation and maintenance personnel would park vehicles within the switching station or along Egbert Avenue and would not block the public ROW or otherwise interfere with emergency vehicle access. Maintenance work at vault locations in roads is expected every 1 to 2 years and PG&E would follow its existing facility maintenance procedure to notify emergency responders of any changes to access expected during maintenance activities. Therefore, the impact would be less than significant (Class III).

D.13.4 Project Alternatives

D.13.4.1 Bayshore Switching Station Alternative

Environmental Setting

The existing regional roadway network in the Bayshore Switching Station Alternative area is included in Section C.13.1. The alternative switching station site is within the southwest portion of the Baylands Subarea in the City of Brisbane. The only access road to the alternative switching station site is a 15-foot-wide unnamed road that provides access to the existing Machinery & Equipment Company building and the Mission Blue Nursery. The access road originates approximately 400 feet north of Old Country Road on the east side of Bayshore Boulevard, extends approximately 900 feet, and terminates at the Machinery & Equipment Company property. The alternative would require installation of approximately 1.5 miles of underground transmission lines within existing roadways. From the alternative switching station site, the alternative Bayshore-Embarcadero transmission line would be installed within Bayshore Boulevard northbound approximately 0.9 miles. Bayshore Boulevard is a four-lane divided principal arterial between the alternative switching station and Main Street. The remainder of the Bayshore-Embarcadero transmission line would be installed within two-lane local roadways, including Main Street, Midway Drive, and Schwerin Street (except approximately 0.05 miles within private land between Main Street and Midway Drive).

Within the project site, Bayshore Boulevard is the only local roadway that is part of the Congestion Management Program (CMP) network. Bayshore Boulevard is exempt from LOS standards, because the roadway is within an Infill Opportunity Zone.

Pedestrian and bicycle facilities are minimal within the roadways affected by the Bayshore Switching Station Alternative. The segment of Bayshore Boulevard affected by this alternative has buffered bike lanes but no sidewalks. Main Street does not have any pedestrian or bicycle facilities. Midway Drive and Schwerin Street have existing sidewalks but no designated bicycle lanes.

Public transit service near the Bayshore Switching Station Alternative is provided by the San Francisco Municipal Transit Agency (SF Muni Bus) and by SamTrans. Caltrain runs

immediately east of the alternative switching station site and alternative lines east of Bayshore Boulevard. The active Caltrain station closest to the alternative switching station site is the Bayshore Station on Tunnel Avenue, approximately 1.2 miles to the north.

There are no airports or heliports within the project site. However, the project site is located within the Airport Influence Area of San Francisco International Airport (C/CAG 2012). The project site is within Area A. No special land use restrictions are in effect within Area A.

Applicable circulation policies and regulations in the Cities of Brisbane and Daly City are described in Section D.13.2.

Environmental Impacts and Avoidance Measures

Impact TRA-1: Construction of the Bayshore Switching Station Alternative is anticipated to have a shorter construction schedule for installation of the alternative transmission lines (approximately 2.6 miles shorter); however, the alternative switching station site is larger than the proposed project (approximately 6.6 acres), and based on conclusions described in Section D.7.4.1, construction within the alternative switching station site is anticipated to require over-excavation and replacement of an unknown amount of artificial fill to avoid potential geologic hazards. Over-excavation and replacement of soil within the alternative switching station site would result in a greater construction trip generation than the proposed project. Construction activities would result in a temporary short-term increase in local traffic as a result of construction-related workforce traffic and equipment and material deliveries. Construction traffic would generate slight increases in traffic on regional and local roadways. Effects would be minimal, short term, dispersed, and periodic. During construction of the alternative switching station, all construction traffic would access the site utilizing the existing 15-foot-wide road that also provides access to the existing Machinery & Equipment Company property to the east. Construction activities at the alternative switching station site would periodically disrupt the only access to the Machinery & Equipment Company building property, which would conflict with Policy C. 46 (Ensure legal access to properties in making land use decisions) of the Brisbane General Plan, and a potentially significant impact would occur. If this alternative were chosen, mitigation would be incorporated into the mitigation monitoring, compliance, and reporting program to achieve adequate access to the surrounding land uses. Mitigation could include, but would not be limited to, implementation of a construction traffic control plan; coordination with the Machinery & Equipment Company property owner to determine adequate "timed access" during business hours; and design and construction of temporary alternative access through the alternative switching station site. Implementation of mitigation would ensure that adequate access to the Machinery & Equipment Company property would be maintained during construction activities at the alternative switching station site.

Construction of alternative transmission lines would occur within and/or across a number of roadways, and activities associated with construction would temporarily disrupt existing

transportation and circulation in the vicinity. During installation of alternative transmission lines, an open trench length of 150 to 300 feet on each street would be typical at any one time, depending on the permitting requirements of the Cities of Brisbane and Daly City. Trench construction typically proceeds at a rate of approximately 40 linear feet per day, depending on soil conditions, existing utilities, and other considerations. No complete long-term road closures are expected, although one-way traffic controls and short-term road closures would be implemented to allow for certain construction activities and to maintain public safety. Impacts would include direct disruption of traffic operations through lane blockages that would result in a reduction in travel lanes and curb parking or detour routing. Traffic controls would be implemented to direct local traffic safely around the work areas and to minimize impacts to adjacent land uses through implementation of APM TR-1. Once the alternative transmission lines are installed, the work area would be restored in compliance with the locally issued permits and APM WQ-3.

Operational impacts on the circulation system would be negligible, limited to occasional maintenance and inspection activities. Although construction activities would generate slight increases in traffic on interstate highways and local roads, the effects would be minimal, short term, and periodic. Construction of the alternative switching station has potential to disrupt access to the Machinery & Equipment Company property, but impacts would be reduced through implementation of mitigation. Temporary disruption of land uses during construction of the alternative transmission lines would be minimized through implementation of APM TR-1 and APM WQ-3. Therefore, with implementation of mitigation and applicable APMS, construction-related traffic impacts would be less than significant (Class II).

Impact TRA-2: The Bayshore Switching Station Alternative would generate temporary construction-related traffic; however, once construction is completed, construction-related traffic would cease, and vehicle miles traveled levels would return to pre-project conditions. Implementation of APM TR-1 would include recommendations for appropriately managing traffic during the construction period. No new staff would be required for maintenance or operation at the alternative switching station and transmission lines; therefore, no increase in vehicle miles traveled would occur. Therefore, the Bayshore Switching Station Alternative would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). Impacts would be less than significant (Class III).

Impact TRA-3: The Bayshore Switching Station Alternative would not involve any new and permanent design features that could be hazardous or incompatible, because transmission lines would be installed underground, and upon completion of construction, all work areas would be restored to pre-project conditions through implementation of APM WQ-3. However, heavy equipment operating adjacent to or within a road ROW could increase the risk of accidents. PG&E would obtain all necessary road encroachment permits prior to construction and would comply with all the applicable conditions of approval. The applicant-prepared Traffic

Management Plan (to be prepared in coordination with the City of Daly and City of Brisbane) would govern how project construction would comply with roadside safety protocols to reduce the risk of accidents. With these measures, the impact would be less than significant (Class III).

Impact TRA-4: Construction and operation of the Bayshore Switching Station would not result in inadequate emergency access. Emergency access routes would be maintained to and around the project construction area(s) for the duration of project construction. Construction vehicles and equipment are expected to be staged or parked within the project site ROW and within approved temporary construction work and staging areas. Any road closures would be temporary and short term, and these closures would be coordinated with the local jurisdictions to reduce the effects of potential temporary and short-term emergency access. Emergency responders would be notified prior to construction, ensuring access for emergency vehicles. Implementation of APM TR-1 would further minimize potential impacts. Switching station operation and maintenance personnel would park vehicles within the alternative switching station site and would not block the public ROW or otherwise interfere with emergency vehicle access. PG&E would follow its existing facility maintenance procedure to notify emergency responders of any changes to access expected during maintenance activities. Therefore, the impact would be less than significant (Class III).

Comparison to the Proposed Project

Construction traffic within the area of the Bayshore Switching Station site would result in greater impacts compared to the proposed project, because construction trip generation would be greater and access to the Machinery & Equipment Company property could be disrupted for up to 19 months during construction of the alternative switching station, resulting in a potentially significant impact. Temporary traffic impacts could be avoided, minimized, or remedied with implementation of mitigation to ensure adequate access to surrounding land uses. The Bayshore Switching Station would not conflict with any other proposed transportation improvements. Construction of the alternative transmission lines would result in reduced traffic impacts compared to the proposed project, because shorter transmission lines would require a shorter construction schedule, and less construction would be required within roadways. Operation of the Bayshore Switching Station Alternative would result in negligible impacts, consistent with the proposed project.

D.13.4.2 Geneva Switching Station Alternative

Environmental Setting

The existing regional roadway network in the Geneva Switching Station Alternative area is included in Section C.13.1. An existing driveway provides access to the alternative switching station site from Carter Street in the City of Daly City. The alternative transmission lines would require installation of approximately 2.3 miles of underground transmission lines within Carter Street, Geneva Avenue, and a small portion of Guadalupe Canyon Parkway. Approximately 0.95 miles of underground

transmission line would be installed within Geneva Avenue between Carter Street and Bayshore Boulevard. Geneva Avenue is an east–west, four-lane arterial with its eastern terminus at Bayshore Boulevard. Approximately 0.75 miles of transmission line would be installed within Carter Street between Guadalupe Canyon Parkway and Geneva Avenue. Carter Street is a local two-lane street within the project site Bayshore Boulevard is the only local roadway that is part of the Congestion Management Program (CMP) network. Bayshore Boulevard is exempt from LOS standards, because the roadway is within an Infill Opportunity Zone.

Pedestrian facilities are present along the west side of Carter Street from Geneva Avenue to Martin Street. Existing sidewalks are present on the east side of Carter Street, adjacent to the north parking lot of Cow Palace at the intersection with Geneva Avenue, and a small segment of sidewalk is present south of Martin Street. The remainder of Carter Street is not developed with pedestrian infrastructure. No bicycle infrastructure is present along Carter Street. Existing sidewalks are present along Geneva Avenue, and existing bicycle lanes are present along the south side of the street. No pedestrian or bicycle infrastructure is present on Guadalupe Canyon Parkway near Carter Street.

Public transit service near the Geneva Switching Station Alternative site is provided by the San Francisco Municipal Transit Agency (SF Muni Bus) and by SamTrans. There are no airports or heliports within the project site. However, the project site is located within the Airport Influence Area of San Francisco International Airport (C/CAG 2012). The project site is within Area A. No special land use restrictions are in effect within Area A.

Applicable circulation policies and regulations in the City of Daly City and City and County of San Francisco are described in Section D.13.2.

Environmental Impacts and Avoidance Measures

Impact TRA-1: Construction of the Geneva Switching Station Alternative is anticipated to have a shorter construction schedule than the proposed project due to shorter transmission line segments and, consequently, a lower construction trip generation than the proposed project. Construction activities would result in a temporary short-term increase in local traffic as a result of construction-related workforce traffic and equipment and material deliveries. Construction traffic would generate slight increases in traffic on regional and local roadways. Effects would be minimal, short term, dispersed, and periodic.

Construction of alternative transmission lines would occur within and/or across a number of roadways, and activities associated with construction would temporarily disrupt existing transportation and circulation in the vicinity. During installation of alternative transmission lines, an open trench length of 150 to 300 feet on each street would be typical at any one time, depending on the permitting requirements of the City and County of San Francisco and the City of Daly City. Trench construction typically proceeds at a rate of approximately 40 linear feet per

day, depending on soil conditions, existing utilities, and other considerations. No complete long-term road closures are expected, although one-way traffic controls and short-term road closures would be implemented to allow for certain construction activities and to maintain public safety. Once the alternative transmission lines are installed, the road surface would be restored in compliance with the locally issued permits per APM WQ-3.

Although construction activities would generate slight increases in traffic on interstate highways and local roads, the effects would be minimal, short term, and periodic. Applicable county; state; and federal regulations, ordinances, and restrictions would be identified and complied with prior to and during construction. Additionally, implementation of APM TR-1 and APM WQ-3 would ensure proper transportation management practices are applied during construction to reduce temporary impacts and ensure adequate restoration of work areas as part of final construction activities.

Operational impacts on the circulation system would be negligible, limited to occasional maintenance and inspection activities. Therefore, construction-related traffic would not conflict with any applicable traffic plans, ordinances, or policies that establish measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation. Impacts would be less than significant (Class III).

Impact TRA-2: The Geneva Switching Station Alternative would generate temporary construction-related traffic; however, once construction is completed, construction-related traffic would cease, and vehicle miles traveled levels would return to pre-project conditions. Implementation of APM TR-1 would include recommendations for appropriately managing traffic during the construction period. No new staff would be required for maintenance or operation at the alternative switching station and transmission lines; therefore, no increase in vehicle miles traveled would occur. Therefore, the Geneva Switching Station Alternative would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). Impacts would be less than significant (Class III).

Impact TRA-3: The Geneva Switching Station Alternative would not involve any new and permanent design features that could be hazardous or incompatible, because transmission lines would be installed underground, and upon completion of construction, all work areas would be restored to pre-project conditions through implementation of APM WQ-3. However, heavy equipment operating adjacent to or within a road ROW could increase the risk of accidents. PG&E would obtain all necessary road encroachment permits prior to construction and would comply with all the applicable conditions of approval. The applicant-prepared Traffic Management Plan (to be prepared in coordination with the City of Daly and City and County of San Francisco) would govern how construction would comply with roadside safety protocols to reduce the risk of accidents. With these measures, the impact would be less than significant (Class III).

Impact TRA-4: Construction and operation of the Geneva Switching Station would not result in inadequate emergency access. Emergency access routes would be maintained to and around the construction area(s) for the duration of construction activities. Construction vehicles and equipment are expected to be staged or parked within the alternative project site ROW and within approved temporary construction work and staging areas. Any road closures would be temporary and short term, and these closures would be coordinated with the local jurisdictions to reduce the effects of potential temporary and short-term emergency access. Emergency responders would be notified prior to construction; ensuring access for emergency vehicles. Implementation of APM TR-1 would further minimize potential impacts. Switching station operation and maintenance personnel would park vehicles within the alternative switching station site and would not block the public ROW or otherwise interfere with emergency vehicle access. PG&E would follow its existing facility maintenance procedure to notify emergency responders of any changes to access expected during maintenance activities. Therefore, the impact would be less than significant (Class III).

Comparison to the Proposed Project

Implementation of the Geneva Switching Station Alternative would result in reduced underground construction impacts, because the overall construction schedule is anticipated to be shorter than the proposed project. Traffic impacts associated with construction and operation of the alternative switching station would be similar to the proposed Egbert Switching Station. Additionally, alternative transmission line segments required within existing roadways would be less than the proposed project. Furthermore, the underground transmission lines would not be installed in areas where roadway realignments are proposed. Operation of the Geneva Switching Station would result in negligible impacts, consistent with the proposed project.

D.13.4.3 Sunnydale HOPE SF Avoidance Line Alternative Option A

Environmental Setting

The Sunnydale HOPE SF Avoidance Line Alternative Option A (Sunnydale Option A Alternative) is east of the proposed Jefferson-Egbert transmission line, within the same regional and local environmental setting as the proposed project described in Section D.13.1. The Sunnydale Option A Alternative is limited to the alternative line segment. Existing conditions (Section D.13.1) and environmental impacts (Section D.13.3) would remain unchanged for the Egbert Switching Station, Martin-Egbert transmission line, Egbert-Embarcadero transmission line, Martin Substation, and the remainder of the Jefferson-Egbert transmission line.

Environmental Impacts and Avoidance Measures

Impact TRA-1: Construction of the Sunnydale Option A Alternative would result in a similar construction schedule as the proposed project and, consequently, similar construction trip generation as the proposed project. Construction of alternative transmission lines would occur

within and/or across a number of roadways, and activities associated with construction would temporarily disrupt existing transportation and circulation in the vicinity. No complete long-term road closures are expected, although one-way traffic controls and short-term road closures would be implemented to allow for certain construction activities and to maintain public safety. Impacts would include direct disruption of traffic operations through lane blockages that would result in a reduction in travel lanes and curb parking or detour routing. Applicable county; state; and federal regulations, ordinances, and restrictions would be identified and complied with prior to and during construction. Additionally, implementation of APM TR-1 and APM WQ-3 would ensure proper transportation management practices are applied during construction to reduce temporary impacts and ensure adequate restoration of work areas as part of final construction activities.

Operational impacts on the circulation system would be negligible, limited to occasional maintenance and inspection activities. Therefore, construction-related traffic would not conflict with any applicable traffic plans, ordinances, or policies that establish measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation. Impacts would be less than significant (Class III).

Impact TRA-2/Impact TRA-3/Impact TRA-4: The Sunnydale Option A Alternative would have similar impacts as the proposed project for Impact TRA-2, Impact TRA-3, and Impact TRA-4, analyzed in Section D.13.3.3.

Comparison to the Proposed Project

The Sunnydale Option A Alternative would avoid construction within the Sunnydale HOPE SF project site and, thereby, avoid transportation impacts associated with construction of conflicting land uses. Because it is unlikely that the Sunnydale HOPE SF project and the proposed project would be constructed at the same time, the Sunnydale Option A Alternative would avoid potential construction traffic impacts associated with two separate construction projects within the Sunnydale HOPE SF project site. If this alternative is chosen, implementation of MM TR-1 at Sunnydale HOPE SF Master Plan area would not be necessary.

D.13.4.4 No Project Alternative

Under the No Project Alternative, none of the facilities associated with the proposed project or alternatives would be constructed, and therefore, none of the impacts described in this section would occur.

D.13.5 Mitigation Monitoring, Compliance, and Reporting

Table D.13-10 shows the mitigation monitoring, compliance, and reporting program for transportation. The CPUC is responsible for ensuring compliance with provisions of the monitoring program. The APM that PG&E has incorporated as part of the proposed project, as well as the mitigation measure developed as part of the EIR analysis, are listed in the table.

Table D.13-10
Mitigation Monitoring, Compliance, and Reporting Program for Transportation

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
Impact TRA-1 Conflicts with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities Impact TRA-3 Increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) Impact TRA-4 Creation of inadequate emergency access.	—	APM TR-1	**Traffic Management Implementation.** PG&E will 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 will coordinate construction traffic access at the proposed switching station and proposed transmission lines within the city and county of San Francisco with SFMTA during project construction. Access during project construction to Martin Substation and the transmission lines within the cities of Brisbane and Daly City, respectively, will be coordinated with SamTrans. PG&E is a member of the California Joint Utility Traffic Control Committee, which published the California Joint Utility Traffic Control Manual (2010). PG&E will 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. These recommendations include provisions for safe access of police, fire, and other rescue vehicles. In addition, PG&E will apply for an Excavation Permit and a Special Traffic Permit from each of the cities (San Francisco, Brisbane, and Daly City), and will also submit a Traffic Management Plan as part of each application. The Traffic Management Plan will include the following elements and activities: • Consult with SF Muni and SamTrans at least 1 month prior to construction to coordinate bus stop relocation (as necessary) and to reduce potential interruption of transit service.	PG&E to implement measure as defined. PG&E to incorporate measure into construction contracts	PG&E to submit Plan to CPUC and the City and County of San Francisco, City of Brisbane, and City of Daly City for review and approval PG&E to provide documentation of coordination with affected service providers in the City(s) and confirmation with all required conditions to ensure that construction activities would not preclude emergency vehicle access	PG&E develop Plan prior commencement of construction PG&E to implement plan during construction

Table D.13-10
Mitigation Monitoring, Compliance, and Reporting Program for Transportation

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
			• Include a discussion of work hours, haul routes, limits on lengths of open trench, work area delineation, traffic control, and flagging. • Identify all access and parking restrictions and signage requirements, including any bicycle route or pedestrian detours, should the need for these arise during final design. • Lay out a plan for notifications and a process for communicating with affected residents and businesses prior to the start of construction. Advance public notification would include postings of notices and appropriate signage of construction activities. The written notification will include the construction schedule, the exact location and duration of activities within each street (i.e., which lanes and access points/driveways would be blocked on which days and for how long), and a toll-free telephone number for receiving questions or complaints. • Include a plan to coordinate all construction activities with emergency service providers in the area at least 1 month in advance. Emergency service providers will be notified of the timing, location, and duration of construction activities. All roads will remain passable to emergency service vehicles at all times. • Include the requirement that all open trenches be covered with metal plates at the end of each workday to accommodate traffic and access.			

Table D.13-10
Mitigation Monitoring, Compliance, and Reporting Program for Transportation

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
			• Specify the street restoration requirements pursuant to PG&E's franchise agreements with the City and County of San Francisco, City of Brisbane, and City of Daly City. • Identify all roadway locations where special construction techniques (e.g., trenchless techniques or night construction) would be used to minimize impacts to traffic flow. • Develop circulation and detour plans to minimize impacts to local street circulation. This may include the use of signing and flagging to guide vehicles through and/or around the construction zone. These plans will also address loading zones. • Consult Caltrans and obtain an encroachment permit if necessary per final construction and engineering design.			
Impact TRA-1 Conflicts with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities	MM TR-1	—	Prior to the permanent operation of the proposed project, as part of the final construction activities of the proposed project (i.e., transmission line installation), Pacific Gas & Electric Company (PG&E) shall restore all removed curbs, gutters, and sidewalks, repave all removed or damaged paved surfaces, restore landscaping or vegetation as necessary, and clean up the job site, including the Sunnydale HOPE SF project site.	PG&E to implement measure as defined. PG&E to incorporate measure into construction contracts	PG&E to submit contract documents to CPUC for verification. CPUC monitor to confirm implementation prior to operation.	PG&E to implement all construction cleanup and improvements as part of final construction activities.

Notes: MM = mitigation measure; APM = Applicant Proposed Measure; CEQA = California Environmental Quality Act; PG&E = Pacific Gas & Electric Company; SFMTA = San Francisco Municipal Transit Agency; Caltrans = California Department of Transportation; CPUC = California Public Utilities Commission.

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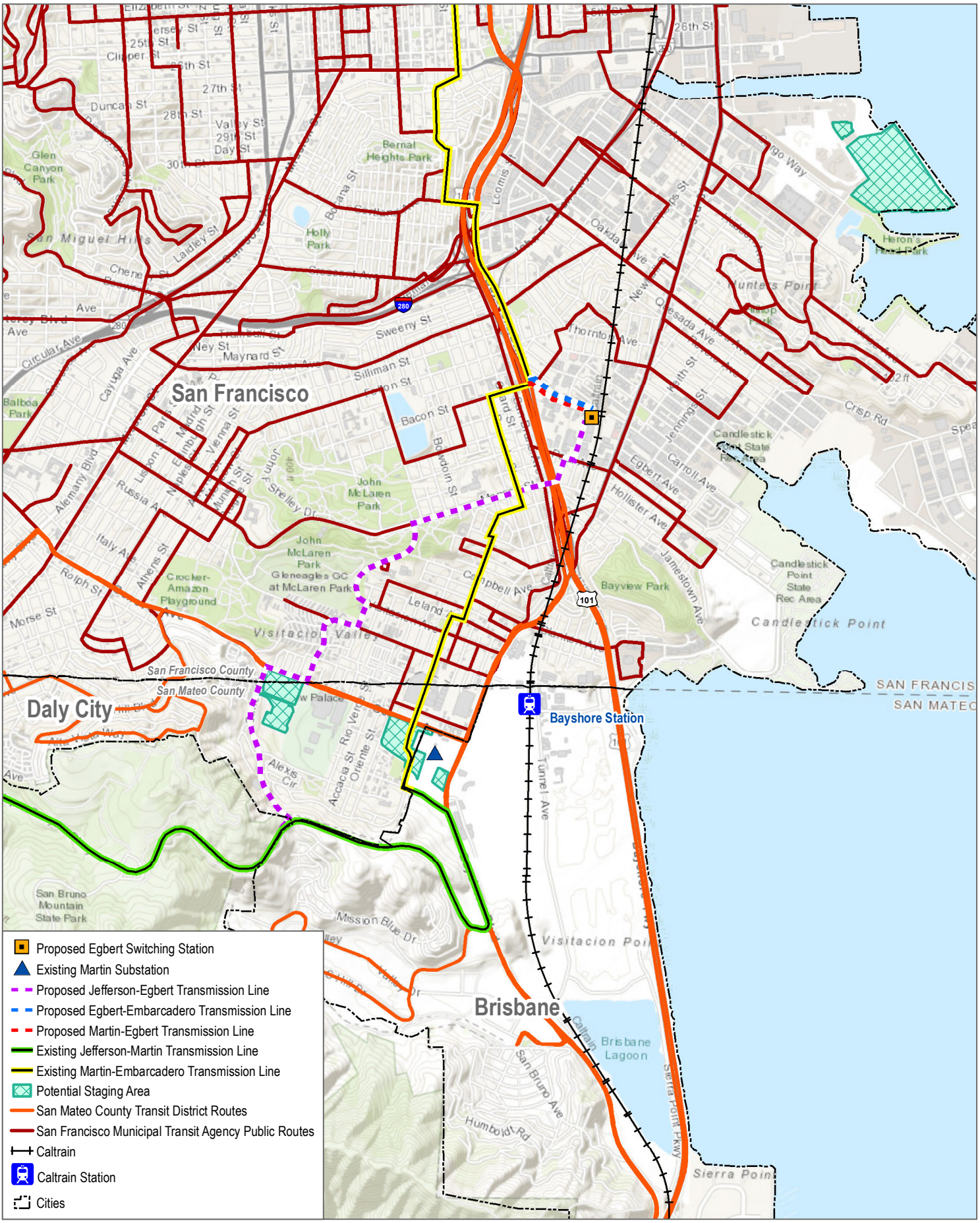
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Underground Construction Co. Inc. 2017. Impacted Route Locations



SOURCE: PG&E 2017; ESRI 2019

DUDEK

0 1,500 3,000 Feet

FIGURE D.13-1

Transit Routes

Egbert Switching Station (Martin Substation Extension) Project

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D.14 TRIBAL CULTURAL RESOURCES

This section evaluates the potential for the Egbert Switching Station (Martin Substation Extension) Project (proposed project) and alternatives to impact tribal cultural resources during construction and operation. Section D.14.1 provides a description of the environmental setting, and Section D.14.2 provides applicable regulations. Potential impacts and avoidance/mitigation measures for the proposed project are outlined in Section D.14.3, and the project alternatives are described in Section D.14.4. Mitigation monitoring, compliance, and reporting are discussed in Section D.14.5, and Section D.14.6 lists the references cited in this section. Cumulative effects are analyzed in Section F.5.2.13 of this Environmental Impact Report (EIR).

The discussion of cultural resources presented in this draft EIR and the evaluation of potential impacts on these resources as a result of proposed project implementation is based on the following technical reports and incorporated herein:

- Cultural Resources Study for PG&E's Egbert Switching Station Project, Far Western Anthropological Research Group Inc. (Confidential Appendix D.5-1)

This section evaluates the potential impacts associated with tribal cultural resources (TCR) for the proposed project. Section D.14.1 describes the environmental setting and Section D.14.2 describes the regulatory conditions related to TCRs associated with the proposed project. Section D.14.3 provides an analysis and discussion of impacts associated with the proposed project, and Section D.14.4 presents an impact analysis for the alternatives. Mitigation monitoring, compliance, and reporting are discussed in Section D.14.5, and Section D.14.6 lists the references cited in this section. Cumulative impacts to TCR are analyzed in Section F, Other CEQA Considerations, of this Environmental Impact Report.

D.14.1 Environmental Setting for the Proposed Project

The project site is located in the Cities of Brisbane and Daly City, in the County of San Mateo, and within the City and County of San Francisco, California. The project site is located primarily within developed, paved areas. Surrounding land uses include residential, commercial, and light-industrial uses. On-site elevations range from approximately 30 to 400 feet above sea level.

Previously Recorded Archaeological Resources

A cultural resources study was prepared for the proposed project by Far Western Anthropological Research Group Inc. in December 2017 (Confidential Appendix D.5-1). The study included a California Historical Resources Information System records search, which was conducted at the Northwest Information Center in January 2016, and then again on April 20, 2017, to determine if previously recorded cultural resources are present within the project site and surrounding 0.25-

mile radius. The records search involved a review of information pertaining to previously recorded cultural resources, previous cultural resources investigations and their limits within the project site, and historic aerial photographs and maps. This information indicated that 17 recorded cultural resources are located within 0.25 miles of the project site, 2 of which were recorded in locations that intersected the proposed project's area of potential effects. These two resources are located within the potential staging area for the Martin Substation and consist of a public utility building, and underground utility vault and covered manhole. Furthermore, the Martin Substation compound has been recommended as a California Register of Historical Resources Historic District. However, the features that make the Martin Substation eligible are not in the proposed potential staging area or equipment removal area. These resources are historic-period built-environment resources. Of the 17 recorded cultural resources within 0.25 miles of the project site, known archaeological resources include a prehistoric shell midden site located outside of the project's area of potential effects (see Confidential Appendix D.14-1).

Field inventory included a pedestrian survey for archaeological resources performed on May 5, 2017. Archaeological finds during the on-site survey included two built-environment features along Egbert Avenue: a section of 1940s-era railroad grade on the southern edge of the paved road, and a 1942 surface drain just north of the proposed Egbert Switching Station site. These two resources were recorded and evaluated in the cultural resources study and have been recommended as not eligible for listing in the National Register of Historic Places or California Register of Historical Resources under any criteria. Additionally, a row of several Victorian-period houses was observed along Crane Street, and a historic-era structure was documented at 320–400 Paul Avenue. These structures are not located within the project's area of potential effects (Confidential Appendix D.5-1).

Buried Site Sensitivity Analysis

A buried site sensitivity analysis was conducted to determine the sensitivity of the project site to contain subsurface or buried resources, including historic-period resources that may lie beneath modern construction (e.g., streets, sidewalks, buildings), and prehistoric resources that may have been buried by younger sediments or fill. To determine the sensitivity of the project's area of potential effects to contain surface or subsurface archaeological remains, the analysis included a consideration of local soils and geology, historical shoreline locations, presence or absence (and density) of historic-period development, locations and extent of lands created by artificial fill, and locations of known cultural resources. The sensitivity analysis, on a scale from lowest to very high, indicated that most of the project site has a low to lowest potential to contain prehistoric archaeological sites, with a small portion of the site having moderate potential. Potential staging areas, with the exception of the Martin Substation, are located within areas of lowest to moderate potential. The Martin Substation site and the northernmost part of the project alignment are estimated to have a high to highest potential for prehistoric archaeological sites (Confidential Appendix D.5-1).

Sacred Lands File Search

A Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search was completed on May 24, 2017, with negative results, followed by letters sent to NAHC-listed Native American representatives requesting additional information. Outreach to Native American representatives elicited one request for additional information from a representative of the Ohlone tribe (PG&E 2017).

On May 18, 2017, an SLF search request for any sacred sites or other Native American cultural resources that may fall within the project site or surrounding 1-mile buffer and a request for the Native American contact list for the area was sent to the NAHC. On May 24, 2017, the NAHC responded with results from the SLF search request. No resources are on file within the SLF for the project site or surrounding search area. However, NAHC results noted that absence of specific site information in the SLF does not imply absence of Nature American cultural resources on the site. The NAHC also provided contact information for parties who may be interested or may have information regarding TCRs on the project site (PG&E, 2017).

On May 25, 2017, the Pacific Gas & Electric Company (PG&E) sent letters to the six Native American contacts provided by the NAHC to supply information regarding the proposed project and request information or concerns regarding Native American cultural resources that could be affected by the proposed project. Follow-up phone calls were made by a Far Western Anthropological Research Group Inc. archaeologist on June 8, 2017. No tribes identified any cultural resources or TCRs within or near the project site (PG&E, 2017).

Assembly Bill 52 Consultation

The proposed project is subject to compliance with Assembly Bill (AB) 52 (California Public Resources Code [PRC] Section 21074), which calls for consideration of impacts to TCRs as part of the California Environmental Quality Act (CEQA) process, and requires the lead agency to notify any NAHC-listed groups or representatives who previously requested notification of proposed projects within their traditional or culturally affiliated geographic area. The CPUC, acting as the lead agency for compliance with AB 52 and the primary contact for government-to-government consultation, has not received any requests for notification of proposed projects within the project area from NAHC-listed tribal representatives. Therefore, no project notification was required.

D.14.2 Applicable Regulations, Plans, and Standards

State Regulations, Plans, and Standards

Assembly Bill 52

AB 52 amended PRC Section 5097.94 and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 established that TCRs must be considered under CEQA, and provided for additional Native American consultation requirements for the lead agency. PRC Section 21074 describes a TCR as a site, feature, place, cultural landscape, sacred place, or object that is considered of cultural value to a California Native American tribe. A TCR is either of the following:

- On the California Register of Historical Resources or a local historic register or eligible for the California Register of Historical Resources or a local historic register.
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC Section 5024.1(c).

AB 52 formalizes the lead agency–tribal consultation process, requiring the lead agency to initiate consultation with California Native American groups that are traditionally and culturally affiliated with a project site, including tribes that may not be federally recognized. Lead agencies are required to begin consultation prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report for a proposed project.

Section 1 (a)(9) of AB 52 establishes that "a substantial adverse change to a tribal cultural resource has a significant effect on the environment." Effects on TCRs should be considered under CEQA. Section 6 of AB 52 adds Section 21080.3.2 to the PRC, which states that parties may propose mitigation measures "capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource." Further, if a California Native American tribe requests consultation regarding project alternatives, mitigation measures, or significant effects to TCRs, the consultation must include those topics (PRC Section 21080.3.2[a]). The environmental document and the mitigation monitoring and reporting program (where applicable) must include any mitigation measures that are adopted (PRC Section 21082.3[a]).

D.14.3 Environmental Impacts and Mitigation Measures

D.14.3.1 Definition and Use of Significance Criteria

Appendix G of CEQA (14 CCR 15000 et seq.) provides guidance for evaluating whether a development project may result in significant impacts. In accordance with Appendix G of the CEQA Guidelines, a project would have a significant impact on TRCs if it would:

Impact TCR-1 Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

(i) 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)

(ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe

D.14.3.2 Applicant Proposed Measures

PG&E did not propose applicant proposed measures (APMs) for TCRs. APMs CR-1 through CR-5 for cultural resources would also avoid project impacts related to TCRs. These APMs are listed in Table D.5-2 in Section D.5, Cultural Resources.

D.14.3.3 Project Impacts

Impact TCR-1 **Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:**

(i) 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 archaeological resources or other potential cultural resources of Native American origin or affiliation have been identified within or near the project site through archaeological survey or a Northwest Information Center records search. No cultural resources with potential to be defined as a TCR have been identified that could be impacted by the proposed project.

Although no TCRs have been identified that may be affected by the proposed project, implementation of Mitigation Measure (MM) TCR-1, in combination with APM CR-2, and APM CR-3, would avoid inadvertent impacts to TCRs.

To determine potential for archaeological or historical sites, artifacts, or features in areas that were not accessible during the pedestrian survey, these areas would be surveyed by a cultural resources specialist/archaeologist prior to project construction in accordance with APM CR-1. Furthermore, implementation of APM CR-2 would require project field personnel to obtain training on cultural resources identification and protection, and the laws and penalties governing such protection. Additional APMs would include APM CR-3, which would require construction monitoring by a qualified archaeologist (in areas identified as highly sensitive for cultural resources), and MM TCR-1, which defines identification and evaluation protocols to be implemented in the event of inadvertent discovery of TCRs.

Consequently, the proposed project would not cause a substantial adverse change in the significance of a TCR; therefore, impacts would be less than significant with implementation of MM TCR-1 and APMs CR-1 through CR-3 (Class II).

MM TCR-1 Should a potential tribal cultural resource (TCR) be inadvertently encountered, construction activities near the encounter shall be temporarily halted and Pacific Gas & Electric Company (PG&E) and the California Public Utilities Commission (CPUC) shall be notified. If the unanticipated resource is archaeological in nature, appropriate management requirements shall be implemented, as outlined in Applicant Proposed Measures CR-3 through CR-5. PG&E, in consultation with the CPUC, shall notify Native American tribes that have been identified by the Native American Heritage Commission to be traditionally and culturally affiliated with the geographic area of the proposed project. If the CPUC determines that the potential resource appears to be a TCR (as defined by California Public Resources Code Section 21074), any affected tribe shall be provided a reasonable period of time to conduct a site visit and make recommendations regarding future ground disturbance activities and the treatment and disposition of any discovered TCRs. Depending on the nature of the potential resource

and tribal recommendations, review by a qualified archaeologist may be required. Implementation of proposed recommendations shall be made based on the determination of the CPUC that the approach is reasonable and feasible. Activities shall be conducted in accordance with regulatory requirements.

(ii) 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?

No known TCRs or cultural resources of Native American origin or affiliation were identified within, or in the vicinity of, the project site through previous Native American outreach completed by PG&E's consultants on June 8, 2017. Because no requests for project notification from traditionally geographically affiliated NAHC-listed Native American representatives have been received by the CPUC for this area, no additional government-to-government notification or consultation pursuant to AB 52 was completed or required. No TCRs or known cultural resources have been identified that could be impacted by the proposed project (PG&E, 2017). In the event that a potential unanticipated TCR is encountered, MM TCR-1 provides for additional consultation with NAHC-listed traditionally geographically affiliated Native American representatives and a process for determining appropriate treatment. This process would be completed, as appropriate, in conjunction with APM CR-3, which would require construction monitoring by a qualified archaeologist. Refer to Section D.5.3.2, which defines appropriate steps in the event suspected human remains are encountered. Consequently, the proposed project would not cause a substantial adverse change in the significance of a TCR; therefore, impacts would be less than significant (Class III).

D.14.4 Project Alternatives

D.14.4.1 Bayshore Switching Station Alternative

Environmental Setting

As described in Section D.5.4.1, no archaeological resources have been recorded within the alternative switching station site or alternative transmission line segments east of Bayshore Boulevard (City of Brisbane 2014). The area is east of the historic-era bay shoreline, filled primarily with demolition rubble from the 1906 San Francisco earthquake. Artificial fill thickness is estimated to range between 9 to 22 feet thick (City of Brisbane 2014). Artificial fill underlying the alternative switching station site and transmission lines east of Bayshore Boulevard has low sensitivity for the presence of buried archaeological resources.

The majority of the alternative Martin-Geneva transmission line along Bayshore Boulevard and to the west was covered by the cultural resources records search prepared for the proposed project

(Confidential Appendix D.5-1). One cultural resource was previously recorded south of Main Street and components within the Martin Substation were previously recorded as eligible for the California Register. Portions of the alternative Martin-Bayshore transmission line segment are located in areas of moderate/high-to-high sensitivity for historic resources and lowest-to-moderate sensitivity for buried prehistoric resources.

Environmental Impacts and Avoidance/Mitigation Measures

Impact TCR-1: No archaeological resources or other potential cultural resources of Native American origin or affiliation have been identified within or near the Bayshore Switching Station Alternative (City of Brisbane 2014). No historic or prehistoric resources with potential to be defined as a TCR have been identified that could be impacted by the Bayshore Switching Station Alternative.

If this alternative were chosen, a field study of areas that were not originally surveyed (APM CR-1) would determine the location of any potential for archaeological or historical sites, artifacts, or features. During construction, implementation of MM TCR-1 (protocols for inadvertent TCR discoveries) would be required to avoid potential impacts to unknown TCRs uncovered during ground-disturbing activities. In addition, implementation of APM CR-2 would require project field personnel to obtain training on cultural resources identification and protection and the laws and penalties governing such protection. APM CR-3 would require construction monitoring by a qualified archaeologist in areas with high sensitivity for presence of cultural resources (if applicable).

The Bayshore Switching Station Alternative would not cause a substantial adverse change in the significance of TCR impacts; therefore, impacts would be less than significant with implementation of MM TCR-1 and applicable APMs (Class II).

Comparison to the Proposed Project

The Bayshore Switching Station Alternative would require ground-disturbing activities in more undeveloped areas than the proposed project, but existing artificial fill in the undeveloped portion of the Bayshore Switching Station Alternative east of Bayshore Boulevard reduces the likelihood of the presence of subsurface cultural resources. With implementation of MM TCR-1 and applicable APMs, potential impacts to TCRs from construction of the Bayshore Switching Station Alternative would be similar to those described in Section D.14.3.3 for the proposed project.

D.14.4.2 Geneva Switching Station Alternative

Environmental Setting

The Geneva Switching Station Alternative site and transmission lines are included in the area of potential effect for the Cultural Resources Study prepared for the proposed project. As described in Section D.5.4.2, No historic resources were identified within the alternative Geneva Switching Station site or transmission alignment (Confidential Appendix D.5-1). The Geneva Switching Station would be developed in an urban area within disturbed areas.

The alternative switching station site is within an area of low sensitivity for subsurface historic-era resources and lowest sensitivity for subsurface prehistoric resources. The alternative transmission alignments are in areas of low–to-moderate sensitivity for subsurface historic-era resources and lowest sensitivity for subsurface prehistoric resources, except for an area of low-to-moderate sensitivity along Carter Street (Confidential Appendix D.5-1).

Environmental Impacts and Avoidance/Mitigation Measures

Impact TCR-1: No archaeological resources or other potential cultural resources of Native American origin or affiliation have been identified within or near the Geneva Switching Station Alternative (Confidential Appendix D.5-1). No historic or prehistoric resources with potential to be defined as a TCR have been identified that could be impacted by the Geneva Switching Station Alternative.

If this alternative were chosen, a field study of areas that were not originally surveyed (APM CR-1) would determine potential for archaeological or historical sites, artifacts, or features. During construction, implementation of MM TCR-1 (protocols for inadvertent TCR discoveries) would be required to avoid potential impacts to unknown TCRs uncovered during ground-disturbing activities. Additionally, implementation of APM CR-2 would require project field personnel to obtain training on cultural resources identification and protection and the laws and penalties governing such protection.[1]

The Geneva Switching Station Alternative would not cause a substantial adverse change in the significance of TCR impacts; therefore, impacts would be less than significant with implementation of MM TCR-1 and APM CR-2 (Class II).

Comparison to the Proposed Project

The Geneva Switching Station Alternative would be developed in an urban environment within previously disturbed areas, similar to the proposed project. With implementation of MM TCR-1 and

[1] APM CR-3 would not be required because the area under construction is not considered high sensitivity for cultural resources.

applicable APMs, potential impacts to TCRs from construction of the Geneva Switching Station Alternative would be similar to those described in Section D.14.3.3 for the proposed project.

D.14.4.3 Sunnydale HOPE SF Avoidance Line Alternative Option A

Environmental Setting

The Sunnydale HOPE SF Avoidance Line Alternative Option A (Sunnydale Option A Alternative) is located east of the proposed Jefferson-Egbert transmission line, within the area of potential effect for the Cultural Resources Study prepared for the proposed project (Confidential Appendix D.5-1). The Sunnydale Option A Alternative is limited to the alternative line segment. Existing conditions (Section D.14.1) and environmental impacts (Section D.14.3) would remain unchanged for the Egbert Switching Station, Martin-Egbert transmission line, Egbert-Embarcadero transmission line, Martin Substation, and the remainder of the Jefferson-Egbert transmission line. No known cultural resources were identified within the Sunnydale Option A Alternative line segment.

The Sunnydale Option A Alternative is in an area of moderate sensitivity for subsurface historic resources and lowest potential for prehistoric subsurface prehistoric resources; however, the Sunnydale Option A Alternative would be developed within existing roadways in a developed residential area.

Environmental Impacts and Avoidance/Mitigation Measures

Impact TCR-1: No archaeological resources or other potential cultural resources of Native American origin or affiliation have been identified within or near the Sunnydale Option A Alternative (Confidential Appendix D.5-1). No historic or prehistoric resources with potential to be defined as a TCR have been identified that could be impacted by the Sunnydale Option A Alternative.

If this alternative were chosen, a field study of the Sunnydale Option A Alternative line segment (APM CR-1) would determine potential for archaeological or historical sites, artifacts, or features. During ground-disturbing activities, implementation of MM TCR-1 (protocols for inadvertent TCR discoveries) would be required to avoid potential impacts to unknown TCRs uncovered during ground-disturbing activities. Additionally, implementation of APM CR-2 would require project field personnel to obtain training on cultural resources identification and protection and the laws and penalties governing such protection.[2]

[2] APM CR-3 would not be required because the area under construction is not considered "high sensitivity for cultural resources."

Consequently, the Sunnydale Option A Alternative would not cause a substantial adverse change in the significance of TCR impacts; therefore, impacts would be less than significant with implementation of MM TCR-1 and applicable APMs (Class II).

Comparison to the Proposed Project

The Sunnydale Option A Alternative would be constructed in an urban environment within existing roadways, similar to the proposed project. With implementation of MM TCR-1 and applicable APMs, potential impacts to TCRs from construction of the Sunnydale Option A Alternative would be similar to those described in Section D.14.3.3 for the proposed project.

D.14.4.4 No Project Alternative

Under the No Project Alternative, none of the facilities associated with the proposed project would be constructed, and therefore, none of the impacts described in this section would occur.

D.14.5 Mitigation Monitoring, Compliance, and Reporting

Table D.14-1 lists the mitigation monitoring, compliance, and reporting program (MMCRP) for TCR impacts. The mitigation measure developed as part of the EIR analysis is listed in the following table. Applicable APMs CR-1 through CR-5 for cultural resources would that would also avoid TCR impacts are included in Table D.5-3).

Table D.14-1
Mitigation Monitoring, Compliance, and Reporting Program for Tribal Cultural Resources

Impact	MM	APM No.	Mitigation Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
Impact TCR-1 and Impact TCR-2: Project construction could impact unknown tribal cultural resources (TCRs)	MM TCR-1	—	Should a potential tribal cultural resource (TCR) be inadvertently encountered, construction activities near the encounter shall be temporarily halted and Pacific Gas & Electric Company (PG&E) and the California Public Utilities Commission (CPUC) shall be notified. If the unanticipated resource is archaeological in nature, appropriate management requirements shall be implemented, as outlined in Applicant Proposed Measures CR-3 through CR-5. PG&E, in consultation with the CPUC, shall notify Native American tribes that have been identified by the Native American Heritage Commission to be traditionally and culturally affiliated with the geographic area of the proposed project. If the CPUC determines that the potential resource appears to be a TCR (as defined by California Public Resources Code Section 21074), any affected tribe shall be provided a reasonable period of time to conduct a site visit and make recommendations regarding future ground disturbance activities and the treatment and disposition of any discovered TCRs. Depending on the nature of the potential resource and tribal recommendations, review by a qualified archaeologist may be required. Implementation of proposed recommendations shall be made based on the determination of the CPUC that the approach is reasonable and feasible. Activities shall be conducted in accordance with regulatory requirements.	In the event of inadvertent resource discovery, PG&E and CPUC would comply with the measure as described.	CPUC to provide oversight during notification and consultation; CPUC to maintain written record notification and consultation for the record.	During construction

D.14.6 References Cited

PG&E (Pacific Gas & Electric Company). 2017. *Proponent's Environmental Assessment*. Prepared by CH2MHill. December 2017. https://www.cpuc.ca.gov/environment/info/dudek/egbert/PEA_EgbertSwitchingStation_December2017.pdf.

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D.15 WILDFIRE

This section evaluates the potential impacts associated with wildfire for the proposed Egbert Switching Station (Martin Substation Extension) Project (proposed project). Section D.15.1 describes the environmental setting and Section D.15.2 describes the regulatory conditions related to wildfire associated with the proposed project. Section D.15.3 provides an analysis and discussion of impacts associated with the proposed project, and Section D.15.4 presents an impact analysis for the alternatives. Mitigation monitoring, compliance, and reporting are discussed in Section D.15.5, and Section D.15.6 lists the references cited in this section. Cumulative impacts to wildfire are analyzed in Section F.5.2.14, Wildfire, of this Environmental Impact Report (EIR).

D.15.1 Environmental Setting for the Proposed Project

The proposed project would be located primarily within existing paved areas in the urbanized areas of the City and County of San Francisco, City of Daly City, and City of Brisbane. The project site is primarily surrounded by residential uses, with commercial, public, industrial, and open space uses also occurring along the proposed transmission line routes and near the Egbert Switching Station site.

Fire Hazard Mapping

The California Department of Forestry and Fire Protection (CAL FIRE) uses Fire Hazard Severity Zones (FHSZs) to classify anticipated fire-related hazards for the entire state and includes classifications for State Responsibility Areas (SRAs), Local Responsibility Areas (LRAs), and Federal Responsibility Areas. Fire hazard measures physical fire behavior based on vegetation type (fuel), topography, and weather conditions and considers fire spread rate, fire heat production, and production of embers that facilitate fire growth. Fire hazard severity represents the potential of an area to burn and the severity with which it may burn. The entire project site is within the LRAs for San Francisco and San Mateo Counties.

Based on CAL FIRE's 2008 FHSZ map for the County of San Francisco, the county has no Very High Fire Hazard Severity Zones (VHFHSZs) occurring in its LRA, so the project site within the City and County of San Francisco is classified as unzoned (CAL FIRE 2008a).

The southern end of the Jefferson Egbert transmission line is located in San Mateo County within an LRA that is classified as Non-VHFHSZ (CAL FIRE 2008b). The southernmost approximately 0.1-mile portion of the proposed Jefferson-Egbert transmission line is located adjacent to the San Bruno Mountain State Park. The park is an SRA that is designated as a High FHSZ. FHSZs near the project site are shown in Figure D.15-1.

In January 2018, the California Public Utilities Commission (CPUC) approved a statewide Fire-Threat Map. The map delineates areas in the state where there is an elevated risk and an extreme

risk (including likelihood and potential impacts on people and property) from utility-associated wildfires. The Fire-Threat Map prioritizes fire hazard areas and requires implementation of new fire-safety regulations adopted by the CPUC in 2017 for utility facilities in those areas. CAL FIRE provided oversight during the map development process. Projects occurring in the mapped High Fire Threat District are subject to annual reporting requirements and increased vegetation management regulations. None of the portions of the proposed project occur within CPUC's mapped High Fire Threat District (CPUC 2018).

D.15.2 Applicable Regulations, Plans, and Standards

Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission requires utilities to adopt and maintain minimum clearance standards between vegetation and transmission voltage power lines. 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, the state has adopted General Order 95 rather than the North American Electric Reliability Corporation (NERC) Standards as the electric safety standard for the state. The Federal Energy Regulatory Commission is not discussed further.

National Fire Protection Association Codes, Standards, Practices, and Guides

National Fire Protection Association codes, standards, recommended practices, and guides are developed through a consensus standards development process approved by the American National Standards Institute. This process brings together professionals representing varied viewpoints and interests to achieve consensus on fire and other safety issues. National Fire Protection Association standards are recommended guidelines and nationally accepted good practices in fire protection but are not law or codes unless adopted as such or referenced as such by the California Fire Code or the Local Fire Agency.

National Electric Safety Code 2017

The National Electric Safety Code covers basic provisions related to electric supply stations, overhead electric supply and communication lines, and underground electric supply and communication lines. The code also contains work rules for construction, maintenance, and operational activities associated with electric supply and communication lines and equipment. The code, which must be adopted by states on an individual basis, is not applicable in the State of California. As stated previously, the State of California has adopted its own standard (General Order 95) rather than a general national standard. The National Electric Safety Code is not discussed further.

North American Electric Reliability Corporation Standards

The NERC is a nonprofit corporation that comprises 10 regional reliability councils. The overarching goal of NERC is to ensure the reliability of the bulk power system in North America. To achieve its goal, the NERC develops and enforces reliability standards, monitors the bulk power systems, and educates, trains, and certifies industry personnel (NERC 2019). In order to improve the reliability of regional electric transmission systems and in response to the massive widespread power outage that occurred on the eastern seaboard in 2003, NERC developed a transmission vegetation management program that is applicable to all transmission lines operated at 200 kilovolts and above and to lower-voltage lines designated by the Regional Reliability Organization as critical to the reliability of the electric system in the region. The plan, which became effective on April 7, 2006, establishes requirements of the formal transmission vegetation management program, which include identifying and documenting clearances between vegetation and any overhead, ungrounded supply conductors, while taking into consideration transmission line voltage, the effects of ambient temperature on conductor sag under maximum design loading, fire risk, line terrain and elevation, and the effects of wind velocities on conductor sway (NERC 2006). The clearances identified must be no less than those set forth in the Institute of Electrical and Electronics Engineers Standard 516-2009 (Guide for Maintenance Methods on Energized Power Lines) (NERC 2006).

Institute of Electrical and Electronics Engineers Standards 516-2009

The Institute of Electrical and Electronics Engineers is a leading authority in setting standards for the electric power industry. Standard 516-2009, Guide for Maintenance Methods on Energized Power Lines, establishes minimum vegetation-to-conductor clearances in order to maintain electrical integrity of the electrical system.

State

California Fire Code

The California Fire Code (CFC) is Chapter 9 of Title 24 of the California Code of Regulations. It was created by the California Building Standards Commission and is based on the International Fire Code created by the International Code Council. It is the primary means for authorizing and enforcing procedures and mechanisms to ensure the safe handling and storage of any substance that may pose a threat to public health and safety. The CFC regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. The CFC and the California Building Code use a hazards classification system to determine what protective measures are required to protect fire and life safety. These measures may include construction standards, separations from property lines, and specialized equipment. To ensure that these safety measures are met, the CFC employs a permit system based on hazard classification. The CFC is updated every 3 years.

California Public Resources Code

These regulations are discussed in further detail as follows:

- **California Public Resources Code, Section 4292,** states that a minimum firebreak of 10 feet in all directions from the outer circumference of a pole or tower be established around any pole that supports a switch, transformer, lightning arrester, line junction, or end or corner pole. All vegetation shall be cleared within the firebreak.
- **California Public Resources Code, Section 4293,** establishes the minimum vegetation clearance distances (between vegetation and energized conductors) required for overhead transmission line construction. Minimum clearances are discussed as follows:
    - A minimum radial clearance of 4 feet shall be established for any conductor of a line operating at 2,400 or more volts but less than 72,000 volts.
    - A minimum radial clearance of 6 feet shall be established for any conductor of a line operating at 72,000 or more volts but less than 110,000 volts.
    - A minimum radial clearance of 10 feet shall be established for any conductor of a line operating at 110,000 or more volts but less than 300,000 volts.
    - A minimum radial clearance of 15 feet shall be established for any conductor of a line operating at 300,000 or more volts.

Specific requirements applicable to the construction and operation of the proposed project include those from California Public Resources Code, Division 4, Chapter 6:

- **Section 4427 –** Operation of fire-causing equipment.
- **Section 4428** – Use of hydrocarbon-powered engines near forest, brush, or grass-covered lands without maintaining firefighting tools.
- **Section 4431** – Gasoline-powered saws and firefighting tools.
- **Section 4442** – Measures, requirements, and exemptions for spark arresters.

California Department of Forestry and Fire Protection

CAL FIRE is tasked with reducing wildfire-related impacts and enhancing California's resources. CAL FIRE responds to all types of emergencies including wildland fires and residential/commercial structure fires. In addition, CAL FIRE is responsible for the protection of approximately 31 million acres of private land within the state and, at the local level, is responsible for inspecting defensible space around private residences. CAL FIRE is responsible for enforcing State of California fire safety codes included in the California Code of Regulations and the

California Public Resources Code. Section 1254 of the CEQA Guidelines identifies minimum clearance requirements required around utility poles.

CAL FIRE also inspects utility facilities and makes recommendations regarding improvements in facility design and infrastructure. Joint inspections of facilities by CAL FIRE and the utility owner are recommended by CAL FIRE so that each entity may assess the current state of the facility and successfully implement fire prevention techniques and policies. Violations of state fire codes discovered during inspections are required to be brought into compliance with the established codes. If a CAL FIRE investigation reveals that a wildfire occurred as a result of a violation of a law or negligence, the responsible party could face criminal and/or misdemeanor charges (CAL FIRE 2008c). For cases where a violation of a law or negligence has occurred, CAL FIRE has established the Civil Cost Recovery Program, which requires parties liable for wildfires to pay for wildfire-related damages.

More detailed descriptions of the applicable codes and regulations and images of exempt and non-exempt power line structures may be found in the CAL FIRE Power Line Fire Prevention Field Guide (CAL FIRE 2008c).

California Public Utilities Commission General Order 95: Rules for Overhead Transmission Line Construction

General Order 95 governs the design, construction, and maintenance of overhead electrical lines. Rule 31.1 generally states that design, construction, and maintenance of overhead electrical lines should be done in accordance with accepted good practices for the given location conditions known at the time by the persons responsible for the design, construction, and maintenance of the overhead electrical lines and equipment. Rule 35 of General Order 95 (Tree Trimming) requires the following:

- 4 feet radial clearances for any conductor of a line operating at 2,400 volts or more, but less than 72,000 volts.
- 6 feet radial clearances for any conductor of a line operating at 72,000 volts or more, but less than 110,000 volts.
- 10 feet radial clearances for any conductor of a line operating at 110,000 volts or more, but less than 300,000 volts (this would apply to the proposed project).
- 15 feet radial clearances for any conductor of a line operating at 300,000 volts or more.

Fire Hazard Severity Zones

CAL FIRE mapped FHSZs in California based on fuel loading, slope, fire weather, and other relevant factors as directed by California Public Resources Code, Sections 4201–4204, and

California Government Code, Sections 51175–51189. FHSZs are ranked from Moderate to Very High and are categorized for fire protection within a Federal Responsibility Area, SRA, or LRA under the jurisdiction of a federal agency, CAL FIRE, or local agency, respectively. The proposed project is located in the LRAs for San Francisco and San Mateo counties.

California Public Utilities Commission Fire Threat Zones

In 2018, the CPUC approved a statewide Fire-Threat Map which delineates a High Fire-Threat District and is intended to assist with implementation of new fire prevention rules. The map delineates areas in the state where there is an elevated risk and an extreme risk (including likelihood and potential impacts on people and property) from utility-associated wildfires. The Fire-Threat Map helps prioritize fire hazard areas to allow for implementation of new fire-safety regulations adopted by the CPUC in December 2017. Electric investor-owned utilities must file an annual report that contains a fire-prevention plan containing specified information for its overhead electric facilities in the High Fire-Threat District. Increased vegetation management and new fire regulations also apply to the High Fire-Threat District.

Local

Adopted Emergency Response Plans/Evacuation Plans

City and County of San Francisco Emergency Management Program

The City and County of San Francisco Emergency Management Program is part of a jurisdiction-wide system that provides emergency management guidance related to prevention, preparedness, response, and recovery. The City and County of San Francisco's Emergency Response Plan uses an all-hazards approach to emergency planning; therefore, it encompasses all hazards that are applicable to the city and the county, both natural and man-made, ranging from planned events to large-scale disasters (City and County of San Francisco 2010). The plan describes the coordination, roles, and responsibilities of responding agencies and how the City and County of San Francisco works with state and federal partners during an emergency.

Different types of emergencies, such as fires, a release of hazardous materials, or other incidents, may require evacuation actions. In the event of an emergency evacuation, accessible routes would be established by the San Francisco Police Department in collaboration with the San Francisco Department of Public Works, San Francisco Municipal Transportation Authority, California Department of Transportation, and California Highway Patrol (City and County of San Francisco 2010).

County of San Mateo Emergency Operations Plan

The County of San Mateo Emergency Operations Plan (EOP) is the base plan that governs the roles and responsibilities of the County of San Mateo in times of extraordinary emergency or disaster (County of San Mateo 2015). The EOP establishes policies and procedures and assigns responsibilities to ensure the effective management of emergency operations within the San Mateo County Operational Area. The EOP provides information on the County's emergency management structure regarding how and when the Emergency Operations Center staff are activated. The EOP also describes the county's coordination and support for law enforcement, public safety, and security capabilities and resources during an emergency or disaster situation, including evacuation and movement of the public away from a hazard area and enforcing limited access to hazardous or isolation areas.

D.15.3 Environmental Impacts and Mitigation Measures

D.15.3.1 Definition and Use of Significance Criteria

Appendix G of CEQA (14 CCR 15000 et seq.) provides guidance for evaluating whether a project may result in significant impacts. In accordance with Appendix G of the CEQA Guidelines, if located in or near state responsibility areas or lands classified as VHFHSZs, the project would have a significant impact on wildfire if it would:

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

Impact WF-2 Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of wildfire.

Impact WF-3 Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.

Impact WF-4 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.

D.15.3.2 Applicant Proposed Measures

Pacific Gas & Electric Company did not propose applicant proposed measures for wildfires.

D.15.3.3 Project Impacts

Impact WF-1 Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

Construction, operation, and maintenance activities for the proposed project would occur within existing roadways or paved shoulders, which would require temporary road closures during construction and maintenance activities. For the U.S. Highway 101 crossing, trenchless construction technology would be used to avoid lane closures. In places where project construction may require a temporary road closure, construction activities would be coordinated with the local jurisdiction so as not to cause closure of any emergency access route (see Applicant Proposed Measure TR-1 in Section D.13, Transportation). Flaggers may briefly hold traffic back for construction equipment, but emergency vehicles would be provided access even in the event of temporary road closures. Because streets would remain open to emergency vehicles at all times, construction of the proposed project would not impact emergency access and would minimally and temporarily impact emergency evacuation. The proposed project would not substantially impair the implementation of an adopted emergency response plan or emergency evacuation plan; therefore, potential impacts during project construction, operation and maintenance impacts would be less than significant (Class III).

Impact WF-2 Would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?

The project site would be located within urbanized areas that are not classified as Moderate, High, or Very High FHSZs. However, approximately 0.1 miles of the proposed Jefferson-Egbert transmission line along Carter Street is located adjacent to the San Bruno Mountain State Park, which is an SRA and designated as a High FHSZ. The transmission line along this section of the proposed project would be underground and would therefore not exacerbate wildfire risk during operations. Construction and maintenance activities would occur within the roadway or paved shoulder (i.e., hardscape) and would not alter existing vegetation within or adjacent to San Bruno Mountain State Park, directly west of Carter Street.

During construction and maintenance activities, sparks from construction tools/equipment, as well as the use of flammable hazardous materials, have the potential to ignite vegetated areas within the High FHSZ adjacent to Carter Street. Construction and maintenance vehicles would operate only on existing, paved surfaces and are not expected to increase ignition potential beyond existing conditions. Implementation of Mitigation Measure (MM) WF-1 would minimize the potential for ignitions in vegetated areas along Carter Street during construction and maintenance activities.

With implementation of MM WF-1, the proposed project would not exacerbate wildfire risks and impacts would be less than significant (Class II).

MM WF-1

Pacific Gas & Electric Company (PG&E) shall prepare a Project Fire Prevention Plan that addresses procedures for fire prevention at active construction sites and during project maintenance activities for the approved project areas within 1,000 feet of the San Bruno Mountain State Park (classified as a high fire hazard severity zone). The Project Fire Prevention Plan shall include requirements for carrying emergency fire suppression equipment, conducting "tailgate meetings" that cover fire safety discussions, proper use of tools and equipment, restricting smoking, idling vehicles, and restricting construction or maintenance activities during high fire hazard periods. The Project Fire Prevention Plan shall address the following fire risk reduction measures:

- Training and briefing all personnel constructing or maintaining the project in fire prevention and suppression methods
- Conducting a fire prevention discussion at each morning's construction safety meeting
- Procedures for minimizing potential ignition, including, but not limited to, vegetation clearing, parking requirements/restrictions, idling restrictions, smoking restrictions, proper use of gas-powered equipment, use of spark arrestors, and hot work restrictions
- Work restrictions during Red Flag Warnings and High to Extreme Fire Danger days
- Storage of fire suppression tools and backpack pumps with water within 30 feet of work activities
- Water sources, including water storage tanks or water trucks that would be used in case of a fire
- Assigning personnel to conduct a "fire watch" or "fire patrol" to ensure that risk mitigation and fire preparedness measures are implemented, immediate reporting of a fire, and to coordinate with emergency response personnel in the event of a fire

The Project Fire Prevention Plan shall be submitted to the California Public Utilities Commission (CPUC) for review and approval at least 30 days prior to initiation of all construction activities in areas within 1,000 feet of the San Bruno Mountain

State Park (classified as a high fire hazard severity zone), including equipment staging and materials delivery.

Impact WF-3 Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Construction, operation, and maintenance activities for the proposed project would occur within the roadway or paved shoulder (i.e., hardscape) and would not alter the existing landscape within or adjacent to the High FHSZ directly west of Carter Street. Project components adjacent to the High FHSZ would be limited to the underground transmission line. No other project components or associated infrastructure are proposed for this area. As this portion of the transmission line would be underground, it would not exacerbate fire risk or result in temporary or ongoing impacts to the environment beyond those identified in other sections of this EIR (No Impact).

Impact WF-4 Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

The proposed project is an infrastructure project that would not expose people or structures to post-fire flooding or landslide risks. All proposed construction, operation, and maintenance activities would occur within existing roadways or paved shoulders (i.e., hardscape) and would not alter drainages, slopes, or runoff patterns or require alterations to native vegetation within or adjacent to the High FHSZ directly west of Carter Street. Further, with the implementation of MM WF-1, the risk of ignition resulting from proposed project construction and maintenance activities is low. Therefore, the proposed project would not increase post-fire risks to people residing downslope of the project site, east of the High FHSZ (No Impact).

D.15.4 Project Alternatives

D.15.4.1 Bayshore Switching Station Alternative

Environmental Setting

The Bayshore Switching Station Alternative would be located primarily within disturbed areas with sections of pavement, gravel, diel, mature trees, and ruderal vegetation in San Mateo County. The project site is primarily surrounded by residential uses, with commercial, public, industrial, and open space uses also occurring along the proposed transmission line routes and near the Bayshore Switching Station site.

Based on CAL FIRE's 2008 FHSZ map for the County of San Mateo, the Bayshore Switching Station and associated transmission lines would be classified as Non-VHFHSZ (CAL FIRE 2008b). In addition, none of the portions of this alternative would occur within CPUC's mapped High Fire Threat District (CPUC 2018).

Environmental Impacts

The Bayshore Switching Station Alternative is not within or near SRAs or lands classified as VHFHSZs. Therefore, this alternative would not increase risk for wildfire (No Impact).

Comparison to the Proposed Project

Under the proposed project, only a small segment (0.1 acres) of the proposed project Jefferson-Egbert transmission line along Carter Street is located adjacent to the San Bruno Mountain State Park, which is an SRA and designated as a High FHSZ. The Bayshore Switching Station Alternative is not within an LRA or SRA classified as Moderate, High, or Very High FHSZ. Implementation of the Bayshore Switching Station Alternative would not increase potential for environmental impacts associated with wildfires; therefore, wildfire impacts would be less as compared to the proposed project.

D.15.4.2 Geneva Switching Station Alternative

Environmental Setting

The Geneva Switching Station Alternative would be located primarily within existing paved areas in the urbanized areas of the City and County of San Francisco, City of Daly City, and City of Brisbane. The switching station site and associated transmission alignments are surrounded by commercial and residential land uses, with some industrial development on the east end of the project site.

Based on CAL FIRE's 2008 FHSZ map for the County of San Francisco, the county has no VHFHSZs occurring in an LRA, and the area near the intersection of Carter Street and Geneva Avenues, within the City and County of San Francisco is classified as unzoned (CAL FIRE 2008a). Based on CAL FIRE's 2008 FHSZ map for the County of San Mateo, the Geneva Switching Station and associated transmission lines would be classified as Non-VHFHSZ (CAL FIRE. 2008b). In addition, none of the portions of this alternative would occur within CPUC's mapped High Fire Threat District (CPUC 2018).

The southern, approximately 0.1-mile portion of the Jefferson-Martin transmission line would be located in San Mateo County, adjacent to the San Bruno Mountain State Park. The park is an SRA designated as a High FHSZ (see Figure D.15-1).

Environmental Impacts and Mitigation Measures

Impact WF-1: Construction, operation, and maintenance activities for the Geneva Switching Station Alternative would occur within existing roadways or paved shoulders, which would require temporary road closures during construction and maintenance activities. In places where construction may require a temporary road closure, flaggers may briefly hold traffic back for construction equipment, but emergency vehicles would be provided access even in the event of temporary road closures. Because streets would remain open to emergency vehicles at all times, construction of the proposed project would not impact emergency access and would minimally and temporarily impact emergency evacuation. The proposed project would not substantially impair the implementation of an adopted emergency response plan or emergency evacuation plan (Class III).

Impact WF-2: The segment of the alternative Jefferson-Martin transmission line adjacent to the High FHSZ (San Bruno Mountain State Park) would be installed underground and would therefore not exacerbate wildfire risk during operations. Construction and maintenance activities would occur within the roadway or paved shoulder (i.e., hardscape) and would not alter existing vegetation within or adjacent to San Bruno Mountain State Park directly west of Carter Street.

During construction and maintenance activities, sparks from construction tools/equipment, as well as the use of flammable hazardous materials, have the potential to ignite vegetated areas within the High FHSZ adjacent to Carter Street. Implementation of MM WF-1 would minimize the potential for ignitions in vegetated areas along Carter Street during construction and maintenance activities and reduce potential to exacerbate wildfire risks to less-than-significant levels (Class II).

Impact WF-3: Construction, operation, and maintenance of the alternative Jefferson-Martin transmission line adjacent to the High FHSZ would not alter existing landscape within or adjacent to the High FHSZ. Improvements would be limited to installation of the underground transmission line and no other components or associated infrastructure would be required in this area (No Impact).

Impact WF-4: All construction, operation, and maintenance activities would occur within existing roadways or paved shoulders (i.e., hardscape) and would not alter drainages, slopes, or runoff patterns or require alterations to native vegetation within or adjacent to the High FHSZ directly west of Carter Street. Further, with the implementation of MM WF-1, the risk of ignition resulting from construction and maintenance activities is low. Therefore, the proposed project would not increase post-fire risks to people residing downslope of the project site, east of the High FHSZ (No Impact).

Comparison to the Proposed Project

The Geneva Switching Station Alternative would include construction of the alternative Jefferson-Martin transmission line along Carter Street, similar to the Jefferson-Egbert transmission line under the proposed project. This approximate 0.1-mile portion of the alternative Jefferson-Martin transmission line, adjacent to a High FHSZ west of Carter Street, would result in potential wildfire impacts similar to the proposed project, and mitigation (MM WF-1) would apply to both this alternative and to the proposed project.

D.15.4.3 Sunnydale HOPE SF Avoidance Line Alternative Option A

Environmental Setting

The Sunnydale HOPE SF Avoidance Line Alternative Option A (Sunnydale Option A Alternative) would be located within disturbed areas within existing roadways in the City and County of San Francisco. The project site is primarily surrounded by residential uses, with commercial uses along Geneva Avenue. The Sunnydale Option A Alternative is limited to the alternative line segment. Existing conditions (Section D.15.1) and environmental impacts (Section D.15.3) would remain unchanged for the Egbert Switching Station, Martin-Egbert transmission line, Egbert-Embarcadero transmission line, Martin Substation, and the remainder of the Jefferson-Egbert transmission line.

Based on CAL FIRE's 2008 FHSZ map for the County of San Francisco, the Sunnydale Option A Alternative would be classified as Non-VHFHSZ (CAL FIRE 2008a). Additionally, none of the portions of this alternative would occur within CPUC's mapped High Fire Threat District (CPUC 2018).

Environmental Impacts

The Sunnydale Option A Alternative would not be developed within or near SRAs or lands classified as Moderate, High, or Very High FHSZs. Therefore, this alternative would not increase risk for wildfire (No Impact).

Comparison to the Proposed Project

The Sunnydale Option A Alternative line segment would be located in an urban residential area near the segment of the Jefferson-Egbert transmission line it is proposed to replace. Neither line segment is within nor near SRAs or lands classified as Moderate, High, or Very High FHSZs; therefore, neither line segment of this alternative or the proposed project would result in impacts associated with wildfire.

D.15.4.4 No Project Alternative

Under the No Project Alternative, none of the facilities associated with the proposed project or alternatives would be constructed, and therefore, none of the impacts described in this section would occur.

D.15.5 Mitigation Monitoring, Compliance, and Reporting

Table D.15-1 shows the mitigation monitoring, compliance, and reporting program (MMCRP) for wildfire. The CPUC is responsible for ensuring compliance with provisions of the monitoring program. The mitigation measure developed as part of the EIR analysis is listed in the following table.

Table D.15-1
Mitigation, Monitoring, Compliance and Reporting Program for Wildfire

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
Impact WF-2 Exacerbate wildfire risks Impact WF-4 Expose people or structures to post-fire flooding or landside risk	WF-1	—	Pacific Gas & Electric Company (PG&E) shall prepare a Project Fire Prevention Plan that addresses procedures for fire prevention at active construction sites and during project maintenance activities for the approved project areas within 1,000 feet of the San Bruno Mountain State Park (classified as a high fire hazard severity zone). The Project Fire Prevention Plan shall include requirements for carrying emergency fire suppression equipment, conducting "tailgate meetings" that cover fire safety discussions, proper use of tools and equipment, restricting smoking, idling vehicles, and restricting construction or maintenance activities during high fire hazard periods. The Project Fire Prevention Plan shall address the following fire risk reduction measures: • Training and briefing all personnel constructing or maintaining the project in fire prevention and suppression methods • Conducting a fire prevention discussion at each morning's construction safety meeting • Procedures for minimizing potential ignition, including, but not limited to, vegetation clearing, parking requirements/ restrictions, idling restrictions, smoking restrictions, proper use of gas-powered equipment, use of spark arrestors, and hot work restrictions • Work restrictions during Red Flag Warnings and High to Extreme Fire Danger days • Storage of fire suppression tools and backpack pumps with water within 30 feet of work activities	Pacific Gas & Electric Company to implement measure as defined and incorporate commitments into construction contracts. Contractor must immediately report any fire to the authority with jurisdiction	California Public Utilities Commission to periodically inspect the construction site to ensure that required equipment present Add any fire notifications from the contractor to the project file, for record.	During construction, adjacent to wildland vegetation on Carter Street

Table D.15-1
Mitigation, Monitoring, Compliance and Reporting Program for Wildfire

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
			• Water sources, including water storage tanks or water trucks that would be used in case of a fire • Assigning personnel to conduct a "fire watch" or "fire patrol" to ensure that risk mitigation and fire preparedness measures are implemented, immediate reporting of a fire, and to coordinate with emergency response personnel in the event of a fire The Project Fire Prevention Plan shall be submitted to the California Public Utilities Commission (CPUC) for review and approval at least 30 days prior to initiation of all construction activities in areas within 1,000 feet of the San Bruno Mountain State Park (classified as a high fire hazard severity zone), including equipment staging and materials delivery			

D.15.6 References Cited

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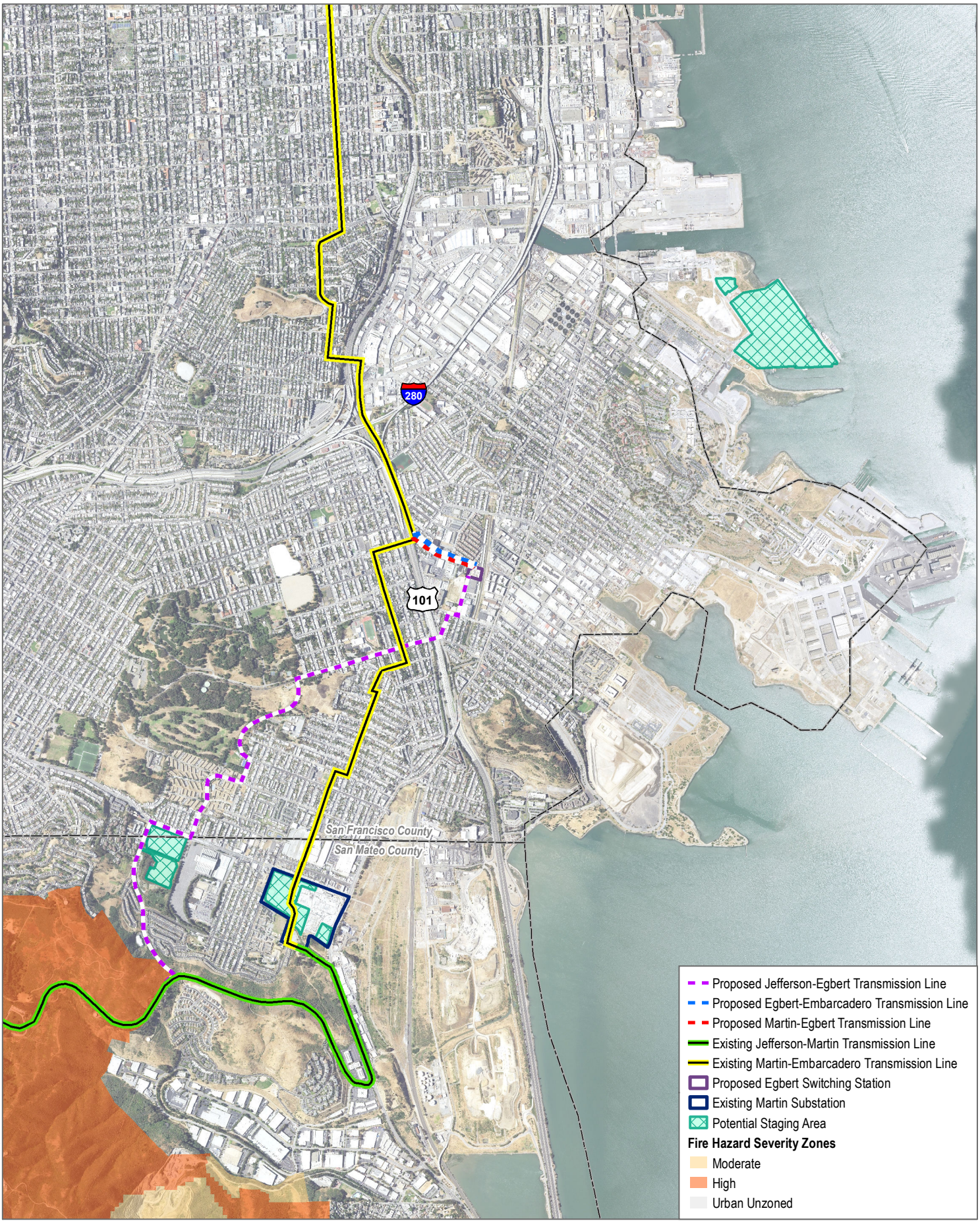
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SOURCE: CalFire 2008; USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

DUDEK

0 1,500 3,000 Feet

FIGURE D.15-1

Fire Hazard Severity Zones

Egbert Switching Station (Martin Substation Extension) Project

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D.16 ELECTROMAGNETIC FIELDS

Recognizing that there is a great deal of public interest and concern regarding potential health effects from exposure to electromagnetic fields (EMFs), this Environmental Impact Report (EIR) section provides information regarding EMFs associated with electric utility lines and the associated potential effects of Pacific Gas & Electric Company's (PG&E's) Egbert Switching Station (Martin Substation Extension) Project (proposed project) as they relate to public health and safety. Currently, the State of California has not adopted exposure limits for power-frequency electric or magnetic fields. Therefore, this section does not consider EMFs in the context of the California Environmental Quality Act for determination of environmental impacts, because there is no agreement among scientists that EMFs create a health risk, and because there are no defined or adopted California Environmental Quality Act standards for defining health risks from EMFs associated with electric utility facilities. However, the California Public Utilities Commission (CPUC), in Decision 06-01-042 (CPUC 2006a), affirmed a low-cost and no-cost policy to reduce EMF exposure from new utility transmission and substation projects. In addition, in a separate report, CPUC also adopted rules and policies to improve utility design guidelines for reducing EMFs (CPUC 2006b). PG&E has prepared a Preliminary Field Management Plan (PG&E 2017a), and prior to the notice to proceed for this project, the CPUC will review and approve PG&E's Final Field Management Plan based on the final engineering design of the project. The following EMF information is presented to allow understanding of the issue by the public and decision makers.

The discussion of EMF presented in this draft EIR is based on the following technical reports and incorporated herein:

- EMF Design Guidelines for Electrical Facilities, PG&E, July 2006 (Appendix D.16-1)
- Preliminary Transmission EMF Management Plan, Egbert Switching Station Project, PG&E (Appendix D.4-2)

D.16.1 Defining Electromagnetic Fields

Electric fields and magnetic fields are distinct phenomena that occur both naturally and as a result of human activity across a broad spectrum. Naturally occurring electric and magnetic fields are caused by atmospheric conditions and Earth's geomagnetic field. The fields caused by human activity result from technological application of the electromagnetic spectrum for uses such as communications; appliances; and the generation, transmission, and local distribution of electricity. Electric and magnetic fields are vector quantities that have the properties of direction and amplitude (field strength).

Electric and magnetic fields of power lines have the additional property of frequency, which is determined by the rate at which electric and magnetic fields change their direction each second. The hertz (Hz) is the unit of frequency. For power lines in the United States, the frequency of change is 60 times per second, leading to the designation "60 Hz power."

Electric power flows across transmission systems from generating sources to serve electrical loads within the community. The power flowing over a transmission line is determined by the transmission line voltage and the current. The higher the voltage level of the transmission line, the lower the amount of current needed to deliver the same amount of power. For example, a 115,000-volt (115-kilovolt [kV]) transmission line with 200 amperes of current would transmit approximately 40,000 kilowatts, whereas a 230 kV transmission line requires only 100 amperes of current to deliver the same 40,000 kilowatts.

Electric Fields

Electric fields from power lines are created whenever the lines are energized, with the strength of the field dependent directly on the voltage of the line creating it. Electric field strength is typically described in units of kilovolt per meter. Electric field strength attenuates (gets weaker) rapidly as the distance from the source increases.

Electric fields are reduced at many receptors, because they are effectively shielded by most objects or materials such as trees or houses and are distorted by any object that is within the electric field, including the human body. Even trying to measure an electric field with electronic instruments is difficult, because the devices themselves can alter the levels recorded. Determining an individual's exposure to electric fields requires the understanding of many variables, including the electric field itself, how effectively a person is grounded, and a person's body surface area within the electric field.

Electric fields in the vicinity of high-voltage power lines can be strong enough to cause phenomena similar to the static electricity experienced on a dry winter day, or with clothing just removed from a clothes' dryer, and may result in electric discharges when touching long metal fences, pipelines, or large vehicles.

Magnetic Fields

Magnetic fields from power lines are created whenever current flows through power lines at any voltage. The strength of the field is directly dependent on the current in the line. Magnetic field strength is typically measured in milligauss (mG). Similar to electric field strength, magnetic field strength attenuates rapidly with distance from the source. Magnetic fields penetrate most substances and are essentially unaffected by buildings, trees, and other entities, except those made

with a ferromagnetic metal. Consequently, unlike electric fields, magnetic fields are not shielded by most objects or materials.

Comparison of Electric and Magnetic Fields

The nature of electric and magnetic fields can be illustrated by considering a household appliance. When the appliance is energized by being plugged into an outlet but not turned on, in that no current would be flowing through it, an electric field would be generated around the cord and appliance, but no magnetic field would be present. If the appliance is switched on, the electric field would still be present, and a magnetic field would be created. The electric field strength is directly related to the magnitude of the voltage from the outlet, and the magnetic field strength is directly related to the magnitude of the current flowing in the cord and appliance.

D.16.2 Electromagnetic Field Sources in the Project Site

EMF exposure to the public in developed areas varies over a range of field intensities and durations due to sources in the home and work environments, electric power distribution, and, infrequently, from proximity to transmission lines.

The proposed project is within urban areas of City and County of San Francisco, and the Cities of Daly City and Brisbane. There are existing aboveground and underground electric utilities within the project vicinity. PG&E's project proposes to underground up to 4.3 miles of 230 kV transmission lines that would be installed mainly in paved areas and a new switching station constructed on a 1.7-acre site on Egbert Avenue in the Bayview area of City and County of San Francisco (see Figures B-1 and B-2 of Section B, Project Description, of this EIR). Land uses adjacent to the proposed transmission lines and switching station include industrial, commercial, residential, day care, schools, and open space. Therefore, nearby residences, workers, bicyclists, pedestrians, and motorists would be located near the proposed underground transmission lines and new switching station, and this would result in public exposure to EMFs when in the vicinity of the underground electric transmission lines.

D.16.3 Scientific Background and Regulations Applicable to Electromagnetic Fields

EMF Research

For more than 30 years, researchers have questioned the potential effects that EMFs from power lines have had on the environment. Early studies focused primarily on interactions with the electric fields from power lines. The subject of magnetic field interactions began to receive additional public attention in the 1980s as research increased. A substantial amount of research investigating both electric and magnetic fields has been conducted over the past several decades; however, much

of the body of national and international research regarding EMFs and public health risks remains contradictory or inconclusive.

Extremely low frequency fields are known to interact with tissues by inducing electric fields and currents. The electric currents induced by extremely low frequency fields commonly found in the environment are normally much lower than the strongest electric currents naturally occurring in the body such as those that occur due to the beating of the heart.

Research related to EMFs is easily grouped into three general categories: cellular level studies, animal and human experiments, and epidemiological studies. Epidemiological studies have provided mixed results, with some studies showing an apparent relationship between magnetic fields and health effects, whereas other similar studies do not. Laboratory studies and studies investigating a possible mechanism for health effects (mechanistic studies) provide little or no evidence to support this link.

Since 1979, public interest and concern specifically regarding magnetic fields from power lines has increased. The origin of this increase in concern has generally been attributed to publication of the results of a single epidemiological study (Wertheimer and Leeper 1979). This study observed an association between the wiring configuration on electric power lines outside of homes in greater Denver, Colorado, and the incidence of childhood cancer. Since publication of the Wertheimer and Leeper (1979) study, many epidemiological, laboratory, and animal studies regarding EMFs have been conducted.

Research on ambient magnetic fields in homes and buildings in several western states found average magnetic field levels within rooms to be approximately 1 mG; in a room with appliances present, the measured values ranged from 9 to 20 mG (Severson et al. 1988; Silva et al. 1988). Immediately adjacent to appliances (within 12 inches), field values are much higher, as illustrated in Table D.16-1. This table indicates typical sources and levels of electric and magnetic field exposure to the general public from appliances typical for the time at which the measurements were made.

Table D.16-1
Magnetic Field from Household Appliances

Appliance	Magnetic Field (mG)	
	12-Inch Distance	*Maximum*
Electric range	3–30	100–1,200
Electric oven	2–25	10–50
Garbage disposal	10–20	850–1,250
Refrigerator	0.3–3	4–15
Clothes washer	2–30	10–400
Clothes dryer	1–3	3–80

Table D.16-1
Magnetic Field from Household Appliances

Appliance	Magnetic Field (mG)	
	12-Inch Distance	*Maximum*
Coffee maker	0.8–1	15–250
Toaster	0.6–8	70–150
Crockpot	0.8–1	15–80
Iron	1–3	90–300
Can opener	35–250	10,000–20,000
Mixer	6–100	500–7,000
Blender, popper, food processor	6–20	250–1,050
Vacuum cleaner	20–200	2,000–8,000
Portable heater	1–40	100–1,100
Fans/blowers	0.4–40	20–300
Hair dryer	1–70	60–20,000
Electric shaver	1–100	150–15,000
Color TV	9–20	150–500
Fluorescent fixture	2–40	140–2,000
Fluorescent desk lamp	6–20	400–3,500
Circular saws	10–250	2,000–10,000
Electric drill	25–35	4,000–8,000

Source: Gauger 1985.
Notes: mG = milligauss.

Methods to Reduce EMFs

EMF levels from transmission lines can be reduced in three primary ways: shielding, field cancellation, or increasing the distance from the source. Shielding, which reduces exposure to electric fields, can be actively accomplished by placing trees or other physical barriers along the transmission line right-of-way (ROW). Shielding also results from existing structures the public may use or occupy along the line. Electric fields can be substantially reduced by most building materials, but common materials do not effectively shield magnetic fields.

Instead, some environmental magnetic fields can be reduced either by cancellation or by increasing distance from the source. Cancellation is achieved in two ways. A transmission line circuit consists of three phases, requiring three separate wires (conductors) on a transmission tower. The configuration of these three conductors can reduce magnetic fields. First, when the configuration places the three conductors closer together, interference, or cancellation, of the fields from each wire is enhanced. This technique has practical limitations because of the potential for short circuits if the wires are placed too close together. There are also worker safety issues to consider if spacing is reduced. Second, in instances where there are two circuits (more than three phase wires), cancellation can be accomplished by arranging phase wires from different circuits near each other.

In underground lines, the three phases are typically much closer together than in overhead lines because the cables are insulated (coated). The distance between the source of fields and the public can be increased by either placing the wires higher above ground, burying underground cables deeper, or by increasing the width of the ROW. These methods can prove effective in reducing fields, because field strength drops rapidly with distance.

Scientific Panel Reviews

Numerous panels of expert scientists have convened to review the data relevant to the question of whether exposure to power-frequency EMFs are associated with adverse health effects. These evaluations have been conducted to advise governmental agencies or professional standard-setting groups. On behalf of the CPUC, the California Department of Health Services (DHS) completed a comprehensive review of existing studies related to EMFs from power lines and potential health risks (Neutra et al. 2002). This risk evaluation was undertaken by three DHS staff scientists. Each of these scientists is identified in the review results as an epidemiologist, and their work took place from 2000 to 2002. The results of this review, "An Evaluation of the Possible Risks from Electric and Magnetic Fields (EMFs) From Power Lines, Internal Wiring, Electrical Occupations, and Appliances," were published in June 2002. The conclusions contained in the executive summary are provided as follows (Neutra et al. 2002):

- To one degree or another, all three of the DHS scientists are inclined to believe that EMFs can cause some degree of increased risk of childhood leukemia, adult brain cancer, Lou Gehrig's disease (Amyotrophic lateral sclerosis), and miscarriage.
- They strongly believe that EMFs do not increase the risk of birth defects or low birth weight.
- They strongly believe that EMFs are not universal carcinogens, given that there are a number of cancer types that are not associated with EMF exposure.
- To one degree or another, they are inclined to believe that EMFs do not cause an increased risk of breast cancer, heart disease, Alzheimer's disease, depression, or symptoms attributed by some to sensitivity to EMFs. However, all three scientists had judgments that were "close to the dividing line between believing and not believing" that EMFs cause some degree of increased risk of suicide.
- For adult leukemia, two of the scientists are "close to the dividing line between believing or not believing" and one was "prone to believe" that EMFs cause some degree of increased risk.

The report indicates that the DHS scientists are more inclined to believe that EMF exposure increased the risk of the listed health problems than the majority of the members of scientific committees that have previously convened to evaluate the scientific literature. With regard to why the DHS review's conclusions differ from those of other recent reviews, the report states (Neutra et al. 2002):

> The three DHS scientists thought there were reasons why animal and test tube experiments might have failed to pick up a mechanism or a health problem; hence, the absence of much support from such animal and test tube studies did not reduce their confidence much or lead them to strongly distrust epidemiological evidence from statistical studies in human populations. They therefore had more faith in the quality of the epidemiological studies in human populations and hence gave more credence to them.

In addition to the DHS group (Neutra et al. 2002) and earlier evaluations for the U.S. Congress (mentioned below) and various scientific bodies, several expert panels drew on international scientific expertise over a range of specialties to evaluate the scientific literature and its uncertainties regarding the level of health risk posed by EMFs (for example, SCENIHR 2015). Although conclusions differed in the manner of summarizing health risks for some key areas, particularly childhood leukemia, scientific panels, including those cited below concerning international and national guidelines, have not been able to reach consensus on what level of magnetic field exposure from power lines, if any, may constitute a health risk.

Policies, Standards, and Regulations

A number of counties, states, and local governments have adopted or considered regulations or policies related to EMF exposure. The reasons for these actions have been varied; in general, however, the actions can be attributed to addressing public reaction to and perception of EMFs as opposed to responding to the findings of any specific scientific research. Currently, California has not adopted exposure limits for power frequency electric or magnetic fields. Following is a brief summary of the guidelines and regulatory activity regarding EMFs.

International Guidelines

The International Radiation Protection Association, in cooperation with the World Health Organization, has published recommended guidelines for electric and magnetic field exposures (ICNIRP 2010). For the general public, the limits are 4.2 kV per meter for electric fields and 833 mG for magnetic fields. These organizations have neither governmental authority nor recognized jurisdiction to enforce these guidelines. However, because they were developed by a broad base of scientists, these guidelines have been given merit and are considered by utilities and regulators when reviewing EMF levels from electric power lines.

National Guidelines

Although the U.S. Environmental Protection Agency has conducted investigations into EMFs related to power lines and health risks, no national standards have been established. There have been a number of studies sponsored by the U.S. Environmental Protection Agency, the Electric Power Research Institute, and other institutions. Several bills addressing EMFs have been

introduced at the congressional level and have provided funding for research; however, no bill has been enacted that would regulate EMF levels.

The 1999 National Institute of Environmental Health Sciences report to Congress suggested that the evidence supporting EMF exposure as a health hazard was insufficient to warrant aggressive regulatory actions. The report suggested passive measures to educate the public and regulators on means aimed at reducing exposures. The report also suggested the power industry continue its practice of siting lines to reduce public exposure to EMFs and to explore ways to reduce the creation of magnetic fields around lines. According to National Institute of Environmental Health Sciences, the strongest EMF around the outside of a substation comes from the power lines entering and leaving the substation. The strength of the EMF from equipment within the substations, such as transformers, reactors, and capacitor banks, decreases rapidly with increasing distance. Beyond the substation fence or wall, the EMF produced by the substation equipment is typically indistinguishable from background levels (NIEHS 2002).

The American Conference of Governmental Industrial Hygienists (ACGIH) is a professional organization (not a governmental regulatory agency) that provides technical knowledge, advice, and guidance on occupational health and safety. Although its guidelines are not directly relevant for exposures to the public, it is noteworthy that the ACGIH occupational threshold limit values for whole body exposures are 25 kV per meter for 60-Hz electric fields and 1 militesla (mT) (10,000 mG) for 60-Hz magnetic fields, with higher limits for certain localized exposures (ACGIH 2019). According to the World Health Organization, the vast majority of studies have been conducted on power-frequency (50 and 60 Hz) magnetic fields, and as stated previously, the results of these studies are inconclusive.

California Department of Education Regulation

The California Department of Education (CDE) evaluates potential school sites under a range of criteria, including environmental and safety issues. There are no EMF guidelines that apply to existing school sites; this information is presented to demonstrate the range of existing guidelines that address EMFs.

Exposures to power-frequency EMFs underlie one of the criteria for school siting. CDE has established the following "setback" limits for locating any part of a school site property line near the edge of easements for any electrical power lines rated 50 kV and above as follows (CDE 2006).

Underground transmission line easement setbacks:

- 25.0 feet for lines from 50 to 133 kV (interpreted by CDE as up to 200 kV)
- 37.5 feet for lines from 220 to 230 kV
- 87.5 feet for lines from 500 to 550 kV

School districts with sites that do not meet CDE setbacks may still obtain construction approval from the state by submitting an EMF mitigation plan. The mitigation plan should consider possible reductions of EMFs from all potential sources, including power lines, internal wiring, office equipment, and mechanical equipment.

The following schools and daycare centers are along the proposed underground 230 kV transmission line routes:

- Family Child Care, 1878 Egbert Avenue, San Francisco
- Philip and Sala Burton Academic High School, 400 Mansell Avenue, San Francisco
- Visitation Valley Middle School, 450 Raymond Avenue, San Francisco
- Polly's Kiddie Care, 101 Hahn Street, San Francisco
- Mayor Willie L. Brown Jr. Youth Center, 1652 Sunnydale Avenue, San Francisco
- Boys and Girls Clubs of San Francisco, 1654 Sunnydale Avenue, San Francisco

CPUC Guidelines

In 1991, the CPUC initiated an investigation into electric and magnetic fields associated with electric power facilities. This investigation explored the approach to potential mitigation measures for reducing public health impacts and possible development of policies, procedures, or regulations.

Following input from interested parties, the CPUC implemented a decision (D.93-11-013) (CPUC 1993) that requires that utilities use low-cost or no-cost mitigation measures for facilities requiring certification under General Order 131-D (CPUC 1995). The decision directed the utilities to use a 4% benchmark for low-cost mitigation. This decision also implemented a number of EMF measurement, research, and education programs, and provided the direction that led to the preparation of the DHS study described previously (Neutra et al. 2002). The CPUC did not adopt any specific numerical limits or regulation on EMF levels related to electric power facilities.

In Decision D.93-11-013, the CPUC addressed mitigation of EMFs of utility facilities and implemented the following recommendations (CPUC 1993):

- No-cost and low-cost steps to reduce EMF levels
- Workshops to develop EMF design guidelines
- Uniform residential and workplace programs
- Stakeholder and public involvement
- A 4-year education program

- A 4-year non-experimental and administrative research program
- An authorization of federal experimental research conducted under the National Energy Policy Act of 1992.

In 2006, the CPUC affirmed the low-cost or no-cost policy to mitigate EMF exposure from new utility transmission and substation projects (CPUC 2006a). This decision also adopted rules and policies to improve utility design guidelines for reducing EMFs that were issued in a separate report (CPUC 2006b). The CPUC stated that "at this time we are unable to determine whether there is a significant scientifically verifiable relationship between EMF exposure and negative health consequences" (CPUC 2006a).

At this time, the CPUC has not implemented a general requirement that utilities include non-routine mitigation measures or other mitigation measures that are based on numeric values of EMF exposure and has not adopted any specific limits or regulations on EMF levels related to electric power facilities. The CPUC may determine mitigation measures on a project-by-project basis.

D.16.4 Consideration of Electric and Magnetic Fields for the Proposed Project

The project proposed would construct a new 230 kV gas insulated switch gear switching station at 1755 Egbert Avenue and underground up to 3.9 miles of 230 kV transmission lines that would be installed mainly in paved areas. Approximately 3.1 miles of the proposed Jefferson-Egbert transmission line would start its bypass near the intersection of Carter Street and Guadalupe Canyon Parkway in the City of Brisbane, run north along Carter Street through the City of Daly City, and then continue northward through the City and County of San Francisco streets to Mansell Avenue. Once at Mansell Avenue, the proposed Jefferson-Egbert transmission line would head east to the trenchless crossing under U.S. Highway 101. East of U.S. Highway 101, the route would turn north within Crane Avenue and continue north across private property to Egbert Switching Station.

The proposed Egbert-Embarcadero and Martin-Egbert transmission lines would connect the bisected existing Martin-Embarcadero transmission line to the proposed Egbert Switching Station with the construction of two new, approximately 0.3-mile, underground 230 kV transmission lines starting at the intersection of Bayshore Boulevard, then proceeding to Bacon Street and Egbert Avenue and terminating at Egbert Switching Station. Land uses adjacent to the transmission lines include industrial, commercial, residential, day care, schools, and open space. Once energized, the underground transmission lines would generate EMFs. As indicated by NIEHS, beyond the substation perimeter, the EMF produced by the substation equipment, such as transformers, reactors, and capacitor banks, is typically indistinguishable from background levels.

PG&E's Preliminary Field Management Plan (PG&E 2017a) for the subject project, prepared in compliance with CPUC General Order 131-D (CPUC 1995) and CPUC Decisions 93-11-013 (CPUC 1993) and 06-01-042 (CPUC 2006a), indicates that PG&E would implement no-cost and low-cost steps to reduce EMF levels along the underground transmission alignments. Pursuant to PG&Es "EMF Design Guidelines for Electrical Facilities" (see Appendix D.16-1), mitigation of magnetic fields would be applied to the transmission lines for land uses adjacent to the proposed route in the following priority: schools/daycare (1,800 feet adjacent to route), residential (10,700 feet adjacent to route), commercial/industrial (2,100 feet adjacent to route), recreational (2,400 feet adjacent to route), and undeveloped/agricultural/rural lands (2,300 feet adjacent to route). Refer to Section D.11, Land Use and Planning, Figures D.11-2a through D.11-2g, which depict the land uses along the proposed route. These figures show the relationship of the proposed 230 kV transmission line to the location of schools and residential areas, which are the key areas of the no-cost or low-cost measures that would be implemented by PG&E. Prior to the Notice to Proceed for this project, the CPUC will review and approve PG&E's Final Field Management Plan based on the final engineering design of the project.

Where there are no other existing underground utility constraints, PG&E would place both the solid-dielectric cables in individual PVC conduits, and liquid dielectric cables enclosed in a steel pipe within the ROW to reduce magnetic field levels in buildings along the ROW. The solid-dielectric cables and liquid-dielectric cable each achieves a compact placement of the phase conductors that reduce magnetic field strength at a distance, and the liquid-dielectric cable design allows a significantly more compact design that achieves much lower magnetic fields in the region surrounding the transmission line. This reduction in magnetic field strength occurs because of increased phase-to-phase of magnetic field cancellation as the conductors of each phase are moved closer together. Table D.16-2 shows magnetic field values (in mG) measured at 3 feet above ground for the two duct bank construction types, each with a nominal depth of 5 feet. Calculated magnetic field values are shown for the centerline and "at ROW" locations along the Jefferson-Egbert, Martin-Egbert, and Egbert-Embarcadero transmission line segments. The higher magnetic field levels associated with the Jefferson-Egbert transmission line segment illustrate the effect of the inherently greater distance between solid-dielectric-insulated conductors in separate 6-inch PVC conduits compared to the more compact conductor arrangement achieved in the other two project segments that would use pressurized liquid-dielectric-insulated cables within a single 10-inch steel pipe.

Table D.16-3 shows magnetic field levels for the two proposed designs for the proposed underground 230 kV transmission cables and magnetic fields near some of the common household items listed in Table D.16-1. As can be seen in Table D.16-3, for the duct bank with solid-insulated cables nominally placed 5 feet below the ground surface, the calculated magnetic field values (at 3 feet above ground) are 45.9 mG at the centerline and 11.5 mG at 25 feet from the centerline. For a pipe type duct with liquid-insulated cable buried 5 feet below ground, the

magnetic field values 3 feet above ground level would be 8.7 mG at the centerline and 2.1 mG at 25 feet from the centerline.

Furthermore, refer to Appendix D.16-2 for magnetic field values for the two conductor types for the cases of conductors nominally at ground level (unburied) and conductors 5 feet below the ground surface at distances of up to 100 feet from the centerline. For both designs, magnetic field values at 3 feet above ground level decrease with distance from the centerline, but remain higher for solid-insulated cables in separate PVC conduits at any distance. Magnetic fields at 3 feet above ground level for buried cables fall in the range of magnetic fields at 1 foot from the listed household appliances, which inherently vary over wide ranges. This comparison provides a frame of reference for relative magnetic field strengths but is not intended to convey conclusions regarding biological or health effects that might be related to environmental exposures to 60-Hz magnetic fields of any particular strength.

Table D.16-2
Magnetic Field Levels for Duct Bank Conductors 5 Feet Below Ground

Segment	Magnetic Field Strength (mG)	
	Centerline	*At ROW*[1]
Jefferson-Egbert 230 kV transmission line[2]	45.9	41.5
Martin-Egbert 230 kV transmission line[3]	8.7	7.7
Egbert-Embarcadero 230 kV transmission line[4]	8.7	7.7

Source: PG&E 2017a.
Notes: mG = milligauss; ROW = right-of-way; kV = kilovolt.
1 The magnetic field is calculated 3 feet above the ground at the centerline or at positions 5 feet to either side of the centerline. There is no defined ROW for this project, because most proposed 230 kV transmission line cables and ducts are within existing ROW under franchise to the Pacific Gas & Electric Company (PG&E) or the California Department of Transportation (Caltrans), with several exceptions identified in PG&E's Proponent's Environmental Assessment (PEA) Table 2.6-1, Permanent Easements Expected for Project.
2 Load flows used for magnetic field calculations for the Jefferson-Egbert 230 kV transmission line – The maximum normal rating of 1,200 Amps flowing from Jefferson Substation to Egbert Switching Station.
3 Load flows used for magnetic field calculations for the Martin-Egbert 230 kV transmission line – The maximum normal rating of 1,050 Amps flowing from Martin Substation to Egbert Switching Station.
4 Load flows used for magnetic field calculations for the Egbert-Embarcadero 230 kV transmission line – The maximum normal rating used for the base case calculation of the magnetic field is 1050 Amps, flowing from Egbert Switching Station to Embarcadero Substation.

Table D.16-3
Magnetic Fields of Two Duct Bank Types with Cables Buried 5 Feet Below the Surface and of Some Common Household Items at 1 Foot

Solid-Insulated Conductors at 5-Foot Depth		Liquid-Insulated Conductors (Pipe Type) at 5-Foot Depth		Common Household Electrical Item*	
At Centerline (mG)	*25 feet from Centerline (mG)*	*At Centerline (mG)*	*25 feet from Centerline (mG)*	*Item*	*1 foot from item (mG)*
45.9	11.9	8.7	2.1	Garbage disposal	10–20
				Electric oven	2–25

Table D.16-3
Magnetic Fields of Two Duct Bank Types with Cables Buried 5 Feet Below the Surface and of Some Common Household Items at 1 Foot

Solid-Insulated Conductors at 5-Foot Depth		Liquid-Insulated Conductors (Pipe Type) at 5-Foot Depth		Common Household Electrical Item*	
At Centerline (mG)	*25 feet from Centerline (mG)*	*At Centerline (mG)*	*25 feet from Centerline (mG)*	*Item*	*1 foot from item (mG)*
				Clothes washer	2–30
				Hair dryer	1–70
				Electric shaver	1–100
				Vacuum cleaner	20–200

Source: PG&E 2017b.
Notes: mG = milligauss.
* See Table D.16-1 for a list of additional common household electric items.

D.16.5 Summary Regarding Electromagnetic Fields

After several decades of study regarding potential public health risks from exposure to EMF, research results remain 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 or other adverse health effects. There are no applicable regulations related to EMF levels from power lines. However, the CPUC has implemented decisions requiring utilities to incorporate low-cost or no-cost measures, where applicable, for managing EMF from transmission lines. PG&E's proposed project incorporates low-cost and no-cost measures as described in Section D.16.4 as mitigation for magnetic fields consistent with CPUC Decisions D.93-11-013 and D.06-01-042 (see Appendix D.16-1; PG&E 2017a).

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E. COMPARISON OF ALTERNATIVES

This section summarizes and compares the Egbert Switching Station (Martin Substation Extension) Project (proposed project) and the alternatives evaluated in this Environmental Impact Report (EIR). This comparison is based on the assessment of environmental impacts of the proposed project and each alternative, as identified in Sections D.2 through D.15. (Section D.16, Electromagnetic Fields, is informative only and does not include impact analysis.) Section C introduces and describes the alternatives considered in this EIR.

Section E.1 describes the methodology used for comparing alternatives. Section E.2 compares each alternative with the proposed project, including the No Project Alternative. Table E-1 in this section provides a comparison of the environmental impact conclusions between the proposed project and each alternative. Section E.3 defines the environmentally superior alternative, based on this comparison.

E.1 COMPARISON METHODOLOGY

The California Environmental Quality Act (CEQA) does not provide specific direction regarding the methodology of alternatives comparison. A project must be evaluated for the issues and impacts that are most important; this varies depending on the project type and the environmental setting. Issue areas that are generally given more weight in comparing alternatives are those with permanent long-term impacts (e.g., loss of habitat or land use conflicts). Impacts associated with construction (i.e., temporary or short term), or those that are easily mitigated to less-than-significant levels, are considered to be less important.

This comparison is designed to satisfy the requirements of state CEQA Guidelines Section 15126.6, subd. (d), Evaluation of Alternatives, which states:

> The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed.

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

Step 1: **Identification of Alternatives.** An alternative screening process (described in Section C) was used to identify 10 alternatives to the proposed project. That screening process identified three alternatives for detailed EIR analysis. Two of the alternatives consist of Pacific Gas & Electric Company (PG&E) system

alternatives, seven of the alternatives consist of PG&E site and transmission line location and/or route options, and the last alternative consists of increased demand side management alternatives. A No Project Alternative was also identified.

Step 2: **Determination of Environmental Impacts.** The environmental impacts of the proposed project and alternatives were identified (Section D.2 through Section D.15), including the potential impacts of construction and operation.

Step 3: **Comparison of Proposed Project with Alternatives.** The environmental impacts of the proposed project were compared to those of each alternative to determine the environmentally superior alternative. Because the transmission line alternatives involve only a portion of the proposed project route, the environmentally superior option was determined for each relevant element of the proposed project. As a result, the environmental superior alternative could be a combination of other transmission line alternatives. Once derived, the environmental superior alternative was then compared to the No Project Alternative. Although this comparison focuses on the 14 issue areas (described in Section D.2 through Section D.15), determining an environmentally superior alternative is difficult because of the many factors that must be balanced. Although this EIR identifies an environmentally superior alternative, it is possible the decision makers (i.e., the CPUC's five Commissioners) could balance the importance of each impact area differently and reach a different conclusion.

E.2 EVALUATION OF PROJECT ALTERNATIVES

Three alternatives, in addition to the No Project Alternative, were identified for evaluation in this EIR. Table E-1 provides a summary of environmental impact conclusions for the proposed project and each of the alternatives for each environmental issue area. Impacts determined to be significant and unmitigable are identified as Class I impacts. Impacts that can be reduced to a less-than-significant impact through the use of mitigation measures are identified as Class II impacts. Impacts that are less than significant without the need for mitigation are identified as Class III impacts. One significant and unmitigable land use impact (Class I) was identified for the proposed project (Impact LU-2: environmental impact due to a conflict with land use); see Section D.11, Land Use and Planning, of this EIR for detailed analysis. There were no significant and unmitigable (Class I) impacts identified that could occur with the alternatives.

The EIR analysis indicates that, assuming implementation of applicant proposed measures (APMs) presented in Section B and mitigation measures described in Section D.2 through Section D.15, all other significant impacts to environmental resources can be mitigated to a level that is less than significant, except for the unmitigable land use impact identified above.

E.2.1 Bayshore Switching Station Alternative

The Bayshore Switching Station Alternative would eliminate the proposed project's unmitigable (Class I) land use impact, as this alternative would not impact the approved Sunnydale HOPE SF redevelopment project. When compared to the proposed project, land use impacts would be less; however, the Bayshore Switching Station Alternative would conflict with standards approved for the City of Brisbane, Baylands Subarea, which requires preservation of key habitat areas, including Icehouse Hill. However, this potentially significant land use impact associated with the Bayshore Switching Station Alternative would be mitigated to less-than-significant levels with implementation of biological resources mitigation (Class II). Furthermore, although no approved plan exists at this time, under this alternative, the City of Brisbane would not be able to utilize the 6.6-acre parcel in the future redevelopment plans envisioned for the Baylands Subarea.

The Bayshore Switching Station Alternative would result in reduced cultural resources and noise impacts when compared to the proposed project (Table E-1). Cultural resources impacts would be slightly reduced, because development of the alternative would require less ground disturbance in areas with moderate-to-high sensitivity for presence of historic and pre-historic cultural resources. Potential reduction in noise impacts would occur during construction as a result of increased distance from the nearest sensitive receptors. In addition, the Bayshore Switching Station Alternative would result in reduced wildfire impacts when compared to the proposed project, as none of the alternative site or transmission line components are within Local Responsibility Areas or State Responsibility Areas classified as Moderate, High, or Very High FHSZ.

As shown in Table E-1, impacts to aesthetics, air quality emissions, biological resources, energy, geology and soils, greenhouse gas (GHG) emissions, hydrology and water quality, and transportation would be greater than the proposed project.

Aesthetic impacts would be greater with implementation of the Bayshore Switching Station Alternative, because the visual character of the site would be altered to include an industrial land use on a primarily vacant open space parcel. In addition, the alternative switching station could result in permanent visual impacts to Icehouse Hill and proposed trails.

Although the alternative transmission lines would be approximately 1.3 miles shorter than the proposed project, average daily air quality and GHG emissions are anticipated to be greater due to increased haul trips required for over-excavation and replacement of artificial fill within the alternative switching station site. Increased construction truck trips would also result in greater energy impacts associated with petroleum consumption. Overall, the Bayshore Switching Station Alternative construction activities would result in increased construction emissions and energy consumption when compared to the proposed project. Furthermore, impacts to geology and soil would be greater due to the increased potential for liquefaction, because the Bayshore Switching

Station Alternative is located on artificial fill material. Although a greater impact, this impact can be addressed through implementation of APMs and final engineering design. In addition, the potential increase in hydrology and water quality impacts would result from changes to drainage through greater impervious surfaces due to the larger site which would be addressed through implementation of APMs.

The Bayshore Switching Station Alternative would result in greater impacts to biological resources when compared to the proposed project, because construction of the alternative transmission lines may result in temporary direct or indirect impacts to suitable habitat for special-status wildlife at the north end of Icehouse Hill. In addition, construction of the alternative Martin-Bayshore transmission line would encroach on an unnamed drainage feature that is mapped as potentially jurisdictional water with willow scrub habitat. Potentially significant impacts to biological resources associated with the Bayshore Switching Station Alternative could be mitigated to less-than-significant levels (Class II).

The Bayshore Switching Station Alternative would result in greater transportation impacts when compared to the proposed project. Although the Bayshore Switching Station Alternative and the proposed project would both require mitigation to reduce potentially significant temporary transportation impacts, the duration of transportation impacts associated with the proposed project would be limited to construction and restoration of transmission lines within the Sunnydale-Velasco community. The Bayshore Switching Station Alternative would disrupt access to the Machinery & Equipment Company property for the duration of construction associated with the alternative switching station, which is anticipated to take up to 19 months. Potentially significant transportation impacts associated with the Bayshore Switching Station Alternative could be mitigated to less-than-significant levels (Class II).

In summary, although the Bayshore Switching Station Alternative would reduce land use impacts to less-than-significant levels, reduce temporary construction impacts associated with underground transmission line trenching, and be located outside any fire hazard severity zones, the proposed project would be environmentally superior to the Bayshore Switching Station because of reduced aesthetic, access, air quality, biological resource, hydrology (drainage), geology and soils (excavation), energy, GHG, and transportation impacts. The proposed project would be preferable when compared to the Bayshore Switching Station Alternative, which could result in potentially significant impacts to special-status wildlife and wetland habitat. In addition, construction of the alternative switching station would disrupt access to the existing industrial land use directly to the east which would require coordination with the landowner and incorporation of mitigation to ensure continued legal access is maintained during construction. The Bayshore Switching Station Alternative would require more ground disturbance in undeveloped open space areas than the proposed project, which would result in greater impacts to the visual character of the site and changes to the existing drainage pattern within the

alternative switching station site. Due to existing soil and topographic characteristics within the alternative project site, the geologic hazards are more likely to impact the Bayshore Switching Station Alternative site. It is important to note that anticipated excavation and replacement of artificial fill necessary to avoid geotechnical hazards within the alternative site could result in temporary indirect construction-related impacts associated with air quality, energy, GHG emissions, and transportation. The Bayshore Switching Station would not require implementation of MM AES-1, MM LU-1, or MM TR-1, but would require mitigation to reduce potentially significant impacts to special-status wildlife, wetland habitat, legal access for adjacent property, and consistency with applicable regulations governing scenic quality.

E.2.2 Geneva Switching Station Alternative

The Geneva Switching Station Alternative would eliminate the proposed project's unmitigable (Class I) land use impact, as this alternative would not impact the approved Sunnydale HOPE SF redevelopment project. When compared to the proposed project, land use impacts would be less; however, the Geneva Switching Station Alternative would conflict with the City of Daly City's vision for redevelopment of the Cow Palace complex and two adjacent parcel established in the City's 2030 General Plan. Due to the unknown location and extent of future development in this area, mitigation would be required to reduce potential environmental impacts to future development.

As shown in Table E-1, the Geneva Switching Station Alternative would have reduced impacts to air quality, cultural resources, energy, geology and soils, GHG emissions, hazards and hazardous materials, hydrology and water quality, noise, and transportation.

The potential reduction in impacts related to air quality, energy, and GHGs would occur as a result of a shorter construction schedule, because the alternative transmission lines would be approximately 1.6 miles shorter than the proposed project. The construction activities would result in reduced construction emissions and energy consumption when compared to the proposed project. Short-term noise impacts would be reduced as a result of the shorter construction schedule associated with the alternative transmission line segments and greater proximity to sensitive receptors.

The Geneva Switching Station Alternative would result in reduced impacts to cultural resources, geology and soils, and hydrology and water quality when compared to the proposed project. The Geneva Switching Station Alternative would result in slightly reduced impacts in relation to cultural resources, because development of the alternative would require less ground disturbance in areas with moderate-to-high sensitivity for presence of historic and pre-historic cultural resources. Although ground disturbance for construction of the alternative switching station would be greater (11.1-acre site vs. a 1.7-acre site for the proposed project), the Geneva Switching Station Alternative would result in reduced impacts in relation to geology and soils,

because existing soils and topography have a lower likelihood to experience geologic hazards. The Geneva Switching Station Alternative would result in reduced hazards and hazardous materials impacts when compared to the proposed project. The Geneva Switching Station would not directly impact any known hazardous materials sites or areas of contaminated soil or groundwater. The Geneva Switching Station would not be within an area subject to the Maher Ordinance, which requires analysis of soils for hazardous materials, because no active leaking underground storage tank sites are located within 500 feet of the alternative project site. Potential impacts associated with hazards and hazardous materials would be avoided through implementation of APMs, and no mitigation would be required.

The Geneva Switching Station Alternative would result in reduced transportation impacts when compared to the proposed project. Temporary transportation impacts associated with construction would be reduced as a result of smaller area of ground disturbance within roadways, because the Geneva Switching Station Alternative transmission lines would be 1.6 miles shorter than the proposed project.

The alternative Geneva Switching Station could result in slightly greater impacts to aesthetics than the proposed project due to the potential of interfering with long scenic vistas from the Saddle Loop Trail located approximately 0.5 miles west of the switching station site. However, existing development, topography, and vegetation would limit visibility of the alternative switching station, and no mitigation would be required under this alternative. The Geneva Switching Station Alternative would also result in greater impacts to biological resources when compared to the proposed project, because construction of the alternative switching station may result in temporary or permanent impacts to suitable habitat for special-status plants. Potentially significant impacts to biological resources associated with the Geneva Switching Station Alternative would be mitigated to less-than-significant levels. In addition, the potential increase in hydrology and water quality impacts would result from changes to drainage through greater impervious surfaces due to the larger site, which would be addressed through implementation of APMs. However, impacts for the potential of dam failure inundation would be reduced, as this alternative is not near the University Mound Reservoir dam failure inundation zone.

In summary, although the Geneva Switching Station Alternative would result in greater impacts to aesthetics, biological resources, and hydrology and water quality, the Geneva Switching Station Alternative would be environmentally superior to the proposed project due to the reduction of the significant and unavoidable land use impact to a less-than-significant level, reduced likelihood to encounter contaminated soils and/or groundwater during construction, reduced construction transportation impacts, and consistency with applicable regulations governing scenic quality. The Geneva Switching Station would not require implementation of MM AES-1, MM HAZ-1, MM LU-1, or MM TR-1, but would require mitigation to reduce potential impacts to special-status plants. Additionally, the Geneva Switching Station Alternative

would require the least amount of trenching to install underground transmission lines when compared to the proposed project, resulting in reduced air quality, energy, GHG emissions, and noise impacts during construction. The Geneva Switching Station Alternative would also result in less-than-significant impacts associated with geologic hazards and flood hazards.

E.2.3 Sunnydale HOPE SF Avoidance Line Alternative Option A

The Sunnydale HOPE SF Avoidance Line Alternative Option A (Sunnydale Option A Alternative) would eliminate the proposed project's unmitigable (Class I) land use impact, as this alternative would bypass the Sunnydale-Velasco area, approved for redevelopment. This alternative would be the same as the proposed project, with the exception of the 0.6-mile portion of the transmission line that would be routed further to the east. This alternative avoids the land use conflicts between the proposed project and the approved Sunnydale HOPE SF Master Plan.

As shown in Table E-1, the Sunnydale Option A Alternative would result in slightly reduced geology and soils impacts when compared to the proposed project. The Sunnydale Option A Alternative line segment would bypass a small area with potential for liquefaction and landslides along Brookdale Avenue that would be affected by the proposed project.

The Sunnydale Option A Alternative would slightly increase potential short-term impacts in relation to air quality, energy, and GHG emissions, as a result of construction of approximately 0.6 miles of additional underground transmission line. The construction activities would result in increased construction emissions and energy consumption when compared to the proposed project. The slight increase in impacts that would result in relation to air quality, energy, and GHGs during construction of the Sunnydale Option A Alternative would be considered temporary and are considered to be less important and not further considered. Therefore, the comparison of this alternative to the proposed project is primarily based on potential impacts that would result related to geology and soils, land use, and transportation.

The Sunnydale Option A Alternative would result in reduced transportation impacts when compared to the proposed project. The Sunnydale Option A Alternative line segment would bypass the Sunnydale-Velasco area, approved for redevelopment, and avoid potential construction traffic impacts associated with two separate construction projects within the Sunnydale HOPE SF project site. The Sunnydale Option A Alternative would not require implementation of MM TR-1.

In summary, although the Sunnydale Option A Alternative would marginally increase temporary construction-related air quality, energy, and GHG emission impacts, the Sunnydale Option A Alternative would be environmentally superior to the proposed project, because the Sunnydale Option A Alternative would bypass the Sunnydale-Velasco community, thus, reducing potential transportation and geology and soil impacts and avoiding a significant and unavoidable land use impact.

E.2.4 No Project Alternative

The No Project Alternative is described in Section C.5.4. Under the No Project Alternative, none of the facilities associated with the proposed project or alternatives evaluated in this EIR would be developed. Therefore, none of the short-term disruption impacts or long-term operation impacts as described in this EIR would occur, including the Class I impact under land use (Impact LU-2: environmental impact due to a conflict with a land use plan); see Section D.11 of this EIR for detailed analysis.

However, in the event that the Martin Substation becomes inoperable, there would be no new 230 kV electric transmission line bypassing the substation and connecting to the San Francisco Peninsula system. There would be no new infrastructure to provide improved reliability and resiliency to the existing transmission system. Therefore, the No Project Alternative would result in a higher likelihood of interrupted electric service to San Francisco in the event of unplanned outages resulting from an extreme event rendering the electric transmission system at Martin Substation inoperable.

Table E-1
Proposed Project vs. Alternatives Summary of Environmental Impact Conclusions by Environmental Resource Area

Environmental Resource Area	Proposed Project	Alt 1	Alt 2	Alt 3[a]	Alt 4
		Bayshore Switching Station	*Geneva Switching Station*	*Sunnydale HOPE SF Avoidance*	*No Project*
D.2 Aesthetics	Significant can be mitigated (Class II)	+ Significant can be mitigated (Class II)	+ Less than significant (Class III)	= Less than significant (Class III)	- No Impact
D.3 Air Quality	Less than significant (Class III)	+ Less than significant (Class III)	- Less than significant (Class III)	+ Less than significant (Class III)	- No Impact
D.4 Biological Resources	Less than significant (Class III)	+ Significant can be mitigated (Class II)	+ Significant can be mitigated (Class II)	= Less than significant (Class III)	- No Impact
D.5 Cultural Resources	Less than significant (Class III)	- Less Than Significant (Class III)	- Less Than Significant (Class III)	= Less Than Significant (Class III)	- No Impact
D.6 Energy	Less than significant (Class III)	+ Less than significant (Class III)	- Less than significant (Class III)	+ Less than significant (Class III)	- No Impact
D.7 Geology and Soils	Less than significant (Class III)	+ Less than significant (Class III)	- Less than significant (Class III)	- Less than significant (Class III)	- No Impact
D.8 Greenhouse Gas Emissions	Less than significant (Class III)	+ Less than significant (Class III)	- Less than significant (Class III)	+ Less than significant (Class III)	- No Impact
D.9 Hazards and Hazardous Materials	Significant can be mitigated (Class II)	- Significant can be mitigated (Class II)	- Less than significant (Class III)	= Less than significant (Class III)	- No Impact
D.10 Hydrology and Water Quality	Less than significant (Class III)	+ Less than significant (Class III)	+ Less than significant (Class III)	= Less than significant (Class III)	- No Impact
D.11 Land Use and Planning	Potentially significant (Class I)	- Significant can be mitigated (Class II)	- Significant can be mitigated (Class II)	- Less than significant (Class III)	- No Impact
D.12 Noise	Less than significant (Class III)	- Less than significant (Class III)	- Less than significant (Class III)	= Less than significant (Class III)	- No Impact
D.13 Transportation	Significant can be mitigated (Class II)	+ Significant can be mitigated (Class II)	- Less than significant (Class III)	- Less than significant (Class III)	- No Impact
D.14 Tribal Cultural Resources	Significant can be mitigated (Class II)	= Significant can be mitigated (Class II)	= Significant can be mitigated (Class II)	= Significant can be mitigated (Class II)	- No Impact
D.15 Wildfire	Significant can be mitigated (Class II)	- No Impact	= Significant can be mitigated (Class II)	= No Impact	- No Impact

[a] Sunnydale HOPE SF Avoidance Line Alternative Option A includes comparison of the 0.6 miles of alternative transmission line segment only.

- Reduces project environmental effect; + Increases project environmental effect; = Project environmental effect unchanged

E.3 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires that the environmentally superior alternative be selected from a range of reasonable alternatives that could feasibly attain the basic objectives of a project. Based on the analysis presented in Section D.2 through Section D.15 of this EIR, the environmentally superior alternative was determined to be the No Project Alternative. Under the No Project Alternative, the proposed project would not be constructed. All environmental impacts associated with the construction and operation of the proposed project would be eliminated and existing environmental conditions unaffected. None of the facilities associated with the proposed project would be constructed, and the project objectives would not be achieved. This alternative would not provide the benefit of the proposed project, which would improve reliability and resiliency to the existing transmission system, providing power to the San Francisco Peninsula. As outlined in Section A.3.1, Background, of this EIR, the California Independent System Operator Board recommends a project to bypass the Martin Substation in case of an extreme event that would leave the San Francisco Peninsula vulnerable to power outages. As PG&E has an obligation to serve its customers by providing electric power, if the proposed project or an alternative analyzed in this EIR is not approved, PG&E would still be required to construct a similar project to provide a reliable energy source for its customers located in the San Francisco Peninsula.

CEQA Guidelines, Section 15126.6 (e)(2), further stipulates that "if the environmentally superior alternative is the No Project Alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives."

Overall, based on the EIR analysis for each alternative presented in Section D.2 through Section D.15, and as summarized in Table E-1, the Sunnydale Option A Alternative would rank highest as the environmentally superior alternative, as it would avoid the Class I land use impact associated with the proposed project and not create any substantially greater impacts when compared to the proposed project. Under this alternative, the project would largely remain the same as the proposed project other than construction of a segment of the proposed Jefferson-Egbert transmission line that avoid impacts to the Sunnydale HOPE Master Plan development project. Although the segment would be approximately 0.6 miles longer, most impacts would be similar to the proposed project, with the exception of air quality, energy and GHG emissions, which would be marginally increased due to construction activities associated with undergrounding the longer transmission line. The slight increase in impacts to air quality, energy, and GHGs during construction of the Sunnydale Option A Alternative would be considered temporary and not significant.

Because the Geneva Switching Station Alternative would also avoid the Class I land use impact of the proposed project, it would rank second to the Sunnydale Option A Alternative as the environmentally superior alternative, and the Bayshore Switching Station Alternative would rank third. Both the Geneva and Bayshore alternative sites would have increased impacts to biological resources that would require mitigation; therefore, the Sunnydale Option A Alternative is selected

as the environmentally superior alternative after the No Project Alternative. Furthermore, the larger Geneva and Bayshore Switching Station Alternative sites would increase impervious surface area when compared the Sunnydale Option A Alternative. The Bayshore Switching Station Alternative was selected as the least environmentally superior alternative due to potential temporary construction access conflicts with the Machinery & Equipment Company property and because the site is located on artificial fill material that would require excavation thus resulting in temporary indirect construction-related impacts associated with air quality, energy, GHG emissions, and transportation.

E.4 REFERENCES CITED

14 CCR 15000–15387 and Appendix A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

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F. OTHER CEQA CONSIDERATIONS

F.1 IMPACTS FOUND NOT TO BE SIGNIFICANT

Prior to the release of the Notice of Preparation for public review, an Initial Study Checklist (California Environmental Quality Act [CEQA] Guidelines, Appendix G) was prepared to inform the California Public Utilities Commission which environmental effects would and would not be further evaluated in the Draft Environmental Impact Report (EIR). Based on the results of the Initial Study, and in accordance with CEQA Guidelines Section 15128, this section briefly describes those effects found to have no impact or impacts so minimal that bringing them forward for further analysis was not warranted. Furthermore, there were no comments received during the 30-day Notice of Preparation public review period (November 16 through December 17, 2018) that raised issues regarding the need to further evaluate in detail the issues described as follows in Sections F.1.1 through F.1.5. Note that a number of impacts found to be less than significant and those determined potentially significant have been addressed in the various EIR topical sections (Sections D.2 through D.16) and provide a more comprehensive discussion to inform the public and decision makers about the environmental effects of the Egbert Switching Station (Martin Substation Extension) Project (proposed project).

F.1.1 Agriculture and Forestry Resources

The project site is within the urban City and County of San Francisco, Daly City, and City of Brisbane, which have no agricultural or forest land zoning or policies (San Francisco Planning Department 2011; City of Brisbane 1994; City of Daly City 2013). The project site and surrounding area are not located on Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, or land under Williamson Act contract, and are not designated or zoned as agricultural land. The project site is not under active crop cultivation or used for livestock grazing. As a result, no conflicts with existing zoning for an agricultural use or with a Williamson Act contract would result with project implementation; therefore, implementation of the proposed project would have no impact on agricultural resources (No Impact).

F.1.2 Mineral Resources

The State Mining and Geology Board established mineral resource zones (MRZs) to identify lands containing mineral deposits throughout California, as follows:

- MRZ-1: Areas where geologic information indicates no significant mineral deposits are present
- MRZ-2: Areas that contain identified mineral resources
- MRZ-3: Are areas of undetermined mineral resource significance
- MRZ-4: Areas of unknown mineral resource potential

There are no current mineral extraction activities on the project site. The proposed project would occur in predominantly paved areas surrounded by urban development. The Jefferson-Egbert transmission line falls within MRZ 2(a) for approximately 0.2 miles, from Guadalupe Canyon Parkway and Carter Street in Daly City and the City of Brisbane, to near the intersection of Carter Street and Alexis Circle (PG&E 2017). The subcategory "(a)" signifies that significant mineral deposits are present, or there is a high likelihood for their presence, and development should be controlled. While there are aggregate resources underlying the portion of the proposed Jefferson-Egbert transmission line within this area, residential developments are located immediately adjacent to most sections of the roads where the transmission line is proposed. Existing urbanization precludes the development of a quarry and the extraction of aggregate or other minerals in MRZ-2(a) areas (PG&E 2017); therefore, this area is not considered suitable for mineral extraction.

The proposed Jefferson-Egbert transmission line would be located within an area where no significant mineral deposits are present (MRZ-1) for approximately 1.4 miles, from near the intersection of Carter Street and Alexis Circle to just before Visitacion Valley Middle School, along Visitacion Avenue. From this area along the proposed route to the Egbert Switching Station site, the proposed transmission line would fall within MRZ-4 for approximately 0.3 miles until the intersection of Mansell Avenue and Colby Street. The remainder of the line falls within MRZ-1 until it connects to the proposed switching station site. The proposed Egbert Switching Station site is located within MRZ-1. The entirety of the proposed Egbert-Embarcadero and Martin-Egbert transmission lines, as well as the potential staging areas, also fall within MRZ-1 (PG&E 2017); therefore, there are no existing aggregate or other mineral resource mining operations crossed by the proposed project. The development of the proposed project would not result in the loss of a mineral resource of statewide or local significance; therefore, the proposed project would have no impact on mineral resources (No Impact).

F.1.3 Population and Housing

The proposed project would be constructed entirely on industrial use land or within city streets and would not result in displacement of existing housing within the project site. No dwelling units would be demolished or otherwise made unusable as a result of the proposed project. The proposed project would not construct new homes or businesses or extend new power lines or other infrastructure into areas not already served. The proposed electrical infrastructure would not provide a new or increased power supply to the area. The proposed project would improve the reliability of the existing power supply from the Martin Substation; therefore, the proposed project would not facilitate population growth on the project site.

The proposed project would have no direct impact associated with new construction or displacement of existing housing or people from any area along the alignment. The proposed

project would potentially conflict with a planned housing rehabilitation and replacement project in the Sunnydale-Velasco area, the Sunnydale HOPE SF Master Plan. This impact would not result in the displacement of housing or people within the Sunnydale HOPE SF project site but would require coordination between Pacific Gas & Electric Company (PG&E), the City and County of San Francisco, and the Sunnydale HOPE SF project proponent to ensure existing and future residents within the Sunnydale HOPE SF project site are not impacted. For discussion regarding project impacts associated with the Sunnydale HOPE SF Master Plan related to land use and transportation, refer to Sections D.11 and D.13, respectively.

Construction of the proposed project would take approximately 22 months, as shown in Section B, Table B-1, Proposed Construction Schedule. Although the number of workers on site at any time would vary depending on individual construction tasks and project scheduling, it is estimated that a maximum of 88 personnel would be on site during peak construction activity. PG&E and its contractors expect to obtain approximately 20% of their construction workforce locally through the union hiring halls (approximately 15 to 20 employees). The remaining construction personnel may commute from residences within the region or may temporarily relocate to the area during construction. There are adequate hotel and motel accommodations within the general area to provide accommodations for construction personnel who may temporarily relocate to the area during construction. Existing operation and maintenance crews would operate and maintain the new switching station and transmission lines as part of their current operation and maintenance activities. The temporary and intermittent increase of workers from outside the area during construction activities would not result in permanent population growth within the project site, and there are adequate accommodations available in the vicinity to support the temporary workforce required for project implementation.

The proposed project would not require a change in zoning or land use on the project site. The proposed project would not induce population growth, because no residential development is proposed, and utility improvements would not result in increased capacity or new infrastructure in an area not previously served. The proposed project would not require demolition of existing housing. The proposed project would improve necessary system reliability to accommodate the existing population. Accordingly, the proposed project would not directly or indirectly induce population growth or displace people or housing; therefore, the proposed project would have no impact on population and housing (No Impact).

F.1.4 Public Services

Fire Protection

Increases in long-term demand for fire protection services are typically associated with substantial increases in population. Staffing requirements for operations and maintenance would remain the

same as the existing condition, and the proposed project would not induce population growth and would not introduce new land uses to the project site that would generate increased long-term demand for fire protection services. Providing emergency services to the transmission lines and the switching station site is not expected to increase response times or other performance measures beyond what would be needed for existing facilities in the area. During proposed project construction, PG&E would coordinate any road closures with emergency service providers so that response times would not be affected. Switching station operation and maintenance personnel would park vehicles within the switching station or along Egbert Avenue and would not block the public right-of-way or otherwise interfere with emergency vehicle access. Maintenance work at vault locations in roads is expected every 1–2 years, and PG&E would follow its existing facility maintenance procedure to notify emergency responders of any changes to access expected during maintenance activities. The facilities would be maintained in accordance with fire-safe standards and regulations applicable to electrical transmission lines and facilities. The proposed project would not require additional personnel or facilities to provide adequate fire protection services; therefore the proposed project would have no impact on fire protection services. (No Impact).

Police Protection

Increases in the demand for police protection services are typically associated with substantial increases in population. The proposed project would not induce population growth and would not introduce new land uses on the project site that could generate increased long-term demand for police protection services. Providing emergency services to the transmission lines and the switching station site is not expected to increase response times or other performance measures beyond what would be needed for existing facilities in the area. PG&E would coordinate any road closures with emergency service providers so that response times would not be affected. Switching station operation and maintenance personnel would park vehicles within the switching station or along Egbert Avenue and would not block the public right-of-way or otherwise interfere with emergency vehicle access. Maintenance work at vault locations in roads is expected every 1–2 years, and PG&E would follow its existing facility maintenance procedure to notify emergency responders of any changes to access expected during maintenance activities. The proposed project would not require additional personnel or facilities to provide adequate police services; therefore, the proposed project would have no impact on police protection services (No Impact).

Schools

The proposed project would not include any residential uses and would not result in population growth near the project site. Construction activities would last approximately 22 months and require up to 88 workers during peak construction activity periods. Both local PG&E crews and nonlocal workers would be employed for construction of the proposed project. Construction staff from out of the area on short work assignments would not be permanent residents and, therefore, would not increase

demand for public school facilities or personnel. Because the proposed project would not cause direct or indirect population growth, no school enrollment growth would occur. The proposed project would not require additional personnel or new facilities to provide adequate school services; therefore, the proposed project would have no impact on school services (No Impact).

Parks

See Section F.1.5, Recreation, for a discussion of potential impacts on recreational facilities, including parks. The proposed project does not include development of any parks and would not result in population growth that would require development of new or altered parks facilities; therefore, the proposed project would have no impact on parks (No Impact).

Other Public Facilities

The proposed project would not include any residential uses and, therefore, would not result in direct or indirect population growth. Because the proposed project would not cause direct or indirect population growth, there would be no need for new or expanded libraries or other public facilities. Therefore, the proposed project would have no impact on libraries or other public facilities (No Impact).

F.1.5 Recreation

The proposed project would not result in a direct or indirect permanent increase in population within the project site that would increase use of existing recreational facilities or result in the physical deterioration of these facilities. Furthermore, the proposed project does not include construction of new recreational facilities.

The proposed Jefferson-Egbert transmission line would pass through the John McLaren Park, which is maintained by the San Francisco Recreation and Parks Department. John McLaren Park is the city's second largest park. The new transmission line would be installed underground, within existing city roadway rights-of-way, which would avoid San Francisco Recreation and Parks Department property. Project construction would not interfere with park or recreational facilities use or operations because proposed construction would only occur within paved surfaces and shoulders when adjacent to park land. If, for any reason, the proposed project requires construction that encroaches into San Francisco Recreation and Parks Department property, PG&E would comply with "park purpose" requirements per the San Francisco Charter by applying for and complying with a revocable encroachment permit from the San Francisco Recreation and Parks Department. This is not anticipated to be necessary because no construction is proposed to encroach within park property. Therefore, the proposed project would not impact an existing park or recreation facility, or result in permanent increase in demand for recreational facilities that would require construction or expansion of recreational facilities (No Impact).

F.1.6 Utilities and Service Systems

Water

Water services within the project site would be provided by the San Francisco Public Utilities Commission (SFPUC). The SFPUC serves the City and County of San Francisco and provides wholesale water to customers in the peninsula, South Bay, and East Bay communities. Daly City receives water from SFPUC and six underground wells. The North San Mateo County Sanitation District also provides tertiary recycled water to Daly City. The Brisbane Water District (which serves Central Brisbane, Sierra Point, and the Baylands) and the Guadalupe Valley Municipal Improvement District (which serves Crocker Park and the Northeast Ridge residential development) distribute water provided by SFPUC to local residents and businesses in the City of Brisbane (PG&E 2017).

Water would be used for dust control and worker needs during the construction phase of the proposed project. Water trucks would support proposed project construction activities and dust suppression. Construction water may be obtained from local municipal sources, trucked in by a water supply vendor, or derived from local wells. Water of suitable quality for the intended use would be obtained from the nearest feasible and available source, meaning that these water needs would not require additional treatment capacity or new treatment facilities. Therefore, the proposed project would have no impact on domestic water services (No Impact).

Wastewater

The proposed project includes electrical utility upgrades that would not result in a permanent increase in population. The minimal amount of effluent generated by construction personnel would not cause a wastewater treatment plant to exceed its treatment capacity. Portable toilets would be used during the construction phase, which would be maintained and serviced by an outside contractor who would dispose of effluent in accordance with applicable regulations for wastewater disposal. The proposed project would not involve sanitary wastewater discharges; thus, wastewater treatment requirements of the Regional Water Quality Control Board are not applicable. As such, the proposed project would not generate additional wastewater with potential to exceed the capacity of existing wastewater treatment facilities, and would not cause existing facilities to exceed wastewater treatment standards. Therefore, the proposed project would have no impact on wastewater services (No Impact).

Stormwater

Within the City and County of San Francisco, stormwater and sanitary sewer services use the same conveyance and collection infrastructure. Wastewater and stormwater are conveyed through the San Francisco Combined Sewer System, which is managed by the Wastewater Enterprise, a branch

of SFPUC. Stormwater is conveyed through the combined sewer system to one of three wastewater treatment plants, where it is treated prior to discharge to the San Francisco Bay or Pacific Ocean. The majority of the proposed project is located within the Bayside Watershed, specifically within the Yosemite and Sunnydale drainage basins. Within other portions of the proposed project located within Daly City, the Streets section of Daly City's Public Works Department maintains the city's stormwater drainage system. Furthermore, the City of Brisbane possesses a storm drain system that collects stormwater runoff and eventually discharges to the Brisbane Lagoon or directly to the San Francisco Bay (PG&E 2017).

The proposed project would be supported by existing stormwater conveyance and collection infrastructure within the City and County of San Francisco, and the cities of Daly City and Brisbane. Because the proposed transmission lines would be located underground, stormwater runoff during operation and maintenance activities would occur similarly to the existing conditions in these areas. Grading, blading surfaces, compacting soil, and applying gravel to the proposed Egbert Switching Station site and staging areas during site preparation may reduce the infiltration capacity of the site. However, because the site is already compacted from its existing use as a lumber storage yard and because impacts would be localized during construction, proposed project construction would not create or contribute runoff water that would exceed capacity of existing or planned stormwater drainage systems. Furthermore, a Stormwater Control Plan would be implemented during proposed project operation to comply with the City and County of San Francisco Ordinance No. 64-16 (Stormwater Management Requirements) of the San Francisco Public Works Code; therefore, implementation of the proposed project would have no impact from construction or expansion of permanent stormwater drainage facilities (No Impact).

Solid Waste

Solid waste disposal within the City and County of San Francisco is managed by Recology, which uses two hauling companies (i.e., Sunset Scavenger and Golden Gate) to transport waste to the Recology Hay Road Landfill, located in unincorporated Solano County, near Vacaville, California. The Recology Hay Road Landfill has a maximum permitted throughput of 2,400 tons per day (CalRecycle n.d.(a)) and a maximum design capacity of 18,943,155 tons total (EPA 2018). As of 2016, the facility had a remaining capacity of 13,874,947 tons (EPA 2018). Republic Services provides solid waste collection services within Daly City and transports waste to Ox Mountain Sanitary Landfill in Half Moon Bay. Ox Mountain Sanitary Landfill is permitted to receive 3,598 tons per day of solid waste (CalRecycle n.d.(b)) and has a maximum design capacity of 41,729,278 tons (EPA 2018). As of 2016, the landfill had a remaining capacity of 10,116,481 tons (EPA 2018). Solid waste within the City of Brisbane is collected and transported to Ox Mountain Sanitary Landfill by South San Francisco Scavenger.

All solid waste generated during construction would be collected and hauled to an approved facility with permitted capacity to accept waste material. As previously indicated, there is

sufficient capacity at nearby landfills to support the proposed project. The proposed project would not exceed existing landfill capacity; therefore, there would be no impact (No Impact).

F.2 GROWTH-INDUCING EFFECTS

According to Section 15126.2(d) of the CEQA Guidelines, growth-inducing impacts of the proposed project shall be discussed in the EIR. Growth-inducing impacts are those effects of the proposed project that might foster economic or population growth or the construction of new housing, either directly or indirectly, in the surrounding environment. According to CEQA, increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Other examples of projects that are growth inducing are the expansion of urban services into a previously unserved or underserved area, the creation or extension of transportation links, or the removal of major obstacles to growth. It is important to note that these direct forms of growth have secondary effects of expanding the size of local markets and attracting additional economic activity to the area.

Induced growth is any growth that exceeds planned growth and results from new development that would not have taken place without the implementation of the proposed project. Typically, the growth-inducing potential of a project would be considered significant if it results in growth or population concentration that exceeds those assumptions included in pertinent master plans, land use plans, or projections made by regional planning authorities. However, the creation of growth-inducing potential does not automatically lead to growth, whether it would be below or in exceedance of a projected level.

The environmental effects of induced growth are secondary or indirect impacts of the proposed project. Secondary effects of growth could result in significant, adverse environmental impacts, which could include increased demand on community or public services, increased traffic and noise, degradation of air and water quality, and conversion of agricultural land and open space to developed uses.

The proposed project includes the construction, operation, and maintenance of a new 230-kilovolt (kV) switching station in the City and County of San Francisco. The switching station would be connected to the local 230 kV system by reconfiguring two existing, underground, single-circuit, 230 kV transmission lines located in the City and County of San Francisco, Daly City, and City of Brisbane. The project would improve the reliability of PG&E's transmission system serving the City and County of San Francisco by providing an alternative 230 kV transmission path to serve customers in the event that Martin Substation becomes inoperable due to an extreme event. The proposed project would not increase total electrical capacity or supply.

Potential growth-inducing impacts of the proposed project could be manifested in the following two fundamental ways:

1. Growth could result from the direct and indirect employment required to construct and operate the proposed project.
2. Growth could result from the additional electric infrastructure provided by the proposed project.

Each of these possibilities is addressed in the following sections.

F.2.1 Growth Caused by Direct and Indirect Employment for Construction of the Proposed Project

As previously described in Section F.1.3, the construction and operation of the proposed project would not affect the employment patterns in the area. PG&E would employ up to 88 construction personnel (including switchyard workers, supervisors, and inspectors) at any one given time throughout the 22-month construction period. Approximately 20% of this workforce would be locally sourced from the San Francisco Bay Area. The remaining construction personnel may commute from residences within the region or may temporarily relocate to the area during construction. There are adequate hotel and motel accommodations within the general area to provide accommodations to construction personnel who may temporarily relocate to the area during construction. Because personnel are not expected to permanently relocate as a result of project implementation, the project would not result in new demand to 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 energized.

Project operation and maintenance would be accomplished by current PG&E employees and would not, therefore, create new jobs. The proposed project would require temporary construction employees and no permanent employees for operation and maintenance activities; therefore, the project would not induce population growth through employment for construction or operation of the proposed project.

F.2.2 Growth Related to Provision of Additional Electric Infrastructure

PG&E provides electrical power services to the City and County of San Francisco. The proposed project would improve electric system resiliency and resolve reliability concerns of a prolonged loss of service at Martin Substation during a potential extreme event, which could result in widespread power outages in the City and County of San Francisco. A prolonged loss of power

within San Francisco has potential adverse economic, safety, and convenience implications. The proposed project would create another route for electrical power from the south to serve San Francisco that does not go through Martin Substation.

The proposed project responds to the City and County of San Francisco's need for a redundant and geographically distinct source of 230 kV power that bypasses Martin Substation. The need for the proposed project is not dependent on the load forecasts in San Francisco. The proposed project would not extend new power lines or other infrastructure into areas not already served; the proposed project does not facilitate growth, new development, or provide a capacity increase.

F.3 SIGNIFICANT IRREVERSIBLE CHANGES

Section 15126.2(c) of the CEQA Guidelines requires that an EIR identify significant irreversible environmental changes that would be caused by the proposed project. These changes include the commitment of non-renewable resources to uses that future generations would probably be unable to reverse, or providing public access to previously inaccessible areas. The commitment of resources must be evaluated to assure that such consumption now is justified.

The issue of providing public access to previously inaccessible areas is not germane to the implementation of the proposed project because the project site is located within an existing urban setting surrounded on all sides by urban development. The project site itself is also developed with urban uses.

The horizontal project site of potential effect includes the location of the proposed Egbert Switching Station (1.7 acres); approximately 3.9 miles of new underground transmission line, to be installed primarily in paved streets, of which 420 feet would be installed under U.S. Highway 101 using trenchless technology (probably auger boring); equipment removal at a small area within Martin Substation; and up to 15 acres of equipment staging and laydown areas in existing city streets, a warehouse, and/or on existing paved or graveled areas.

Development of the proposed project would require a permanent commitment of natural resources resulting from the direct consumption of fossil fuels, construction materials, the manufacture of new equipment that largely cannot be recycled at the end of the project's useful lifetime, and energy required for the production of materials. Section D.6, Energy, provides a full analysis on energy required for implementation of the proposed project.

F.4 SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED

State CEQA Guidelines (Section 15126.2(b)) require a discussion of significant environmental effects that cannot be avoided if the proposed project is implemented. As a result of this EIR impact

analysis, the potentially significant environmental effect associated with implementation of the proposed project is summarized as follows.

F.4.1 Land Use and Planning

Potential Conflict with Approved Land Uses

As analyzed in Section D.11, Land Use and Planning, the proposed Egbert Switching Station and staging areas would be consistent with existing land uses. Construction, operation, and maintenance of the proposed switching station and transmission lines would primarily occur within PG&E's right-of-way in city streets and within the proposed switching station site. The proposed transmission lines would be consistent with existing plans, including the cities' General Plans, and would not conflict with the San Bruno Mountain HCP.

A portion of the proposed Jefferson-Egbert transmission line passes through Santos Street and Sunnydale Avenue in the eastern portion of the Sunnydale-Velasco low-income housing community, within the approved Sunnydale HOPE SF Master Plan project site. The Sunnydale HOPE SF Master Plan is generally bounded by Velasco Street to the south, Hahn Street to the east, and McLaren Park to the north and west. The Sunnydale HOPE SF Master Plan is an approved major public housing revitalization project focused on some of the San Francisco's most underserved communities, including the Sunnydale-Velasco community. The current alignment of Santos Street within the Sunnydale-Velasco community would be altered as part of the Sunnydale HOPE SF Master Plan. Between Velasco Street and Sunnydale Avenue, Santos Street would be realigned, and the existing Santos Street right-of-way would be redeveloped with housing. Therefore, a transmission line placed in the current roadway alignment could be located directly beneath planned housing. Although, pursuant to CPUC General Order No. 131-D, local agencies do not have land use jurisdiction over transmission line projects, the timing of the Sunnydale HOPE SF Master Plan and the Jefferson-Egbert transmission line could result in a physical impact to the environment.

Depending on the relative timing of the proposed project and the implementation of the Sunnydale HOPE SF Master Plan, two impact scenarios relative to scheduling could occur: (1) the proposed project proceeds first and the transmission line is installed in existing roadways and within Sunnydale HOPE SF's development footprint, creating an incompatible land use for future housing within the approved Sunnydale HOPE SF Master Plan thus causing the Sunnydale developer to relocate newly installed transmission lines; or (2) Sunnydale HOPE SF is developed first, realigning Santos Street, and making it necessary for PG&E to reroute the planned Jefferson-Egbert transmission line and demolish the newly constructed roadways.

If the proposed project proceeds first, prior to construction of the Sunnydale HOPE SF development, the approved master plan development would need to be redesigned to avoid realignment of the

affected segment of Santos Street and avoid placing housing within the transmission line easement (located within the current street right-of-way). If realignment of Santos Street cannot be avoided, the Sunnydale HOPE SF project proponent would be responsible for relocation of the new transmission line during construction of the new Santos Street alignment. In addition, revisions to the Sunnydale Hope SF Master Plan design would result in substantial delays in development of master plan elements, such as realignment of existing roadways and construction of new updated housing. Furthermore, additional work required by the Sunnydale HOPE SF project proponent to redesign the site to avoid realignment of Santos Street or relocate the new transmission line would likely be economically infeasible for the Sunnydale HOPE SF project proponent.

If the approved Sunnydale HOPE SF Master Plan is developed first, prior to the proposed project, the land uses would technically be compatible. However, demolition of the newly constructed roadway improvements and subsequent repair by PG&E could cause land use disruptions to residents within the Sunnydale HOPE SF Master Plan area due to the uncertain schedule of improvements, as well as restricted access from added roadway closures. Although the traffic impacts associated with roadway closures anywhere along the proposed project alignment can be avoided/minimized through implementation of Applicant Proposed Measure (APM) TR-1 (Traffic Management Plan) and through Mitigation Measure (MM) TR-1 that requires restoration and repair of all damaged surfaces, this traffic mitigation does not fully address all other issues related to community disruption at the Sunnydale HOPE SF project site (refer to Section D.13, Transportation, for analysis of traffic impacts).

To reduce potential land use conflicts, PG&E shall implement MM LU-1, which requires PG&E to coordinate the installation of the Santos Street segment of the Jefferson-Egbert transmission line with the City and County of San Francisco. The transmission line would be installed in the realigned street section and avoid street sections planned for vacation/realignment in the Sunnydale HOPE SF Master Plan. However, even with implementation of mitigation relative to land use, the uncertainty remains regarding whether or not the construction schedules for Sunnydale and the proposed project can be adequately coordinated. Furthermore, because of the uncertain schedules, the land use mitigation as proposed may not fully address the extent of the disruption to the Sunnydale HOPE SF development. Therefore, land use impacts at the approved Sunnydale HOPE SF Master Plan Development would be considered significant and unavoidable (Class I).

F.5 CUMULATIVE IMPACTS

As required by the CEQA Guidelines (Section 15130 et seq.), the proposed project is analyzed in relation to other projects in the area resulting in impacts that are considered to overlap or interact in a cumulative manner with the impacts of the proposed project. It is important to consider the combined effects of all past, present, and reasonably foreseeable future projects to determine the cumulative effect of these projects on the region because, even though a single project may have individually minor impacts, when considered together with other projects, the effects may be

collectively significant. A cumulative impact, then, is the additive effect of all projects in the same geographic area. A project would have a significant cumulative impact if the project's contribution to the overall significant cumulative effect is of a cumulatively considerable magnitude.

CEQA defines a cumulative impact as an effect that is created as a result of the combination of the proposed project together with other projects (past, present, or future) causing related impacts. Cumulative impacts of a project need to be evaluated when the project's incremental effect is cumulatively considerable and, therefore, potentially significant. As required by the CEQA Guidelines (Section 15130 et seq.), the proposed project is analyzed in relation to other projects in the area resulting in impacts that are considered to overlap or interact in a cumulative manner with the impacts of the proposed project. It is important to consider the combined effects of all past, present, and reasonably foreseeable future projects to determine the cumulative effect of these projects on the region because, even though a single project may have individually minor impacts, when considered together with other projects, the effects may be collectively significant. A cumulative impact, then, is the additive effect of all projects in the same geographic area. The project itself would have a significant cumulative impact if the project's contribution to the overall significant cumulative effect is of a cumulatively considerable magnitude.

F.5.1 Cumulative Projects and Methodology

For purposes of this cumulative impact analysis, a list of projects in the same immediate vicinity and expected to be constructed during the same time period as the proposed project has been used in accordance with CEQA (Section 15130(b)(1)). These projects and their approximate geographic location in relation to the proposed project are provided as follows. Projects that are completed, or in operation, are considered part of current baseline conditions discussed by issue area in Chapter D, Environmental Analysis, and evaluation of the proposed project's contribution to such impacts is presented in Section F.5.2.

The projects in the cumulative scenario include a range of project types such as master plan projects, housing projects, bike path and pedestrian improvements, rail and transit corridor improvements, infrastructure improvements, and demolition activities. Proposed and pending projects are presented that would be within the project site. The list of projects provided in Table F-1 includes development projects for which applications have been submitted as well as public projects and plans that are considered reasonably foreseeable (because they have been approved or have had substantial effort committed). The location of the cumulative projects that are outlined in Table F-1 are also shown on Figure F-1. The following information provided was gathered from an internet search of local planning agencies, personal communication with planning staff, review of general plans and community plans of the affected jurisdictions, and Notice of Preparation comments received.

Table F-1
Cumulative Projects List

Figure F-1 Ref. No.	Project Name	Description/Location	Construction Time Frame	Proximity to Project[1]
Large Multi-Year planning projects in the Project Vicinity				
1	Baylands - General Plan Amendment	**Brisbane:** Redevelop the Brisbane Baylands (approximately 660 acres) including residential, community, and neighborhood serving commercial, office, research and development, light industrial, hotel	Unknown; 20-year construction period	Across Bayshore Boulevard from the existing Martin Substation (0.02 miles) and approximately 0.9 miles east of Jefferson-Egbert transmission line
2	Sunnydale HOPE SF	**San Francisco:** Develop approximately 50 acres with new street and utility grid, neighborhood community center and retail, and new affordable housing for the current families, as well as additional affordable and market rate housing for a total of 1,700 households	To be phased over 10 years beginning 2019; construction has begun on Parcel Q at Hahn and Sunnydale	Jefferson-Egbert transmission line within project boundaries
3	Visitacion Valley/ Schlage Lock Development Project	**San Francisco:** Develop 20 acres of land located in Visitacion Valley and Schlage Lock in southeastern San Francisco into a mixed-use urban community	2016–Present (Ongoing)	0.3 miles northeast of Martin Substation and approximately 0.6 miles east of Jefferson-Egbert transmission line
4	Candlestick Point Development Project	**San Francisco:** Develop approximately 7,200 new residential units along with regional-serving commercial and office space in southeastern San Francisco on approximately 281 acres (including Candle Stick Sate Recreational Area)	2015–Present (Ongoing); to be phased over a 20-30 year construction period	0.8 miles east of Jefferson-Egbert transmission line
Other Development Projects				
5	320–400 Paul Avenue Internet Services Exchange	**San Francisco:** Construct an Internet Services Exchange facility, including renovation of two buildings, as well as demolition and replacement of an existing building with a data center building	2017–2019	Jefferson-Egbert transmission line route is on the parcel for 0.2 miles
6	Pacific Place Retail Conversion	**Daly City**: Seven condominiums on 1 acre at 2665 Geneva Avenue	2020–2022	0.25 miles west from existing Martin Substation and 0.25 miles east of Jefferson-Egbert transmission line at Santos Street
7	Geneva Avenue Mixed-Use	**Daly City**: Mixed-use retail/office (778 square feet) and a four-unit apartment building (addition to existing building) on 0.23 acres at 2960 Geneva Avenue	2020	Across Schwerin Street from Existing Martin Substation and 0.40 miles east of Jefferson-

Table F-1
Cumulative Projects List

Figure F-1 Ref. No.	Project Name	Description/Location	Construction Time Frame	Proximity to Project[1]
				Egbert transmission line at Santos Street
8	Point Martin – Phase I	**Daly City**: 16 detached homes on approximately 2 acres at Steve Courter Way and Martin Street; all entitlements have been approved	2019–2024	0.1 miles west of Jefferson-Egbert transmission line
9	Point Martin – Phase II	**Daly City**: 117 detached homes on approximately 8 acres at Steve Courter Way and Martin Street	2019–2024	Adjacent to Jefferson-Egbert transmission line (along Carter Street)
10	Midway Village Redevelopment	**Daly City**: Redevelop the Midway Village affordable rental housing complex with 566 affordable housing units on 11.75 acres	Unknown at this time	Immediately south of the existing Martin Substation
11	Robertson Intermediate School Redevelopment	**Daly City:** Redevelop the Robertson Intermediate School property with 71 single-family residential units on approximately 7 acres	2018–2021 Under construction	0.1 miles south of the existing Martin Substation
Transit/Infrastructure/Utility Projects				
12	SFMTA Transit Priority and Multimodel Projects – Bayshore (San Bruno Avenue, Visitacion Valley, and Geneva Avenue)	**San Francisco/Brisbane/Daly City**: Improve pedestrian safety, bus reliability, and bicycle access for residents, businesses, transit riders, and visitors in the Bayshore area	2015–Present (Ongoing)	Proposed Jefferson-Egbert transmission line route crosses San Bruno at Mansell Street
13	Caltrain Electrification and California High-Speed Rail	**San Francisco/Brisbane:** Replace existing rail corridor with electrical infrastructure along existing Caltrain corridor between San Francisco and San Jose, and modify operations to include high-speed trains	2017/2018–2021	Linear project that is adjacent to proposed Egbert Switching Station site for 200 feet
14	Recology Modernization and Expansion Project	**San Francisco:** Expand the existing Recology recycling center on Tunnel Avenue in San Francisco/Brisbane	Unknown; to be phased over 4 years	0.4 miles from proposed Jefferson-Egbert transmission line
15	Hunters Point Substation Rebuild Project	**San Francisco:** Replace aging infrastructure of PG&E's Hunters Point Substation located on Evans Avenue	2019–2021	0.4 miles from potential Amador Street staging area at South Container Terminal

Note: SFMTA = San Francisco Municipal Transportation Agency; PG&E = Pacific Gas & Electric Company.

[1] Distances are approximate.

Sources: PG&E 2018; Snyder, pers. comm. 2019; City of Brisbane 2019; City of Daly City Planning Department 2019; Van Lonkhuysen, pers. comm. 2019; SFMTA 2019a, 2019b.

Large Multi-Year Planning Projects in the Project Vicinity

Baylands – Brisbane

The Baylands Subarea is a redevelopment area designated by the City of Brisbane's General Plan (City of Brisbane 2017). The Brisbane Baylands Specific Plan for redevelopment was submitted by the property owners for the Baylands in 2006, and was updated in 2011. The Baylands encompasses approximately 660 acres, generally bordered on the west by Bayshore Boulevard, on the north by the City and County of San Francisco, on the east by the U.S. Highway 101 causeway, and on the south by Brisbane Lagoon. The subarea is located directly across Bayshore Boulevard from Martin Substation.

The Brisbane City Council approved Resolution No. GP-1-06/GP-02/10/SP-01-06 on March 22, 2018. The Resolution denied the general plan amendment and specific plan as proposed by Universal Paragon Corporation for the Brisbane Baylands Specific Plan, but approved a modified general plan amendment that would result in reduced land use intensity to reduce potential significant and unavoidable environmental impacts, as analyzed in the EIR. The Brisbane City Council certified the Final EIR for the Baylands Subarea and adopted the Mitigation Monitoring and Reporting Program on July 19, 2018. Resolution No. GP-1-18 was also approved on July 19, 2018 to revise the general plan amendment for the Baylands Subarea to include 1,800 to 2,200 residences north of the Main Street extension, subject to a majority vote for the GPA in the general election in November 2018. Resolution No. GP-1-18 was passed (as Measure JJ) on November 6, 2018. Because development of this subarea remains under review with Brisbane City Council, specific projects have not been identified. Once plans have been determined, it is anticipated that construction and redevelopment would occur in this area over a 20-year period.

Sunnydale HOPE SF Project – San Francisco

The Sunnydale HOPE SF project is a major public housing revitalization project that has been and continues to be an extensive coordinated effort between the City and County of San Francisco and the co-development project sponsors. The Jefferson-Egbert transmission line, as currently proposed, would bisect this master planned community. This community is currently undergoing a physical transformation that over the next 10 years or more will result in a completely new street and utility grid, neighborhood community center and retail, new affordable housing for the current families as well as additional affordable and market rate housing for a total of 1,700 households.

Visitacion Valley/Schlage Lock Development Project – San Francisco

The proposed Visitacion Valley/Schlage Lock project includes housing, open space, required infrastructure and transportation improvements, and community parks on approximately 20 acres. The parcel has 12 building parcels and proposes up to 1,679 housing units, 46,700 square feet of

retail space, and over 2 acres of community open/green space. This property is located approximately 0.6 miles east of the proposed Jefferson-Egbert transmission line.

Candlestick Point Development Project – San Francisco

Candlestick Point is an approximately 281-acre development, including the recreation area, providing approximately 7,200 residential units, with regional-serving commercial and office uses. The development project is within a regionally designated Priority Development Area. The development project was approved by the Board of Supervisors in 2010. The western boundary of this development area is less than 1 mile from the Egbert Switching Station site.

Other Development Projects in Project Vicinity

320–400 Paul Avenue Internet Services Exchange – San Francisco

The nearby 320–400 Paul Avenue in San Francisco is the proposed development site of a data center project. Construction on the 400 Paul Avenue parcel will include a 187,000-square-foot, two-story data center building; two existing buildings will be renovated on the adjacent parcels (320 and 350 Paul Avenue). The project was approved by the City and County of San Francisco in September 2014, and project modifications were further approved in July 2016. The proposed Jefferson-Egbert transmission line would require a permanent easement approximately 950 feet long along the eastern edge of the 400 Paul Avenue parcel after crossing Paul Avenue northbound toward its connection into the proposed Egbert Switching Station. Construction has begun as of August 2017 and is expected to be completed in 2019. Therefore, construction is not likely to overlap with this project.

Pacific Place Retail Conversion – Daly City

The Pacific Place Retail Conversion project proposes to convert existing retail space on the bottom floor to residential uses. The developer proposes to redevelop the retail space into seven condominiums located at 2665 Geneva Avenue. The 1-acre parcel is located at the northwest corner of Geneva Avenue and Rio Verde Street. This parcel is located approximately 0.25 miles east of the Jefferson-Egbert transmission line at the intersection of Geneva Avenue and Santos Street and 0.25 miles west of the existing Martin Substation site. Construction activities are expected to occur between 2020 and 2022, which could overlap with the proposed project.

Geneva Avenue Mixed-Use – Daly City

The Geneva Avenue Mixed-Use project is located at 2960 Geneva Avenue in Daly City. The project entails development of 778 square feet of mixed-use retail/office space and a four-unit apartment building that would be an addition to an existing building. This parcel is located west

of the Martin Substation, immediately across Schwerin Street, and is approximately 0.40 miles east of the Jefferson-Egbert transmission line (at the intersection of Geneva Avenue and Santos Street). Construction activities are expected to occur during 2020; therefore, construction could overlap with this project.

Point Martin, Phase I – Daly City

The Point Martin Phase I project is located approximately 0.1 miles west of Carter Street in Daly City. The project would construct 16 detached homes on approximately 2 acres at Steve Courter Way and Martin Street. The city has approved all entitlements for the project. Construction activities are expected occur between 2019 and 2024, which could overlap with the proposed project.

Point Martin, Phase II – Daly City

The Point Martin Phase I project is located adjacent to and west of Carter Street in Daly City. The project would construct 117 detached homes on approximately 8 acres at Steve Courter Way and Martin Street. The city has approved all entitlements for the project. Construction activities are expected overlap with Point Martin Phase I, and would occur between 2019 and 2024. This construction time frame could overlap with the proposed project.

Midway Village Redevelopment – Daly City

The Midway Village Redevelopment project would replace an existing 150-unit affordable housing complex, with up to 566 housing affordable housing units and expand community spaces. The project is proposed to be developed on 11.75 acres immediately to the south of the existing Martin Substation site. Access to the site would be from Martin Street and Schwerin Street. The developer is working with the San Mateo County Department of Housing and Daly City to design and implement the project that would be built in four phases in order to avoid relocation the current resident off site for extended periods of time. The timing of construction is currently unknown.

Robertson Intermediate School Redevelopment – Daly City

The Robertson Intermediate School Redevelopment project would redevelop an approximately 7-acre property where the Bayshore Elementary School District's Robertson Intermediate School was formerly located. The project proposes the development of 71 single-family residences. The residences would be served by driveways off Martin Street, and the project site is located 0.1 miles from Martin Substation. Daly City approved the General Plan Amendment to rezone the site and adopted the Mitigated Negative Declaration for the project in April 2016 (PG&E 2018. Construction of the project began in 2018 is expected to be complete in 2021; therefore, construction could overlap with this project.

Transit/Infrastructure/Utility Projects in Project Vicinity

San Francisco Municipal Transportation Agency Improvement Projects

The San Francisco Municipal Transportation Agency initiated Muni Forward Transit Priority Projects in 2014, and three key corridors, including San Bruno Avenue, Visitacion Valley and Geneva Avenue, within the Bayview project site have undergone improvements or are slated for future improvements. These project are being implemented to improve pedestrian safety; bus reliability; and bicycle access for residents, businesses, transit riders, and visitors. The improvement projects in these corridors include lane modifications, traffic signal and stop sign changes, transit stop changes, parking and turn restrictions, and pedestrian improvements. In 2019, a new transit stop is proposed to be constructed on the northwest corner of San Bruno Avenue near Mansell Street, which is immediately adjacent to the proposed Jefferson-Egbert transmission line (SFMTA 2019a). Project planning is still underway for both the Geneva Avenue and Visitacion Valley corridors and are considered future projects (SFMTA 2019b).

Caltrain Electrification and California High-Speed Rail

The Peninsula Corridor Joint Powers Board's Caltrain Electrification project would replace Caltrain's existing diesel service with a fully electrified service from the 4th and King Station in San Francisco to the Tamien Station in San Jose. Electrification would improve regional commuter service and prepares the corridor to receive the high-speed rail system from downtown San Francisco to Los Angeles. Caltrain and the California High-Speed Rail Authority would share the infrastructure, staying within the existing right-of-way. The project corridor runs north–south and is located adjacent to the east of the proposed Egbert Switching Station. Construction is currently underway and is expected to be completed in early 2021.

Recology Modernization and Expansion Project – San Francisco and Brisbane

The Recology Modernization and Expansion Project is a comprehensible modernization program designed to facilitate management of the City and County of San Francisco's solid waste stream by constructing and operating a new, modern resource recovery facility. The proposed project would expand the Recology's existing Tunnel Avenue Facility, which straddles the geographic boundary between the City of Brisbane and the City and County of San Francisco. The proposed project would consolidate all Pier 96 Facility operations to the Tunnel Avenue Facility, decommission the Pier 96 Facility, and consolidate Recology's 7th Street Facility Operations to the Tunnel Avenue Facility (City of Brisbane 2017). The modernization and expansion portion of the project is located 0.4 miles from Martin Substation and the portion to be decommissioned is adjacent to the potential Amador Street staging area at South Container Terminal. The project would be phased over approximately 4 years, but the project initiation timeframe is unknown.

Hunters Point Substation Rebuild Project

PG&E proposes to rebuild the Hunters Point Substation on a 1.8-acre parcel at the northwest corner of Evans Avenue and Jennings Street in San Francisco, in the Bayview Hunters Point neighborhood. Electric power enters the existing substation at 115 kV and leaves the station at 12 kV from existing PG&E transmission and distribution power lines located within Evans Avenue.

F.5.2 Cumulative Impact Analysis

F.5.2.1 Aesthetics

Cumulative impacts to visual resources would occur where project facilities would be viewed in combination with other past, present, and future developments. The significance of cumulative visual impacts would depend upon a number of factors, including (1) the degree to which the viewshed is altered, (2) the degree to which visibility to scenic resources is impaired due to either view obstructions or direct impacts to scenic resource features, and (3) the degree to which a project conflicts with applicable zoning and other regulations governing scenic quality.

To the extent that the proposed project would be visible during construction along with one or more of the cumulative projects, adverse cumulative impacts may occur from the construction equipment, vehicles, materials, staging areas, and personnel. These construction impacts, however, would be temporary and would not create significant cumulative effects. Additionally, PG&E would implement APM AE-2 to ensure the construction areas are cleaned regularly (see Table B-6 in this EIR for a list of APMs).

The visible component of the proposed project that would remain following construction is the proposed Egbert Switching Station structure and perimeter fencing, which was demonstrated to be consistent with the intent of the underlying PDR-2 zoning district, associated height and bulk district regulations, and General Plan policies pertaining to scenic views and compatibility of existing and proposed development. Although, the switching station building and perimeter fencing is compatible with the local surrounding area that includes multistory residential structures, industrial facilities, and a rail corridor, MM AE-1 would be implemented to reduce potential impacts to foreground views of the perimeter fence. MM AE-1 requires coordination with the City and County of San Francisco regarding installation of landscaping along Egbert Avenue, in order to attract attention away from the fencing when viewed from an immediate foreground distance. PG&E would also implement nighttime lighting requirements to minimize the visibility of lighting from off-site locations (APM AE-1). In addition, the Egbert Switching Station would be visually compatible with proposed development, including the planned data center development at 320–400 Paul Avenue, that entails building renovations and the demolition and replacement of an existing two-story structure located approximately 800 feet to the southwest of the Egbert Switching Station site (assuming the proposed project is constructed as designed). Similarity in terms of overall scale and form of the proposed

switching station building and perimeter fencing and existing development helps the facility to visually integrate into the surrounding urban-industrial setting. Also, due to similarity in scale with surrounding development in the immediate area, the switching station building and perimeter fencing would not substantially block or otherwise interrupt an existing scenic view from an identified scenic vista (i.e., trails within Bayview Park and San Bruno Mountain State Park). The proposed switching station, therefore, does not contribute substantially to a cumulative visual impact related to alteration of the viewshed, impaired views to scenic features, or inconsistency with zoning and regulations governing scenic quality.

F.5.2.2 Air Quality

The air emissions from construction of the proposed project, as well as the nearby projects, would contribute to the cumulative air quality issues in the San Francisco Bay Area Air Basin, particularly by increasing the quantity of regional nonattainment air quality pollutants (reactive organic gas (ROG), oxides of nitrogen (NO_x), particulate matter less than or equal to 10 microns in diameter (PM_{10}), and particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$)). In developing thresholds of significance for air pollutants, Bay Area Air Quality Management District (BAAQMD) considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be considered cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. As described in Section D.3, Air Quality, criteria pollutant emissions generated by short-term construction and long-term operations of the proposed project would not exceed the BAAQMD significance thresholds. Because the air emissions would be temporary and only occur during limited portions of the 22-month construction period, the proposed project would not result in a substantial contribution to the region's air quality. Additionally, the BAAQMD has established recommended guidelines for management of emissions during construction of projects within the region to address cumulative impacts of construction on air quality; the APMs listed in Table B-6 (APM AQ-1 through APM AQ-3) follow those guidelines, thereby further minimizing the significance of the project's contribution to regional air quality.

F.5.2.3 Biological Resources

The proposed project, as well as those considered as part of the cumulative effects analysis, is located within a highly developed urban area with little to no naturally occurring undisturbed habitat. Although some special-status wildlife species are known to occur in the region, because of the lack of suitable habitat for these species within and immediately adjacent to the project, no direct or indirect adverse impacts would occur to individuals of these species, particularly white-tailed kite (*Elanus leucurus*), American peregrine falcon (*Falco peregrinus anatum*), and American badger (*Taxidea taxus*) that could occur in open space areas in the project vicinity. While

common bird species adapted to urban environments could potentially nest within existing landscaped vegetation along and within the project site, implementation of APM BIO-1 and APM BIO-2 would reduce potential impacts on nesting birds; the worker environmental awareness program (APM BIO-1) would inform workers about impact avoidance measures to be taken for active nests within the project site, and APM BIO-2 would require preconstruction surveys to identify any active nests within and immediately adjacent to construction areas and measures to be implemented to avoid direct/indirect impacts to any observed active nests.

Several special-status plant species have also been identified as occurring in the project study area, particularly near the Carter Street potential staging area. However, APM BIO-3 includes the requirement to conduct pre-construction surveys at this site to determine the potential for any special-status plants to occur and avoidance of any special-status plants found; therefore, no adverse impacts to special-status plant species would occur. The proposed project would also have no adverse effects on wetlands or other aquatic resources.

The projects listed in Table F-1 could have construction schedules that overlap with the proposed project; however, because of the urban nature of these projects, only minor impacts are expected to occur on associated biological resources. Because the proposed project is within a highly developed area, and with implementation of the biological resources APMs listed in Table B-6, the proposed project is not expected to have any substantial adverse impacts on common or special-status resources occurring within or adjacent to the project site; therefore, the minor impacts on biological resources associated with the project would not substantially contribute to the cumulative effect on these resources in the region.

F.5.2.4 Cultural Resources

Construction of the proposed project would not contribute to the potential for loss of known significant cultural resources; however, construction of the proposed project may contribute to the potential loss of yet to be discovered significant cultural resources. The cumulative scenario projects occur in urban areas that have been previously disturbed/developed. As previously described in Section D.5.1, the only historic resources located within the project site are two unevaluated historic-era resources located within a potential staging area in the Martin Substation. These include a standing warehouse structure and an underground utility vault and covered manhole constructed in the early twentieth century. However, there would be no ground disturbance during use of the potential staging area, and the two recorded resources would be avoided. More resources may be present in areas where pavement and other obstacles precluded survey. APM CR-1 through APM CR-4 would reduce impacts to a less-than-significant level for the potential to cause a substantial adverse change in the significance of an archaeological resource, and no substantial contribution to any potential cumulative effects on unknown cultural resources from development of the other related projects. Additionally, compliance with APM CR-

5 would ensure, in the event of inadvertent discovery human remains, that remains are not negatively impacted.

As is the case for the proposed project, other related projects in the area (such as the 320–400 Paul Avenue, Internet Services Exchange, Caltrain Electrification and California High-Speed Rail, redevelopment projects, and construction of buildings) may also potentially affect cultural resources through excavation of foundations or pile driving. Each project within sensitive areas would evaluate and mitigate for the particular resources they could affect. Each would be expected to include monitoring and other measures to minimize the potential for these effects. With implementation of the cultural resources APMs listed in Table B-6, the proposed project would have a negligible contribution to any potential cumulative effects.

F.5.2.5 Energy

Potential cumulative impacts on energy would result if the proposed project—in combination with past, present, and future projects—would result in the wasteful or inefficient use of energy. This could result from development that would not incorporate sufficient building energy efficiency features, would not achieve building energy efficiency standards, or would result in the unnecessary use of energy during construction and/or operation. The cumulative projects within the areas serviced by the energy service providers would be applicable to this analysis. Projects that include development of large buildings or other structures that would have the potential to consume energy in an inefficient manner would have the potential to contribute to a cumulative impact. Projects that would mostly include construction, such as infrastructure projects, could also contribute to a cumulative impact; however, the impact of these projects would be limited, because they would not typically involve substantial ongoing energy use.

As described previously, the proposed project would not result in wasteful, inefficient, or unnecessary use of energy. Cumulative projects that include long-term energy demand, such as development projects, would be subject to California Green Building Standards Code, which provides energy efficiency standards for commercial and residential buildings. The California Green Building Standards Code would implement increasingly stringent energy efficiency standards that would require the proposed project and the cumulative projects to minimize the wasteful and inefficient use of energy. In addition, cumulative projects would be required to meet or exceed the Title 24 building standards, further reducing the inefficient use of energy. Future development would also be required to meet even more stringent requirements, including the objectives set in the Assembly Bill 32 Scoping Plan (CARB 2017). Furthermore, various federal and state regulations, including the Low Carbon Fuel Standard, Pavley Clean Car Standards, and Low Emission Vehicle Program, would serve to reduce the transportation fuel demand of cumulative projects.

In consideration of cumulative energy use, the proposed project would not contribute to a substantial demand on energy resources or services such that new regional energy facilities would be required to be constructed as a result of the incremental increase in energy demand resulting from the proposed project. Therefore, the proposed project would have a less than cumulatively considerable cumulative impact with respect to the wasteful or inefficient use of energy. As such, the proposed project would not result in a cumulatively considerable contribution to a potential cumulative impact.

F.5.2.6 Geology and Soils

As stated in Section D.7, Geology and Soils, the project site is in a seismically active area with underlying older geologic deposits in the majority of the project site. Potential cumulative geologic impacts (considering all proposed and in-progress development in the project site) consist of strong ground-shaking and seismic-induced ground failure; whereas, hazards with the greatest potential to impact the project include liquefaction and landslides. However, with implementation of APM GS-1 and APM GS-2, which provide for geotechnical investigations and appropriate engineering and construction measures, any potential impacts would be reduced to less-than-significant levels or eliminated entirely. Furthermore, structural components of the proposed project are subject to a federal, state, and regional regulatory framework designed to minimize exposure to geological hazards, and the other projects in the cumulative scenario would be subject to the same regulatory framework and would therefore also minimize and avoid exposure to geological hazards. Other projects in the vicinity, such as the proposed building construction on 320–400 Paul Avenue in San Francisco, would be expected to perform geotechnical investigations and would also be expected to employ appropriate engineering and construction measures. Consequently, the potential combined impacts of the proposed project and other identified projects would not result in a cumulatively considerable impact. The impacts of the proposed project are not individually significant and would not contribute significantly to any potential hazard when considered individually as well as with other related projects that have been identified for development in the area.

According to the results of the paleontological inventory efforts documented in Table D.7-3, the paleontological sensitivity of the soils underlying the proposed project range from "very low" to "moderate." Identification of paleontological resources, even within soils with a relatively greater potential to support the presence of fossils, is relatively infrequent throughout the area surrounding the project site. While it is possible that paleontological resources could be impacted during ground-disturbing activities associated with the proposed switching station, transmission lines along Egbert Avenue, and approximately half of the length of the proposed Jefferson-Egbert transmission line, the ground disturbance depths and methods of construction activity are unlikely to impact or otherwise yield evidence of buried paleontological resources. As is the case for the proposed project, other related projects in the area (such as the 320–400 Paul Avenue, Internet Services Exchange, Caltrain Electrification and California High-Speed Rail, redevelopment

projects, and construction of buildings), could also potentially affect paleontological resources through excavation of foundations or pile driving. Implementation of APM PR-1 and APM PR-2 (see Table B-6) would reduce impacts to a less-than-significant level for the potential to cause a substantial adverse change in the significance of a paleontological resource, and no substantial contribution to any potential cumulative effects on unknown cultural resources would occur from development of the other related projects.

F.5.2.7 Greenhouse Gas Emissions

As discussed in Section D.8, Greenhouse Gas Emissions, global climate change is a cumulative impact; a project participates in this potential impact through its contribution combined with the cumulative increase of all other sources of greenhouse gas (GHG) emissions. Short-term amortized GHG emissions associated with proposed project construction would result in annualized generation of 42 metric tons (MT) of carbon dioxide equivalent (CO_2e) with implementation of APM GHG-1. The combined total GHG emissions (operations and amortized construction) would be 106 MT CO_2e per year, with implementation of APM GHG-1 and APM GHG-2 (see Table B-6). As shown in Table D.8-7, the emissions would be below BAAQMD's recommended threshold of 10,000 MT CO_2e per year. As a result, the proposed project would not contribute significantly to the emissions associated with the construction of other projects planned in the area that could be underway at the same time, and thus it would not be cumulatively considerable.

F.5.2.8 Hazards and Hazardous Materials

All potential impacts related to hazards and hazardous materials are considered less than significant with implementation of the APM HM-1 through APM HM-3 (see Table B-6) and MM HM-1 described in Section D.9. Specifically, with implementation of APM HM-1 through APM HM-3 and MM HM-1, impacts from use of hazardous materials as part of construction, operation, and maintenance of the proposed project would be less than significant. Hazardous materials that would be used during both the construction and operational phases of the proposed project are identified in Section D.9, Hazards and Hazardous Materials. Hazardous materials would be used, stored, and transported in compliance with applicable regulations.

Based on historical records, there is potential for soil and/or shallow groundwater contamination to be present within the project site. During construction activities, ground disturbance could encounter contaminated soils and/or groundwater, which could result in exposure of construction personnel and the public to hazardous substances and create potential for spread, if not properly classified and handled. Compliance with APM HM-3 would require pre-construction testing of soils and groundwater where there is insufficient evidence available to confirm the absence of soil or groundwater contamination within the expected disturbance area (both lateral and vertical) for construction. Compliance with MM HM-1 would require more stringent soil testing, consistent

with the Maher Ordinance, reducing potential impacts to a less-than-significant level. Other projects in the vicinity, such as the proposed building construction on 320–400 Paul Avenue in San Francisco and the other redevelopment project areas in the City and County of San Francisco, Daly City, and the City of Brisbane, also have the potential to disturb potentially contaminated soils. Each one would be expected to characterize soils and or sediments and follow applicable regulations for characterization, handling, and disposing of soils or work within areas of potentially contaminated sediments (e.g., Maher Ordinance, Regional Water Quality Control Board/Department of Toxic Substances Control regulations, California OSHA requirements, Department of Transportation requirements, and others). The implementation of PG&E's standard hazardous substance control, emergency response, and health and safety procedures would further minimize potentially significant impacts.

The impacts of the proposed project related to hazards or hazardous materials are not individually significant with implementation of APM HM-1 through APM HM-3 and MM HM-1. Furthermore, cumulative effects of this and other related excavation projects would not be significant, because each project must similarly follow the applicable federal and state rules and regulations required to ensure that no substantial impacts occur.

F.5.2.9 Hydrology and Water Quality

As stated in Section D.10, Hydrology and Water Quality, project construction activities at the proposed Egbert Switching Station site and staging areas have the potential to affect water quality temporarily, and impacts would be less than significant. Implementation of the APMs listed in Table B-6 (APM WQ-1 through APM WQ-5, APM HM-1, and APM HM-3) would further reduce less-than-significant impacts to hydrology and water quality. The other described projects that could have an effect on water quality would be the other construction projects in areas draining to the San Francisco Bay. These projects would be subject to the same federal, state, and local regulations regarding drainage plans and flooding potential as the proposed project and would typically be required to draft and implement a stormwater pollution prevention plan with specific provisions that address erosion and sedimentation control during construction and operation. These impacts would be localized and controlled at the source and would not be considerable in relation to other cumulative projects; therefore, the proposed project would not contribute substantially to any potential cumulative impacts on hydrology and water quality.

F.5.2.10 Land Use and Planning

Construction of the proposed project combined with the cumulative project listed in Table F-1, may create a significant short-term construction-related cumulative impact to existing land uses (e.g., schools, residents, recreation facilities, and businesses adjacent to study area roads and public facilities within study area roads). It is anticipated that cumulative impacts to existing land uses

resulting from ongoing development can be mitigated to less than significant at the individual project level by incorporating APMs as described in Section D.11, Land Use and Planning (APMs also listed in Table B-6 of this EIR). These measures include construction notification and minimizing construction disturbance, and providing a public liaison and toll-free information hotline to respond to concerns of neighboring land uses. An additional APM (APM TR-1, see Table B-6), regarding traffic management implementation during construction activities and mitigation measure (MM TR-1), described in Section D.13, restoration of construction work areas to pre-project condition would mitigate short-term construction impacts to traffic and, therefore, impacted land uses. These measures would reduce the proposed project's cumulative construction impacts to a level that would be less than significant and not cumulatively considerable.

The proposed switching station would be consistent with the land uses established in San Francisco General Plan and installation of transmission lines would primarily occur within PG&E's right-of-way in city streets. The proposed project could result in a significant and unavoidable land use impact associated with the proposed Jefferson-Egbert transmission line segment that passes through Santos Street and Sunnydale Avenue in the eastern portion of the Sunnydale-Velasco community, within the Sunnydale HOPE SF Master Plan Development. This project was previously identified as a reasonably foreseeable project in Section F.5. If the proposed Jefferson-Egbert transmission is installed within the existing roadway alignment, , the proposed project would create an incompatible land use with the transmission line running through proposed Sunnydale HOPE SF residential units rather than the proposed Sunnydale HOPE SF street alignment. Therefore, potentially significant physical impacts would occur within the Sunnydale HOPE SF development if the proposed Jefferson-Egbert transmission line is installed within the existing roadway alignment. To reduce potential land use conflicts, PG&E shall implement MM LU-1, which requires PG&E to coordinate the installation of the Santos Street segment of the Jefferson-Egbert transmission line with the City and County of San Francisco. The transmission line would be installed in the realigned street section and avoid street sections planned for removal/realignment in the Sunnydale HOPE SF Master Plan. However, even with implementation of mitigation relative to land use, the uncertainty remains regarding whether or not the construction schedules for Sunnydale and the proposed project can be adequately coordinated. Furthermore, because of the uncertain schedules, the land use mitigation as proposed may not fully address the extent of the disruption to the Sunnydale HOPE SF development. Therefore, land use impacts at the approved Sunnydale HOPE SF Master Plan Development would be considered significant and unavoidable (Class I). This impact is disclosed and discussed in Section D.11, Land Use and Planning.

F.5.2.11 Noise

Potential adverse noise impacts during construction of the proposed project would be localized and would occur intermittently for varying periods of time throughout the estimated 22-month construction period. Where construction schedules overlap, short-term construction noise impacts

may occur simultaneously at a few work locations along the overall length of the project, but would be primarily limited to daytime hours compatible with local noise ordinances. Unplanned nighttime work would be infrequent, occur in limited locations, and be short term. However, MM NO-1 would be implemented to address nighttime construction noise, as well as daytime construction noise levels that exceed 90 dBA L_{eq} at the closest residences (which equates to levels that could exceed 65 dBA L_{eq} indoors). A number of projects listed in Table F-1 (including the nearest 320–400 Paul Avenue Internet Services Exchange expected to be completed prior to construction at the proposed Egbert Switching location, Caltrain Electrification and California High-Speed Rail, and redevelopment projects, and construction of buildings) are in the near vicinity and may have overlapping construction periods. As outlined in Section D.12, Noise, implementation of APM NO-1 through APM NO-7 (see Table B-6), and MM NO-1, described in Section D.12, would reduce noise impacts from construction. In addition, APM TR-1 would further minimize noise impacts during construction by identifying optimal haul routes and developing circulation and detour plans for local streets. While it may not be feasible in all cases to reduce project noise to a level that is consistent with applicable noise standards (San Francisco's criteria of 80 A-weighted decibels (dBA) at 100 feet), the duration of construction activity at any one location would be very short (e.g., pile driving to install shoring for 2 to 3 days).

Long-term ambient noise levels at the proposed Egbert Switching Station site are not expected to result in an increase that exceeds existing levels by more than 8 dBA. The proposed switching station is located in an area with primarily industrial and commercial uses, and is not anticipated to exceed City and County of San Francisco noise standards for residential uses within 50 feet. Of the cumulative projects in Table F-1, only the ongoing Caltrain operations would potentially affect the same area. Electrified train engines produce measurably less noise than the existing diesel train engines, contributing to a reduction of cumulative long-term noise impacts to the area; therefore, the proposed project would not contribute significantly to cumulative noise impacts.

F.5.2.12 Transportation

As discussed in Section D.13, construction of the proposed project would contribute to short-term impacts to traffic circulation and parking on local roadways along the underground transmission line routes and along Egbert and Paul Avenues near the proposed Egbert Switching Station site during the construction period. For the most part, other than at the auger bore locations, the work related to installing the underground line is transient at any given location. At the auger bore locations, work remains short term (i.e., approximately 6 weeks). A minimum of one traffic lane would remain open at all times on all affected streets except potentially on the westernmost block of westbound Mansell Street. Mansell Street between University Street and Visitacion Avenue may require a traffic reroute. The divided street narrows to one lane in each direction, and construction through the area may require a full road closure for the westbound lane for a period of up to approximately 10 days. With implementation of APM TR-1(see Table B-6) and MM TR-

1, as described in Section D.13, the proposed project would not have a substantial contribution to traffic impacts.

Projects along the transmission line routes, such as the Geneva Avenue Multimodal Improvement Project, that may be under construction at the same time have the potential for a cumulative impact on traffic and transportation in the area. Special events planned in the area can also affect these same resources. PG&E would apply for a Special Traffic Permit from each of the cities (i.e., City and County of San Francisco, City of Brisbane, and Daly City) and would also submit a traffic management plan as part of each application. The cities' permit processes would address other activities in the area that may contribute to traffic impacts at the specific times of construction. Other projects would have their own traffic management plans or traffic control plans, and all required permits would be considered by the local municipalities and would be coordinated at the time of application.

Several of the projects listed on Table F-1 are expected to have some overlap with project construction, including the Caltrain Electrification, California High-Speed Rail, and the development projects in Daly City (including Pacific Place Retail Conversion, Point Martin Phases I and II, and Robertson Intermediate School Development). For others, the construction timeline is uncertain, and therefore, may overlap. Most of these projects would involve off-street construction, so the on-street impacts of the proposed project are not expected to have a combined substantial cumulative impact. Further, APM TR-1 requires PG&E to coordinate construction traffic access with the City and County of San Francisco, SFMTA, City of Brisbane, Daly City, and San Mateo County Transit District (SamTrans).

A potential cumulative project impact is the project's proposed alignment through Santos Street and Sunnydale Avenue in the eastern portion of the Sunnydale HOPE SF site (Sunnydale/Velasco low-income housing community). Because the phasing of the work on Sunnydale HOPE SF is contingent on the availability of funding from a variety of largely public sources, construction schedules are subject to change within the next 5–10 years, which could be difficult to coordinate with the preferred transmission line alignment. Any installation within these streets, if not properly coordinated with the Sunnydale HOPE SF construction, could mean delays for both projects, and/or repeated disruptions for the public housing residents of Sunnydale HOPE SF. However, as part of APM TR-1 (previously detailed), PG&E would coordinate the transmission alignment and construction activities with the City and County of San Francisco, including the City's HOPE SF program, to minimize traffic impacts to Sunnydale HOPE SF to less-than-significant levels. Furthermore, per MM LU-1, PG&E shall coordinate the installation of the Santos Street segment of the Jefferson-Egbert transmission line with the City and County of San Francisco. The transmission line shall be installed in the realigned street section and shall avoid street sections planned for vacation/realignment in the Sunnydale HOPE SF Master Plan. In addition, with

implementation of MM TR-1, PG&E would be responsible for the restoration of the construction area to pre-project conditions.

Although the construction schedules of some projects listed in Table F-1 are unknown at this time, with proper coordination and development of traffic control plans coordinated through the municipalities, no significant cumulative construction impacts to traffic or transportation are expected to occur.

The operation of the proposed project would generate minimal traffic only required for routine patrolling and maintenance, and therefore, the proposed project would not contribute to long-term cumulative impacts to traffic.

F.5.2.13 Tribal Cultural Resources

Construction of the proposed project would not contribute to the potential for loss of known tribal cultural resources. However, construction of the proposed project may contribute to the potential loss of yet-to-be-discovered significant tribal cultural resources (TCRs). The cumulative scenario projects occur in urban areas that have been previously disturbed/developed. As described in Section D.14, Tribal Cultural Resources, no archaeological resources or other potential cultural resources of Native American origin or affiliation have been identified within or near the project site through archaeological survey or a Northwest Information Center records search. Implementation of APM CR-1 through APM CR-4 would reduce the potential for unknown TCRs to be impacted during ground-disturbing activities, and APM CR-5 would ensure any human remains discovered during ground-disturbing activities would not be significantly impacted. Additionally, MM TCR-1 defines protocols to be implemented in the event of inadvertent discovery of TCRs to ensure proper associated avoidance, notification, and treatment.

As is the case for this project, other related projects in the area (such as the 320–400 Paul Avenue, Internet Services Exchange, Caltrain Electrification and California High-Speed Rail, redevelopment projects, and construction of buildings) may also potentially affect TCRs through excavation of foundations or pile driving. Each project within sensitive areas would evaluate and mitigate for the particular resources they could affect. Each would be expected to include monitoring and other measures to minimize the potential for these effects. With implementation of MM TCR-1 and APM CR-1 through APM CR-4 listed in Table B-6, the proposed project would have a negligible contribution to any potential cumulative effects.

F.5.2.14 Wildfire

No project improvements are proposed in high FHSZs (CAL FIRE 2008a, 2008b). The southern 0.1 miles of the project site would be constructed adjacent to an SRA designated as a High FHSZ. Additionally, all impacted areas would be restored to their original, pre-project condition. The

proposed project would not expose people or structures to a significant risk involving wildfire or other post-fire risks. Therefore, the proposed project would not result in changes to the project site that would increase risk of wildfires.

Although other projects in the vicinity have the potential to increase potential wildfire risks near San Bruno Mountain State Park, they must comply with all policies, including the Requirements for Wildland-Urban Interface Fire Areas, established in the California Fire Code. Additionally, all development projects within a hazardous fire area must be reviewed by the county fire warden to ensure that building materials, access, vegetative clearance from structures, fire flows and water supplies are adequate for fire protection purposes and in conformance to the fire policies of the San Mateo County General Plan. Therefore, compliance with all requirements and policies established to reduce fire hazards, would ensure that cumulative impacts associated with wildfires are less than significant.

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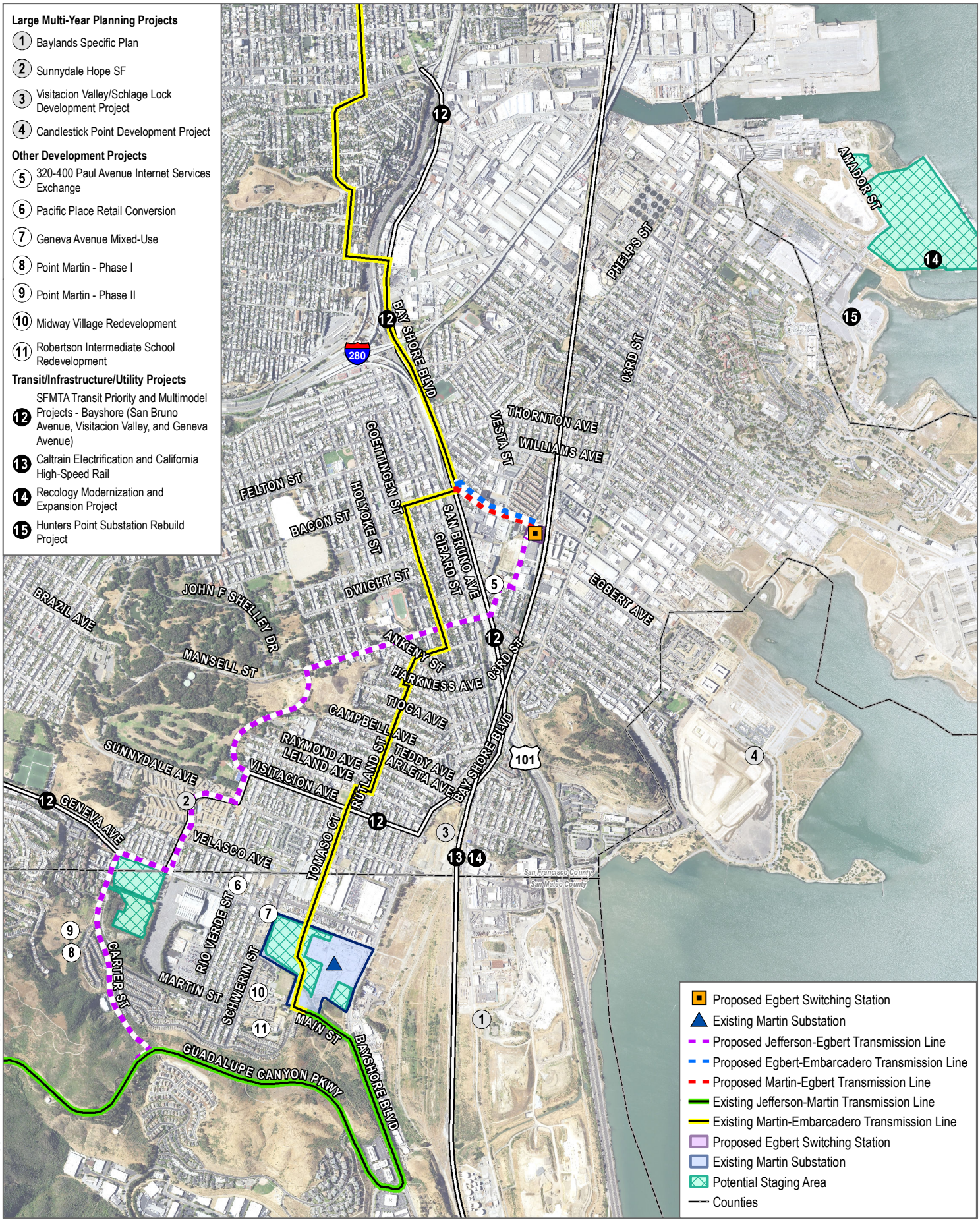
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SOURCE: USDA 2016; PG&E 2017; San Francisco County 2018; San Mateo County 2018

DUDEK

0 1,000 2,000 Feet

FIGURE F-1

Cumulative Projects Map

Egbert Switching Station (Martin Substation Extension) Project

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G. MITIGATION MONITORING AND REPORTING

This Draft Environmental Impact Report (EIR) includes the Mitigation Monitoring, Compliance, and Reporting Program (MMCRP) for the mitigation measures proposed for the Egbert Switching Station (Martin Substation Extension) Project (proposed project). This section provides the recommended framework for effective implementation of the MMCRP by the California Environmental Quality Act (CEQA) lead agency and the California Public Utilities Commission (CPUC), and it describes the roles of responsible parties in carrying out and enforcing adopted mitigation measures.

G.1 AUTHORITY FOR THE MITIGATION MONITORING, COMPLIANCE, AND REPORTING PROGRAM

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 the standard practice of the CPUC, pursuant to its statutory responsibility, to protect the environment, to require that mitigation measures stipulated as conditions of approval are implemented properly, and monitored and reported on. In 1989, this requirement was codified statewide as Section 21081.6 of the California Public Resources Code (CEQA). Section 21081.6 requires a public agency to adopt an MMCRP 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 (14 CCR 15000 et seq.) was added in 1999 to further clarify agency requirements for mitigation monitoring or reporting.

The purpose of the MMCRP is to ensure that measures adopted to mitigate or avoid significant impacts of a project are implemented. The CPUC views the MMCRP as a working guide to facilitate not only the implementation of applicant proposed measures (APMs) and mitigation measures by the project proponent, but also the monitoring, compliance, and reporting activities of the CPUC and any monitors it may designate.

G.2 ORGANIZATION OF THE FINAL MITIGATION MONITORING PROGRAM

If the project is approved, the MMCRP should serve as a self-contained general reference for the mitigation monitoring program adopted by the CPUC for the project. To accomplish this, the final mitigation monitoring program (final plan) should contain the following elements. If and when a project has been approved by the CPUC, the CPUC compiles a final plan from the mitigation monitoring program in the final EIR, as adopted. The elements of the mitigation monitoring program are as follows:

Mitigation Monitoring Program Elements

MMCRP Introduction

- Authority and purpose of the program
- Program adoption process
- Organization of the MMCRP

Roles and Responsibilities

- Monitoring responsibility
- Enforcement responsibility
- Mitigation compliance responsibility
- Dispute resolution

General Monitoring Procedures

- Environmental monitor
- Construction personnel
- General reporting requirements
- Public access to records.

Project Description

In the final plan, this section will contain a concise overview and reference description of the approved project and will clearly outline its physical locations and timetable, including construction segments. This section will also specify the "master" reference(s), which the monitors and Pacific Gas & Electric Company (PG&E) will use in carrying out the program (e.g., the final EIR, but also more detailed working maps and plans). The APMs to which PG&E has committed to reduce potential impacts will also be listed in this section. This section will also include requirements for the submittal of plans/documentation to be prepared by PG&E as outlined in the project description.

Agency Jurisdictions

In the final plan, this section will include the list of agencies with jurisdiction over the project and a description of where their respective jurisdictions exist. For example, for a given construction segment, information about each jurisdictional agency's contact person (including name, address, and telephone and fax numbers) should be provided.

Mitigation Monitoring Programs

The final plan will incorporate the organization and display of the individual issue area mitigation measures presented in the final EIR, as well as all APMs applicable to the project. Each mitigation measure will be numbered and described briefly. The final EIR should be consulted for an in-depth discussion of each mitigation measure. The final plan will also include the following information:

- The responsible parties, schedule, and reporting requirements for carrying out the monitoring activity for each mitigation measure
- Effectiveness criteria for evaluating implementation of the mitigation measure

G.3 ROLES AND RESPONSIBILITIES

As the lead agency under CEQA, the CPUC is required to monitor this project to ensure that the required mitigation measures and APMs are implemented. The CPUC will be responsible for ensuring full compliance with the provisions of this monitoring program and has primary responsibility for implementation of the monitoring program. The purpose of the monitoring program is to document that the mitigation measures required by the CPUC are implemented and that mitigated environmental impacts are reduced to the level identified in the program.

The CPUC may delegate duties and responsibilities for monitoring to other environmental monitors or consultants as deemed necessary, and some monitoring responsibilities may be assumed by responsible agencies (such as affected jurisdictions). The number of construction monitors assigned to the project will depend on the number of concurrent construction activities and their locations. However, the CPUC will ensure that each person who is assigned monitoring duties or responsibilities is qualified to monitor compliance.

Any mitigation measure study or plan that requires approval from the CPUC must allow for adequate review time, as stipulated in MMRCP. Other agencies and jurisdictions may require longer review periods. It is the responsibility of the environmental monitors assigned to the project to ensure that appropriate agency reviews and approvals are obtained.

The CPUC and its environmental monitors will also ensure that any variance process or deviation from the procedures identified under the monitoring program is consistent with CEQA requirements; no project variance will be approved by the CPUC if it creates new significant impacts. A variance should be strictly limited to minor project changes that will not trigger other permit requirements; the changes must neither increase the severity of an impact nor create a new impact, and they must clearly and strictly comply with the intent of the mitigation measure. A proposed project change that has the potential for creating significant environmental effects will be evaluated to determine whether supplemental CEQA review is required. Any proposed deviation from the approved project, adopted mitigation measures, and APMs, and correction of

such deviation, shall be reported immediately to the CPUC and the environmental monitors assigned to the project for their review and approval. In some cases, a variance may also require approval by a CEQA-responsible agency.

G.4 ENFORCEMENT RESPONSIBILITY

The CPUC is responsible for enforcing the procedures adopted for monitoring through the environmental monitors assigned to the project. The environmental monitors shall note problems in the field, notify appropriate agencies or individuals about issues, and report compliance status to the CPUC project manager.

The 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, adopted mitigation measures, or APMs. The CPUC may delegate this authority to third-party environmental monitors assigned to the project.

G.5 MITIGATION COMPLIANCE RESPONSIBILITY

The applicant, PG&E, is responsible for successfully implementing all the adopted mitigation measures in the MMCRP. The MMCRP will contain criteria that define whether mitigation is successful. Standards for successful mitigation also are implicit in many mitigation measures that include requirements such as obtaining permits or avoiding a specific impact entirely. Other mitigation measures include success criteria that are listed in the mitigation measure. Additional mitigation success thresholds may be established by applicable agencies with jurisdiction through the permit process and through the review and approval of specific plans for the implementation of mitigation measures.

G.6 DISPUTE RESOLUTION

It is expected that the final MMCRP will reduce or eliminate many potential disputes. However, even with the best preparation, disputes may occur. The following procedure will be observed for dispute resolution *between CPUC staff and PG&E*:

- Disputes and complaints should be directed to the CPUC's 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.

G.7 GENERAL MONITORING PROCEDURES

G.7.1 Environmental Monitors

The CPUC and the 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 to the project must be on site during construction activities that have the greatest 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.

G.7.2 Construction Personnel

A key component of a successful mitigation monitoring program will be obtaining the full cooperation of construction personnel and supervisors. Many of the mitigation measures require action on the part of the construction supervisors or crews for successful implementation. To ensure success, the following actions, detailed in specific mitigation measures included in the final plan, will be taken:

- Procedures to be followed by construction companies hired to do the work will be written into contracts between PG&E and any construction contractors. Procedures to be followed by construction crews will be written into a separate agreement that all construction personnel will be asked to sign, denoting agreement.
- One or more preconstruction meetings will be held to inform and train construction personnel about the requirements of the monitoring program (as detailed in the final plan).
- A written summary of mitigation monitoring procedures will be provided to construction supervisors for all mitigation measures requiring their attention.

G.7.3 General Reporting Procedures

Site visits and specified monitoring procedures performed by other individuals will be reported to the environmental monitors assigned to the relevant construction segment. A monitoring record form will be submitted to the environmental monitor by the individual conducting the visit or procedure so that details of the visit can be recorded and progress traced by the environmental monitors. A checklist will be developed and maintained by the environmental monitors to track all procedures required for each mitigation measure and to ensure that the timing specified for the procedures is adhered to. The environmental monitors will note any issues that may occur and take appropriate measures to bring a situation back into compliance. PG&E shall provide the CPUC with written weekly reports of the project, which shall include progress of construction, resulting impacts, mitigation implemented, and all other noteworthy elements of the project. Weekly reports shall be required as long as mitigation measures are applicable.

G.7.4 Public Access to Records

The public is allowed access to records and reports used to track the monitoring program. Monitoring records and reports will be made available for public inspection by the CPUC on

request. The CPUC and PG&E will develop a filing and tracking system. For additional information about mitigation monitoring and reporting for the proposed project, the Energy Division of the CPUC will maintain an Internet website, accessible at https://www.cpuc.ca.gov/environment/info/dudek/egbert/egbert.html.

G.8 CONDITION EFFECTIVENESS REVIEW

To fulfill its statutory mandates to mitigate or avoid significant effects on the environment and to design a mitigation monitoring program that will ensure compliance during project implementation (PRC 21081.6), the CPUC may conduct a comprehensive review of conditions that are not effectively mitigating impacts at any time it deems appropriate, including as a result of the dispute resolution procedure outlined in Section G.6.

If in either review the CPUC determines that any conditions are not adequately mitigating significant environmental impacts caused by the project, then the CPUC may impose additional reasonable conditions to effectively mitigate these impacts. These reviews will be conducted in a manner consistent with the CPUC's rules and practices.

G.9 MITIGATION MONITORING, COMPLIANCE, AND REPORTING PROGRAM

Mitigation monitoring program tables are presented at the end of each issue area section (Section D.2 through Section D.15). These tables, along with the full text of the mitigation measures themselves, will form the basis for implementation of the MMCRP.

G.10 REFERENCES CITED

14 CCR 15000–15387 and Appendix A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

California Public Resources Code, Section 21000–21177. California Environmental Quality Act,

H. PUBLIC PARTICIPATION

This section outlines the scoping and public participation program completed by the California Public Utilities Commission (CPUC) before issuance of the Draft Environmental Impact Report (EIR).

H.1 ENVIRONMENTAL IMPACT REPORT SCOPING PROCESS

The scoping process for the Egbert Switching Station (Martin Substation Extension) Project (proposed project) EIR consists of the following three elements, each of which is described in more detail below:

1. Publication of a Notice of Preparation (NOP) of an EIR and notice of public scoping meeting soliciting comments from affected public agencies and members of the public, as required by the California Environmental Quality Act (CEQA) (November 16, 2018)
2. Public scoping meeting and meetings with agencies (December 3, 2018)
3. Summarization of scoping comments in a scoping report (January 30, 2019)

The scoping process provides an opportunity for governmental agencies and the public to provide comments on the issues and scope of the EIR. Written comments received during the scoping process become part of the public record and are reviewed and considered by CPUC in preparing the EIR. To maximize agency and public input on the proposed project, CPUC established a website and local EIR information repositories. The NOP, scoping report, public notices, and other project information were posted to the project website (http://www.cpuc.ca.gov/environment/info/dudek/egbert/egbert.html) for review by the public and interested parties.

H.1.1 Notice of Preparation

In accordance with California Public Resources Code, Section 21092.2, CEQA Guidelines Section 15082, and CPUC General Order 131-D, CPUC completed distribution of the NOP and public notice for the EIR for the proposed project on November 16, 2018, and distributed it as discussed below. The official public review period occurred between November 16, 2018, and December 17, 2018. Public notification included direct agency and public notification, newspaper announcements, and posting on the project website.

Agency, Private Organization, and Interest Group Notification

The State Clearinghouse and state and local trustee agencies that may be affected by the proposed project, as well as agencies and organizations that had previously written to CPUC to request notice, were included on the distribution list. The public notice of availability of the NOP

was sent to 49 state and local agencies and organizations via certified mail and by email, where email addresses were available. The NOP was also distributed to five local libraries.

Public and Property Owner Notification

The public notice was also sent to 4,261 property owners within 300 feet of the Egbert Switching Station site and the two alternative switching station parcels, and within a 320-foot distance from the proposed transmission line alternatives, as well as to any party who had previously written to CPUC requesting notice.

Copies of the NOP were placed in five libraries in the vicinity of the project site. The public notice was also published on November 16, 2018, in *The San Francisco Chronicle*. Additionally, information was posted on the internet as described in the public notice at http://www.cpuc.ca.gov/environment/info/dudek/egbert/egbert.html.

H.1.2 Public Scoping Meeting

As part of the EIR scoping process, one public scoping meeting was conducted to solicit comments regarding the scope and content of the EIR, as well as the alternatives and mitigation measures that should be considered as part of the analysis. Four individuals who were not part of the project team were documented in attendance, as indicated on the sign-in sheet. The scoping meeting was held December 3, 2018, at the DoubleTree by Hilton Hotel in Brisbane, at 5000 Sierra Point Parkway, Brisbane, California, from 5:30 p.m. to 7:30 p.m.

H.1.3 Scoping Report

In January 2019, a scoping report was issued summarizing concerns received from the public and various agencies and presenting copies of comment letters received. In total, nine letters were received: five from state and local agencies, two from private organizations, and two from individuals. In addition, the same 175 letters submitted in protest directly to CPUC on February 7, 2018, were submitted again to CPUC, but this time during the NOP scoping period, on December 17, 2018. Comments received are included in Appendix C of the project scoping report. The scoping report was posted on the CPUC website on February 1, 2019, at http://www.cpuc.ca.gov/environment/info/dudek/egbert/egbert.html.

Public comments focused on the potential impacts of the proposed project on the physical environment, with a number of comments expressing concerns over potential impacts to health and safety, potential impacts to existing and planned land uses and to traffic and circulation, and the need for a comprehensive alternatives analysis in accordance with CEQA requirements. Table H-1 summarizes the comments received according to the following major themes:

- Human environment
- Project alternatives
- Mitigation and monitoring
- Permitting and coordination

Table H-1
Summary of Public Scoping Comments

Human Environment
Health/Safety Concerns
• Electromagnetic fields.
• Toxins in soils released during excavation.
Access/Property Rights/Land Use/Recreation/Traffic
• Switching station is zoned industrial, but is adjacent to residential.
• Access to homes during construction, particularly relative to work in streets.
• Depreciation of property values due to their location near a switching station.
• Preferred project alignment's impacts to the approved Sunnydale HOPE SF project, including but not limited to repeated disruptions to residences and appurtenances; impacts to public transit lines, pedestrians, bicycles, and auto traffic; difficulties in coordinating the construction schedules for both projects; and schedule delays to both projects.
• Relative to features newly constructed by Sunnydale HOPE SF, if impacted, PG&E would need to reconstruct all newly constructed street beds with bus stops, bike lanes, and chicanes for bioretention, as well as other streetscape features.
• Relative to the Sunnydale community, environmental evaluation should consider the equity of impacts (aesthetics, land use and planning, air quality, noise, recreation, and transportation).
• Alignment that passes through recreation and park property must be underground and under existing roadways.
Traffic
• Maintaining pedestrian and bicycle access through the project site at all times.
• Where vehicular, bicycle, or pedestrian traffic may be impacted during construction requiring traffic restrictions and detours, a Caltrans-approved traffic management plan is required.
• All curb ramps and pedestrian facilities located within the limits of the project are required to be brought up to current ADA standards. Also includes maintaining pedestrian access per ADA standards through the construction zone.
Noise
• "Hums" from substation (i.e., switching station).

Table H-1
Summary of Public Scoping Comments

Project Alternatives
• Evaluate different location for switching station farther from adjacent residences.
• Evaluate additional alternative(s) that avoid Sunnydale HOPE SF.
• Some of the 230 kV alternative routes would affect roadways already approved for reconfiguration/improvement in the Executive Park area and Candlestick area, including Harney Way, Jamestown Avenue, and potentially future Arelious Walker Road alignments and grades.
• Preference that switching station be located in an industrial area, such as Bayshore.
Mitigation and Monitoring
• Responsibility for mitigation, including for impacts to the state transportation network.
• EIR should discuss fair-share contribution, scheduling, implementation, responsibilities, and lead agency monitoring relative to all mitigation measures.
Permitting and Coordination
• Bayshore Sanitary District – Class 4 permit prior to the start of construction.
• Caltrans ROW – encroachment permit.
• City and County of San Francisco Recreation and Park Department – revocable encroachment permit.
• Coordinate with Office of Community Investment and Infrastructure regarding the Candlestick development area.
• Coordinate with San Francisco Municipal Transportation Agency regarding the Harney Way widening/improvement project.

Notes: PG&E = Pacific Gas & Electric Company; Caltrans = California Department of Transportation; ADA = Americans with Disabilities Act; kV = kilovolt; EIR = environmental impact report; ROW = right-of-way.

H.1.4 Follow-Up Agency Consultation

On May 15, 2019, and June 21, 2019, CPUC staff, members of the EIR project team, Pacific Gas & Electric Company (PG&E), and PG&E's environmental team (CH2/Jacobs) met with the City and County of San Francisco and Mercy Housing to discuss potential alternatives to avoid the approved Sunnydale HOPE SF Master Plan Development along a portion of the proposed Jefferson-Egbert transmission line segment. The purpose of the meeting was to review acceptable project alternative alignments with the local agency and the Sunnydale HOPE SF project proponent, who are in partnership to construct the Sunnydale HOPE SF Master Plan Development over a 5 to 10-year timeframe.

H.2 PUBLIC NOTICE AND PARTICIPATION

H.2.1 Public Notification

As described in Section H.1, the NOP and public notice were mailed on November 16, 2018, to the State Clearinghouse and to state and local trustee agencies that may be affected by the proposed project, as well as to agencies who had previously written to CPUC to request notice.

A notice of availability of the Draft EIR was sent to property owners and occupants on or adjacent to the project site at the time the Draft EIR is released. The notice included information about how to access the Draft EIR, and identifies the Environmentally Superior Alternative(s) and the dates and times and locations of any informational workshop(s), as well as CPUC's public participation hearings.

H.2.2 Public Review Period

In compliance with California Public Resources Code, Section 21091.a, and CEQA Guidelines Section 15105.a, CPUC provides a public review period of 45 days for the Draft EIR.

H.2.3 Environmental Impact Report Information and Repository Sites

Providing copies of documents associated with the proposed project in "repository" sites local to the project site is an effective way of making ongoing project information available to concerned citizens. There are five repository sites listed below where citizens may view the documents and make copies of them. In addition, copies of documents have been made available at the CPUC office in San Francisco. Copies of the Draft EIR are available to the public at the locations below:

- Brisbane Library, 250 Visitacion Avenue, Brisbane, 94005
- Bayshore Branch Library, 460 Martin Street, Daly City, 94014
- Visitacion Valley Library, 201 Leland Avenue, San Francisco, 94134
- Portola Branch Library, 380 Bacon Street, San Francisco, 94134
- San Francisco Public Library, 5075 3rd Street, San Francisco, 94124

Website

The following website will be used to post all public documents during the environmental review process and to announce upcoming public meetings: http://www.cpuc.ca.gov/environment/info/dudek/egbert/egbert.html.

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I. REPORT PREPARATION

I.1 LIST OF PREPARERS AND AGENCIES/ PERSONS CONTACTED

I.1.1 Lead Agency

California Public Utilities Commission

Eric Chiang – Project Manager, Energy Division

I.1.2 Preparers

Dudek – Primary Consultant

Wendy Worthey – Project Manager
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Adam Giacinto – Archaeologist
Dylan Duverge – Hazardous Waste, Geology and Soils, and Hydrology Specialist
Brian Grattidge – Land Use Specialist
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David Mueller, Kara Murphy, Daniel Kil – Publications Assistants

Asher Sheppard Consulting – Subcontractors

Asher Sheppard – Electric Magnetic Field Specialist

I.1.3 Agencies and Persons Contacted

California Department of Transportation

Amjad Naseer – Senior Permit Engineer, Caltrans District 4, Encroachment Permits
Patricia Maurice – Chief, Office of Transit and Community Planning, Caltrans District 4, Local Development Review Branch

California Public Utilities Commission

Anand Durvasula – Legal Advisor
Chloe Lukins – Program Manager
Jason Jungreis – Administrative Law Judge
Jonathan Reiger – Legal Counsel
Martin Nakahara – Senior Legal Analyst

San Francisco Bay Conservation and Development Commission

Jessica Fain – Planning Director

Regional Water Quality Control Board

Bruce Wolfe – former Executive Officer, San Francisco Bay Region

Peninsula Corridor Joint Powers Board

Anthony Quicho – Senior Engineer, San Mateo County Transit District

City and County of San Francisco

Mathew Snyder – Senior Planner, Citywide Planning, San Francisco Planning Department
Daniel Sider – Director of Executive Programs, San Francisco Planning Department
David Winslow – Architect Manager, San Francisco Planning Department
Richard Sucré – Team Leader, Southeast Quadrant, San Francisco Planning Department
Malia Cohen – former Supervisor, San Francisco Board of Supervisors, District 10
Siew-Chin Yeong – Capital Programs and Construction, San Francisco Municipal Transportation Agency
William Sanders – Deputy City Attorney, San Francisco Office of the City Attorney
Andrico Penick – Director, San Francisco Real Estate Division

City of Brisbane

John Swiecki – Community Development Director, Brisbane Community Development Department
Randy Breault – Director of Emergency Services, Brisbane Public Works
Clay Holstine – Brisbane City Manager
Lisa Macias – Police Chief, Brisbane Police Department

Daly City

Michael Van Lonkhuysen – Planning Manager, Daly City Planning Department
Tatum Mothershead – Director of Economic and Community Development, Daly City Economic Development

John Fuller – Public Works Director, Daly City Public Works
Shawna Maltbie – City Manager, Daly City
Val Mandapat – Chief Building Supervisor, Daly City Building Division

Mercy Housing
Ramie Dare – Present, Board of Directors

Pacific Gas & Electric Company
Brandon Liddell – Senior Land Planner
Mathew Swain – Senior Attorney
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