BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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.	Application No. 17-12-___

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

PUBLIC VERSION

Exhibit E is Confidential in its Entirety and Excluded from the Public Version

Exhibit B (Proponent's Environmental Assessment), Exhibit H (Detailed Cost Estimate for Project), Exhibit Q (CAISO 2013-2014 Transmission Plan) and Exhibit R (CAISO 2014-2015 Transmission Plan) are Electronically Filed and Excluded from the Served Version Due to File Size

DAVID T. KRASKA
Law Department
Pacific Gas and Electric Company
77 Beale Street, B30A
San Francisco, CA 94105
Telephone: (415) 973-7503
Facsimile: (415) 973-5520
E-mail: David.Kraska@pge.com

MATHEW SWAIN
Senior Counsel
Paragon Legal
601 California Street, Suite 615
San Francisco, CA 94108
Telephone: (415) 973-4586
Facsimile: (415) 973-5520
E-mail: Mathew.Swain@pge.com

Attorneys for Applicant
PACIFIC GAS AND ELECTRIC COMPANY

Dated: December 28, 2017

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Pursuant to the California Public Utilities Code, the California Public Utilities Commission's ("Commission" or "CPUC") General Order 131-D ("GO 131-D"), and the Commission's Rules of Practice and Procedure ("Rules"), Pacific Gas and Electric Company ("PG&E") respectfully requests that the Commission issue a Certificate of Public Convenience and Necessity ("CPCN") authorizing the construction of the Egbert Switching Station Project (the "Project") (formerly known as the Martin 230 kV Bus Extension Project).

I. INTRODUCTION

A. Contents of Application

PG&E's Application for the Project consists of this cover pleading, the Proponent's Environmental Assessment ("PEA") submitted herewith, and the other specific materials required by GO 131-D and the CPUC Rules of Practice and Procedure, which are attached as Exhibits A-R, and incorporated herein by reference.

The PEA complies with and provides the information required by CPUC Rule 2.4, GO 131-D, and the Commission's Information and Criteria List. The PEA includes all information necessary for the Commission to evaluate the environmental consequences of the Project in accordance with the California Environmental Quality Act ("CEQA").

B. Project Overview

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

The San Francisco Peninsula has no in-area utility scale power generation, which makes it entirely dependent on electric power imports. There are approximately 417,000 electric customers on the San Francisco Peninsula that are served from the south by PG&E's 230 kV and 115 kV transmission systems and from the east by Trans Bay Cable LLC's Trans Bay Cable ("TBC").[1/] Within the City of San Francisco, approximately 290,000 customers receive electric power almost entirely from Martin Substation and the TBC. There are no major electrical generation sources in San Francisco, leaving aside minor contributions from rooftop solar and other small-scale distributed generation.

If the electric transmission system at Martin Substation is unavailable, the TBC, if it functions properly, can only supply approximately 46% of the typical weekday electrical needs of the approximately 290,000 customers in San Francisco referenced above and approximately 81% of those customers' typical nighttime electrical load. This means that a service failure at

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1/ Trans Bay Cable LLC is owned by SteelRiver Infrastructure Fund North America.

Martin Substation will result in widespread blackouts and rotating outages for approximately 290,000 customers in San Francisco until the infrastructure at Martin Substation can be repaired. The California Independent System Operator ("CAISO") Board of Governors concluded in its 2014-15 Transmission Plan that this low probability, yet high impact event constituted a significant reliability concern that requires mitigation under its Planning Standards.

The Project will address San Francisco reliability concerns by reconfiguring the existing 230 kV transmission lines terminating at Martin Substation to provide a new 230 kV path bypassing Martin Substation. This will provide an alternative source for San Francisco that, together with the TBC, could support 100% of San Francisco's power demands even if Martin Substation is not operational.

The Project will include construction of a new 230 kV switching station in San Francisco (the "Egbert Switching Station," or "switching station"). In addition, the Project will reroute two existing underground 230 kV transmission lines currently connected to the existing Martin Substation (the existing Martin-Embarcadero line and the existing Jefferson-Martin line) and connect them to the proposed Egbert Switching Station. Specifically, the existing Martin-Embarcadero line will be looped into the proposed Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line, and the existing Jefferson-Martin line will be rerouted and extended to the proposed Egbert Switching Station, creating a Jefferson-Egbert line. Rerouting the existing underground 230 kV lines will require constructing approximately 3.9 miles of new underground transmission line installed mainly in paved areas, with approximately 420 feet to be installed by trenchless technology under U.S. Highway 101.

The Project was recommended by the CAISO in its 2014-2015 Transmission Plan and approved by the CAISO Board of Governors at their March 26-27, 2015 meeting. If PG&E's proposed schedule, set forth at Exhibit C, is achieved, the Project would be operational by February 2022 and construction would be completed by March 2022.

II. PROJECT DESCRIPTION

The Project includes construction of a new 230 kV switching station in San Francisco that will be connected to the local 230 kV system by reconfiguring two existing underground, single-circuit 230 kV lines located in San Francisco, Daly City and Brisbane. The Project would be located primarily in San Francisco, with small portions of the Project in Daly City and Brisbane. Once completed, electrical power will be able to travel from Jefferson Substation to Embarcadero Substation without going through Martin Substation. The Project will increase the reliability of the existing system by providing an alternative transmission path to serve approximately 290,000 customers in San Francisco in the event that Martin Substation becomes inoperable due to an extreme event. This Project will not provide a capacity increase.

The Project involves both transmission and substation/switchyard construction activities consisting of three major elements:

1. Construction of the Egbert Switching Station that will connect with an existing 230 kV transmission line that will be routed around the existing Martin Substation.

- The new switching station will use gas-insulated switchgear ("GIS") equipment configured as a breaker-and-a-half bus arrangement to accommodate three 230 kV transmission lines (from the existing Martin, Jefferson and Embarcadero substations).[2/]
- An approximately 11,000 square foot building will be constructed to house GIS equipment; control, metering and protection equipment; and alternating current ("AC") and direct current battery systems for power backup.
- Outdoor equipment includes, among other things: one 230 kV single-phase, three-step series reactor with circuit switches; two 230 kV shunt reactors; a pad-mounted station voltage service transformer; and an oil pump system for the proposed Egbert-Embarcadero and Martin-Egbert 230 kV lines.

2/ A spare terminal will also be constructed as part of the Project, although PG&E has no plans currently to utilize the spare terminal.

2. Modifying the existing underground Jefferson-Martin 230 kV line by rerouting the line from the existing Martin Substation to the new Egbert Switching Station, thereby creating a new underground 230 kV connection (the "Jefferson-Egbert" line).

3. Modifying the existing Martin-Embarcadero No. 1 underground 230 kV line by constructing line extensions that loop the existing 230 kV line through the proposed Egbert Switching Station, thereby creating two separate new underground 230 kV lines (the "Egbert-Embarcadero" line and the "Egbert-Martin" line).

In addition, construction will require equipment staging sites, laydown yards, equipment and material storage areas, and areas to temporarily store excavated materials.

Project construction will take place over an approximately 22-month period with initiation of service targeted for February 2022, and will involve a workforce of 26 to 88 people at any one time. As more fully detailed in Exhibit H, PG&E estimates that the total construction cost for the Project will be approximately $206 million before contingencies. PG&E has budgeted $55 million in contingences. Thus, the total estimated construction cost of the Project with contingencies is approximately $261 million.

III. CPCN REQUIREMENTS UNDER GO 131-D, SECTION IX.A

A. A Detailed Description Of The Proposed Transmission Facilities, Including The Proposed Transmission Line Route And Alternative Routes, If Any; Proposed Transmission Equipment, Such As Tower Design And Appearance, Heights, Conductor Sizes, Voltages, Capacities, Substations, Switchyards, Etc.; And A Proposed Schedule For Certification, Construction, And Commencement Of Operation Of The Facilities.

Pursuant to GO 131-D, Section IX(A)(1)(a) and CPUC Rule 3.1(a) (as incorporated by GO 131-D), PG&E has provided in Section 2 of the PEA (Exhibit B), a detailed description of the proposed transmission facilities and equipment, as well as a schedule for certification, construction and commencement of operations of the facilities included in the Project. In Chapter 4 of the PEA (Exhibit B), PG&E provides a discussion of alternatives considered. A preliminary schedule, including proposed dates for certification, right-of-way acquisition, construction, and commencement of operation, is attached as Exhibit C.

B. A Map Of Suitable Scale Of The Proposed Routing Location Showing Details Of The Right-Of-Way In The Vicinity Of Settled Areas, Parks, Recreational Areas, Scenic Areas, And Existing Electrical Transmission Lines Within One Mile Of The Proposed Route.

Pursuant to GO 131-D, Section IX(A)(1)(b), and CPUC Rule 3.1(c) (as incorporated by GO 131-D), PG&E provides a map of the Project at Exhibit A. Maps showing route showing parks, recreation areas, and scenic areas may be found at Figures 3-10.3 and 3-10.4 of the PEA (Exhibit B). A map showing the location of existing electrical transmission lines within one mile of the Project is included as Exhibit D. Maps showing settled areas, including residential development, in the Project vicinity may be found at Figures 3-10.1 and 3-10.2 of the PEA (Exhibit B). A map showing the Project location in relation to the broader region may be found at Figure 2.3-1 of the PEA (Exhibit B).

C. A Statement Of Facts And Reasons Why The Public Convenience And Necessity Require The Construction And Operation Of The Proposed Transmission Facilities.

Pursuant to GO 131-D, Section IX(A)(1)(c) and CPUC Rule 3.1(e) (as incorporated by GO 131-D), PG&E provides the following statement of why the public convenience and necessity require construction and operation of the Project. PG&E's objectives for the Project, which reflect its purpose and need, are to:

1. Improve the 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, economically and technically feasible project that minimizes environmental impacts and will receive 230 kV power from the south and transmit it 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.

The Egbert Switching Station Project is intended to enhance electric reliability on the San Francisco Peninsula and mitigate an extreme event that could cause a lengthy loss of electric service. The Project responds to San Francisco's need for a redundant and geographically-distinct source of 230 kV power that bypasses Martin Substation to protect against an extreme event that renders Martin Substation inoperable. A detailed discussion of the need for the Project is provided below. In addition, because this Project is unique in that the underlying CAISO studies supporting approval of the Project are confidential, a discussion of the analysis and results of CAISO's confidential analysis that demonstrate why the public convenience and necessity justify the construction of the Project is presented in confidential Exhibit E.[3/] The Project's need is not dependent on the load forecasts in San Francisco, but it should be noted that any increase in demand will be subject to the same extreme event reliability risk without construction of the Project.

Currently, almost all of the electricity consumed by approximately 290,000 customers in San Francisco is provided by two sources: (1) Martin Substation's 230 kV and 115 kV systems, which send power to six substations in San Francisco; and (2) the TBC. There are no major electrical generation sources in San Francisco. If the 230 kV and 115 kV transmission systems at Martin Substation are rendered inoperable, the TBC, if it functions properly, can only supply approximately 46% of San Francisco's typical weekday electrical needs and about 81% of San Francisco's nighttime load. This means that a loss of the 230 kV and 115 kV systems at Martin Substation will result in blackouts and rotating outages in San Francisco until the infrastructure at Martin Substation can be repaired.

3/ Confidential Exhibit E to this Application has been provided to the Commission pursuant to a Motion to File Under Seal filed concurrently with this Application.

The consequences of a service failure at Martin Substation would be severe and would be magnified by the length of time it takes to repair the equipment at Martin Substation that was rendered inoperable by an extreme event. As discussed below, even a one day outage has the potential to cause significant economic harm and social disruption. An outage lasting multiple days or weeks would have potentially catastrophic impacts.

The economic costs of an outage to approximately 290,000 customers in San Francisco resulting from the loss of Martin Substation can be estimated by reference to a 2013 outage cost study commissioned by PG&E based on a loss of service at Embarcadero Substation ("Embarcadero Cost Study" or "Study"), which is attached hereto as Exhibit F.[4/] PG&E had the Embarcadero Cost Study prepared in connection with its application for a CPCN authorizing construction of the Embarcadero-Potrero 230 kV Transmission Project, which the Commission granted. The Embarcadero Cost Study was focused on the direct and indirect economic costs that would result from an outage at Embarcadero Substation. The Study assumed that the outage would result in a loss of power to approximately 24,000 residential accounts, 3,000 business accounts and 2,500 business tenants of master-metered buildings. The Study calculated the direct and indirect cost estimates of an outage at Embarcadero Substation over 24 hours, 4 days, 3 weeks and 7 weeks, with the results as follows:

Outage Duration	Direct Cost ($ Millions)	Indirect Cost ($ Millions)	Total Outage Cost ($ Millions)
24 hours	$125.7	$62.9 to $251.4	$188.6 to $377.1
4 days	$407.4	$203.7 to $814.8	$611.1 to $1,222.2
3 weeks	$1,417.0	$708.5 to $2,833.9	$2,125.5 to $4,250.9
7 weeks	$2,922.6	$1,461.3 to $5,845.2	$4,383.9 to $8,767.8

If an extreme event occurs that renders the 230 kV and 115 kV systems at Martin Substation inoperable, the direct and indirect economic costs of the resulting outage would be many times worse than shown in the Embarcadero Cost Study. With the loss of Martin

4/ Freeman Sullivan & Co., Downtown San Francisco Long Duration Outage Cost Study (2013).

Substation, the TBC would be the sole source of power imports until repairs are made to the transmission system. Based on recent studies, the San Francisco system load for a typical weekday is 650 MW during the day and 380 MW at night. Assuming that the TBC can supply up to 300 MW of power to San Francisco,[5/] approximately 54% of the 290,000 customers would be without power during the day and 19% of the 290,000 customers at night. If 290,000 customers in San Francisco were to endure rotating outages for durations between 24 hours and seven weeks, the direct and indirect economic costs can reasonably be assumed to be equal to or greater than what is shown in the table above, in other words well into the *billions of dollars*.[6/] Moreover, the outage caused by a loss of Martin Substation would be expected to result in a wide variety of adverse societal impacts in the form of government response and assistance costs, damage from looting and rioting, interruption of transportation flows, costs incurred by displaced residents, as well as impacts to health care facilities and emergency services, water delivery and treatment utilities, and communications infrastructure. The actual duration of the outage and subsequent rolling blackouts would depend on the time it would take to repair equipment at Martin Substation that was damaged during an extreme event.[7/] The upshot is that although the likelihood of an extreme event that renders the 230 kV and 115 kV systems at Martin Substation inoperable is low, it would be an extremely "high impact" event if it occurred.

The CAISO evaluated the reliability risk to the San Francisco Peninsula posed by an extreme event and required PG&E to undertake this Project. According to CAISO:

5/ As originally installed, the TBC could not provide any power without PG&E's alternating current ("AC") on the Potrero Substation bus, as AC power is needed to provide plant startup power as well as reference bus voltage and frequency at Potrero Substation to allow TBC to convert power from direct current ("DC") to AC. In 2016, Trans Bay Cable LLC completed a project that installed AC generators at its Potrero converter station as well as upgrades to its control and protection system specifically to allow the TBC to be brought back on line after a loss of AC power at Potrero (which a loss of Martin would cause)—which is referred to as a "black start." Trans Bay Cable LLC has informed PG&E and CAISO that after a loss of AC power at Potrero Substation, it could now bring the TBC back on line in an "island configuration" to initiate power restoration to San Francisco of 300 MW.

6/ Confidential Exhibit E discusses the analysis of economic impacts by a loss of Martin Substation that CAISO presented in confidential Appendix D to its 2013-2014 Transmission Plan.

7/ Martin Substation equipment restoration time is discussed in confidential Exhibit E.

> The reliability assessment focuses on whether the specific risks and circumstances regarding the San Francisco Peninsula warrant mitigation measures beyond the minimum prescribed by mandatory reliability standards and the effectiveness of various proposed solutions in mitigating the identified risks…. [¶] The ISO assessment has determined that there are unique circumstances affecting the San Francisco area that form a credible basis for considering mitigations of risk of outages and of restoration times that are beyond the minimum reliability standards. The Peninsula area does have unique characteristics in the western interconnection due to the urban load center, geographic and system configuration, and potential risks with challenging restoration times for these types of events.[8/]

As a result of CAISO's evaluation of the unique risks that the San Francisco Peninsula faces, CAISO enhanced its Planning Standards in September 2014 "to recognize that the unique characteristics of the San Francisco Peninsula form a credible basis for considering for approval corrective action plans to mitigate the risk of outages for extreme events that are beyond the level that is applied to the rest of the ISO controlled grid."[9/]

Given the significant adverse economic, safety, and convenience impacts of prolonged power outages in the San Francisco Peninsula, CAISO recommended construction of an alternative 230 kV path to bypass Martin Substation.[10/] The Project will consist of a new 230 kV switching station located approximately 1.6 miles from Martin Substation, and re-routing two 230 kV transmission lines from Martin Substation to the new switching station. This will create another route for electrical power from the south to serve San Francisco that does not go through Martin Substation. The Project will provide geographically diverse redundancy to the system while mitigating the risk of an extreme event.

PG&E shares CAISO's conclusion that the value of making the reliability investment reflected in the Project is warranted based upon the risk of an unplanned loss of Martin Substation; the impact that such an outage would have upon its approximately 290,000 customers in San Francisco; the reduction of risk resulting from the Project; and the estimated

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8/ CAISO 2013-2014 Transmission Plan at 72 (attached as Exhibit Q).

9/ CAISO Planning Standards, § 7.1 at 7-8 (Sept. 4, 2014); *see also* CAISO 2014-2015 Transmission Plan at 69-70.

10/ CAISO 2014-2015 Transmission Plan at 72-73 (attached as Exhibit R).

cost of mitigating the risk through the Project. In addition, PG&E has prepared a more detailed statement of facts and reasons why the public convenience and necessity requires the construction and operation of the Project in confidential Exhibit E, which PG&E has submitted to the Commission pursuant to a Motion to File Under Seal filed contemporaneously with this Application.

The minutes from CAISO's March 26-27, 2015 Board of Governors meeting adopting the 2014-2015 Transmission Plan, including CAISO's determination that the Project is needed and should be constructed, are included at Exhibit G.

D. A Detailed Statement Of The Estimated Cost Of The Proposed Facilities.

Pursuant to GO 131-D, Section IX(A)(1)(d) and CPUC Rule 3.1(f) (as incorporated by GO 131-D), PG&E estimates that the total construction cost for the Project will be approximately $206 million before contingencies. PG&E has budgeted $55 million in contingences. Thus, the total estimated construction cost of the Project with contingencies is approximately $261 million. A summary and detailed decision-level cost estimate is provided in Exhibit H. Project construction costs are broken down in the following preliminary estimates:

Construction Costs	**Cost ($2017)**
Egbert 230 kV Switching Station	107,935,738
Jefferson-Egbert 230 kV Transmission Line	59,527,842
Egbert-Embarcadero and Martin-Egbert Transmission 230 kV Lines	30,392,768
Transmission Line Construction Cost to Increase Trench Depth to Implement Low-Cost and No-Cost Measures to Reduce Electromagnetic Field Exposure	8,000,000
TOTAL CONSTRUCTION COSTS WITHOUT CONTINGENCIES	**205,856,348**
Contingencies	55,000,000
TOTAL CONSTRUCTION COSTS WITH CONTINGENCIES	**260,856,348**

PG&E estimates that average annual operation and maintenance costs for the Project over a 40-year project life will be as follows:

Operation and Maintenance Costs	**Average Annual Cost ($2017)**
Egbert 230 kV Switching Station	29,120
Transmission Lines (Jefferson-Egbert, Egbert-Embarcadero and Martin-Egbert 230 kV Lines)	50,960
TOTAL ANNUAL OPERATION AND MAINTENANCE COSTS	**80,800**

PG&E notes that the last cost estimate it submitted in January 2015 to the CAISO as part of the Transmission Planning Process was developed prior to the completion of the engineering cost and feasibility studies that resulted in the current, more refined decision-quality cost estimates reflected above and in Exhibit H.

E. Reasons For Adoption Of The Route Selected, Including Comparison With Alternative Routes, Including The Advantages And Disadvantages Of Each.

Pursuant to GO 131-D, Section IX(A)(1)(e), PG&E has included a discussion of the alternatives it considered in Chapter 4 of the PEA (Exhibit B). That discussion evaluates the advantages and disadvantages of the considered alternatives and provides the reasons for adoption of the route selected.

F. A Schedule Showing The Program Of Right-Of-Way Acquisition And Construction.

Pursuant to GO 131-D, Section IX(A)(1)(f), PG&E provides a preliminary, illustrative schedule for construction and right-of-way acquisition activities in Exhibit C. The final Project construction schedule can only be determined once the Commission's staff issue a full Notice to Proceed, all applicant-proposed measures and any other environmental mitigation measures have been taken into account, materials needed for construction have been delivered and are ready for installation, and PG&E's contractors have mobilized and are ready to initiate construction.

The estimated construction duration for the Project is approximately 22 months, and PG&E's intent is to place the new switching station and lines in service by February 2022 and complete construction by March 2022. The construction activities included in the attached preliminary schedule include the construction of the Egbert Switching Station and the Jefferson-Egbert, Egbert-Embarcadero and Egbert-Martin underground 230 kV lines.

Construction will typically occur between 7 a.m. and 8 p.m., or during times that will be set through coordination with San Francisco, Brisbane and Daly City. If trenching work will cause traffic congestion, the Project may require nighttime work to avoid traffic disruption. All applicable regulations, ordinances, and restrictions will be identified and complied with prior to and during construction.

G. A Listing Of The Governmental Agencies With Which Proposed Route Reviews Have Been Undertaken, Including A Written Agency Response To The Applicant's Written Request For A Brief Position Statement By That Agency. (Such Listing Shall Include The Native American Heritage Commission, Which Shall Constitute Notice On California Indian Reservation Tribal Governments.) In The Absence Of A Written Agency Position Statement, The Utility May Submit A Statement Of Its Understanding Of The Position Of Such Agencies.

Pursuant to GO 131-D, Section IX(A)(1)(g), PG&E provides the following information regarding the government agencies with which PG&E has reviewed the proposed Project. While PG&E has provided summaries of its meetings with both local governments and resource agencies, it has appended to this Application written correspondence with San Francisco, Brisbane and Daly City as Exhibits J-P, as these are the local governments in the Project area, and are consequently the only agencies from which PG&E specifically sought input regarding siting and routing alternatives.

City and County of San Francisco, California

PG&E has met with San Francisco planning and public works officials and other key staff on multiple occasions in 2015, 2016, and 2017 to provide an overview of the Project and subsequent updates.

On November 24, 2015, PG&E met with the Assistant Engineer Gene Chan of the San Francisco Public Works Department to provide an overview of the Project.

On December 22, 2015, PG&E met with the key staff from the San Francisco Planning Department including Senior Advisor for Special Projects Dan Sider, Team Leader Eastern Neighborhoods Mat Snyder, CEQA Environmental Review Planner Paul Maltzer, Urban Design Lead Architect David Winslow, and Southeast Quadrant Historic Preservation Technical Specialist/Planner III Rich Sucré to provide an overview of the Project. San Francisco staff provided information on zoning, existing land use, existing public works facilities, and development plans in the Project study area. PG&E was encouraged to use the San Francisco Property Information Map (http://propertymap.sfplanning.org) to review zoning during its planning process. San Francisco staff suggested that PG&E focus switching station siting efforts within PDR zoning (defined as Production, Distribution, and Repair) and M zoning (defined as Industrial).

On August 22, 2016, PG&E met with City Administrator Naomi Kelly, Director of Real Estate John Updike, Emergency Planner Nick Majeski, and San Francisco staff Bill Barnes and Jennifer Johnston to provide an overview of the Project.

On October 24, 2016, PG&E met with Office of San Francisco Supervisor Malia Cohen and District 10 staff Yoyo Chan to provide an overview of the Project.

On September 27, 2016, PG&E met with Street Use and Mapping Manager Jerry Sanguinetti from San Francisco Public Works to provide an overview of the Project. Mr. Sanguinetti provided information on existing underground utilities and other considerations for potential routing in San Francisco.

On February 13, 2017, PG&E met with San Francisco Planning Department staff Mr. Sucré and Mr. Winslow to discuss a potential switching station site in San Francisco and potential project routing within city streets. San Francisco staff identified the site as located within PDR-2 zoning. PG&E discussed the potential routes being evaluated for the project and the preliminary design for the new switching station site in San Francisco.

On September 1, 2017, PG&E sent the letter attached as Exhibit J to the San Francisco Planning Department confirming that the switching station site and associated transmission line routes are the proposed Project and requesting a written position statement. The San Francisco Planning Department expressed its support for the Project in a letter dated October 4, 2017, which is attached as Exhibit K. In addition, the San Francisco City Manager expressed his support for the Project in a letter dated October 4, 2017, which is attached as Exhibit L.

City of Brisbane, California

PG&E met with Brisbane planning and public works officials on multiple occasions in 2016 and 2017 to provide an overview of the Project and subsequent updates.

On January 11, 2016, PG&E representatives met with Brisbane officials, including City Manager Clay Holstine, Community Development Director John Swiecki, and Public Works Director Randy Breault to provide an overview of the Project. Brisbane staff provided information on zoning, existing land use, existing public works facilities, and development plans in the Project study area. Mr. Holstine confirmed that the Brisbane Baylands Project ("Baylands") area is a planned land use under current review. Constraints within Baylands roadways were discussed, including Tunnel Road being under private ownership. PG&E understands this road is likely to be realigned and improved as part of the Baylands and locations of the final road designs are unknown at this time. PG&E and Brisbane discussed utilities congestion in the Bayshore Boulevard franchise area, including a city sewer line, a major fiber optic line, and a PG&E gas transmission line among other utilities.

On August 23, 2016, PG&E representatives met with Brisbane officials Mr. Holstine, Mr. Swiecki, and Mr. Breault to provide a Project update on a potential switching station site in Brisbane and potential project routing within city streets. Brisbane staff identified the location as part of the Baylands planned development that is identified for community use. PG&E commented that even with a project site not located within Brisbane, construction activities, such as work within Martin Substation and connecting to the existing Jefferson-Martin line, may occur within the Brisbane city limits.

On September 22, 2016, PG&E representatives met with Brisbane officials Mr. Swiecki and Mr. Breault, Senior Civil Engineer Gerald Flanagan, and Chief of Police Elizabeth Macias to provide an overview of the Project focused on engineering of underground routes. Brisbane staff provided information on existing underground utilities and other considerations for potential routing in Brisbane.

On February 27, 2017, PG&E representatives met with Brisbane officials Mr. Holstine, Mr. Swiecki, and Mr. Breault to provide a Project update. PG&E confirmed that three sites discussed the previous year, namely the site in Brisbane, a site in Daly City and a site in San Francisco, continued to be analyzed. Potential new transmission line routes connecting the existing transmission lines to the San Francisco site were discussed along with work within Martin Substation that would occur as part of the Project to remove the existing Jefferson-Martin line terminal.

On September 7, 2017, PG&E sent the letter attached as Exhibit M to the City of Brisbane confirming that the San Francisco switching station site and associated transmission line routes are the proposed Project and requesting a position statement. The City of Brisbane expressed its support for the Project in a letter dated September 13, 2017, which is attached as Exhibit N.

City of Daly City, California

PG&E met with Daly City planning and public works officials on multiple occasions in 2016 and 2017 to provide an overview of the Project and subsequent updates.

On February 8, 2016, PG&E representatives met with Daly City officials, including City Manager Pat Martel, Assistant City Manager Julie Thuy Underwood, Economic and Community Development Director Tatum Mothershead, and Public Works Director John Fuller to provide an overview of the Project. Daly City staff provided information on zoning, existing land use, existing public works facilities, and development plans in the Project study area. Reviewing the Project study area, Daly City officials did not see a switching station as compatible with the City's General Plan Planning Areas 11 (Crocker) and 12 (Southern Hills), which were described as densely populated residential areas. Daly City officials stated Planning Area 13 (Bayshore) is primarily residential with some existing commercial and industrial (e.g., Martin Substation). Daly City officials did not see a switching station as compatible with planned land use in the Bayshore planning area (Cow Palace Master Plan and Bayshore Redevelopment Project Area Implementation Plan). PG&E commented that even with a project site not located within Daly

City, construction activities, such as work within Martin Substation and connecting to the existing Jefferson-Martin line, may occur within the Daly City city limits.

On September 14, 2016, PG&E representatives met with Daly City official Ms. Martel to provide an update on a potential Project switching station site in Daly City and potential project routing within city streets. Ms. Martel identified the site as within the Cow Palace Master Plan area. Potential transmission line routes within city streets were discussed.

On September 22, 2016, PG&E representatives met with Brisbane officials Mr. Fuller and City Engineer Richard Chiu to provide an overview of the project focused on engineering of underground routes. Daly City staff provided information on existing underground utilities and other considerations for potential routing in Daly City.

On February 27, 2017, PG&E representatives met with Daly City officials Ms. Martel, Ms. Mothershead, Mr. Fuller, and Mr. Chiu to provide a project update. PG&E confirmed that three sites discussed the previous year, namely the site in Daly City, a site in San Francisco, and a site in Brisbane, continued to be analyzed. Potential new transmission line routes connecting the existing transmission lines to the San Francisco site were discussed along with work within Martin Substation that would occur as part of the project to remove the existing Jefferson-Martin line terminal.

On September 1, 2017, PG&E sent the letter attached as Exhibit O to Daly City confirming that the switching station site in San Francisco and associated transmission line routes are the proposed project and requesting a written position statement. Daly City expressed its support for the Project in a letter dated September 18, 2017, which is attached as Exhibit P.

Caltrain

On December 30, 2015, PG&E representatives met with Caltrain Real Estate and Property Development Manager Brian Fitzpatrick, Grants and Real Estate Analyst Cindy Lee, Senior Engineer for Public Third-Party Projects Anthony Quicho, and Project Manager for Electrification Zhenlin Guan to provide an overview of the Project. Caltrain representatives provided information on compatibility of underground infrastructure crossings with Caltrain facilities in the project study area. Caltrain would complete a project-specific compatibility review and any needed real estate transactions (e.g., easement) with project-specific information if requested by PG&E.

California High-speed Rail Authority

On August 5, 2016, PG&E representatives met with the California High-speed Rail Authority ("High-speed Rail") to provide an overview of the Project. High-speed Rail Lead Engineer Johnny Kuo provided information on light maintenance facility alternative sites under review in Brisbane in the Baylands planned development area.

Caltrans District 4

On September 22, 2016, PG&E representatives met with Caltrans District 4 Encroachment Permit Inspector Amjad Naseer to provide an overview of the Project. Mr. Naseer provided information the compatibility of underground transmission lines potentially crossing U.S. Highway 101.

The Native American Heritage Commission ("NAHC")

PG&E requested a search of the Sacred Lands Files from the 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. The NAHC provided a list of six Native American tribes (Amah Mutsun Tribal Band, Amah Mutsun Tribal Band of Mission San Juan Bautista, North Valley Yokuts Tribe, Muwekma Ohlone Indian Tribe of the SF Bay Area, The Ohlone Indian Tribe, and Indian Canyon Mutsun Band of Costanoan) who may have an interest in the proposed Project. PG&E sent letters to these groups and individuals on May 25, 2017, and made follow-up phone calls on June 8, 2017. All NAHC correspondence is included in the PEA (Exhibit B) as Appendix C.

IV. CPCN REQUIREMENTS UNDER GO 131-D, SECTION X

GO 131-D, Section X(A) requires PG&E to provide information regarding the measures taken or proposed by PG&E to reduce the potential for exposure to electric and magnetic fields ("EMF") generated by the Project. PG&E will employ "no cost" and specified "low cost" measures to reduce public exposure to EMF in accordance with Commission Decision ("D.") 06-01-042 and PG&E's "EMF Design Guidelines for Electrical Facilities." Although the precise measures that will be employed will not be determined until final engineering is completed, the following are examples of measures that may be adopted as required by D. 06-01-042 and the Design Guidelines:

- Triangular Configuration. The typical configuration for this Project will be a triangular placement of the three cables in a duct bank.
- Strategic Line Placement. The trench will be placed within the right of way to reduce magnetic field exposure to buildings along the entire route, except where the location of existing underground utilities prevent strategic line placement.
- Lowering the trench an additional five-feet. PG&E will lower the trench by five feet for the underground transmission line near high priority group land uses where doing so achieves at least a 15% magnetic field reduction and meets the 4% Project cost benchmark for low cost mitigation.

Once the Project is approved by the Commission, a Final EMF Management Plan containing the precise EMF measures to be employed will be prepared for the Project and submitted to the CPUC. Interested parties may contact PG&E's Project Information Line at 415-973-5530 to receive a copy of the Final EMF Management Plan once it has been prepared. PG&E's Preliminary EMF Management Plan and Checklist for the proposed Project are attached as Exhibit I.

V. CEQA COMPLIANCE AND MINOR MODIFICATIONS IN FINAL PROJECT DESIGN

GO 131-D, Section XVI, and CPUC Rule 2.4 require that the Project comply with CEQA. PG&E submits herewith as Exhibit B its PEA for the Project. The Commission's Energy Division will review the Project in accordance with CEQA and prepare the appropriate CEQA document (a Negative Declaration ("ND"), Mitigated Negative Declaration ("MND"), or Environmental Impact Report ("EIR")). The Commission will determine whether the CEQA document was completed in compliance with CEQA and, if so, certify it for the Project.

To avoid incurring significant costs before the Commission approves the Project, PG&E will perform final engineering after the Commission has completed its CEQA review and approved the Project or an alternative thereto. Final engineering sometimes results in minor modifications to the Project design. Under Section 15162(a)(1) of the CEQA Guidelines, which commence at Section 15000 of Title 14 of the California Code of Regulations, a subsequent ND, MND or EIR is required if the lead agency determines that "[s]ubstantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects."

PG&E requests that in issuing any CPCN approving the Project, the Commission explicitly order that the Energy Division shall be authorized to determine whether a minor Project modification would trigger any of the criteria that require preparation of a subsequent ND, MND or EIR under CEQA Guideline § 15162(a), including the standard set forth above. If a proposed change to the approved Project requires a subsequent ND, MND or EIR under this standard, then Energy Division would determine that a Petition for Modification of the Commission Decision granting the CPCN must be filed and a subsequent ND, MND or EIR must be prepared if the proposed change is pursued. If a proposed change to the approved Project does not trigger the subsequent ND, MND or EIR standard under CEQA, then the Energy

Division should be authorized by the Commission's CPCN Decision to grant any requested minor Project modification required during final engineering and construction.

VI. STATUTORY AND PROCEDURAL REQUIREMENTS

A. The Applicant

PG&E is, and since October 10, 1905, has been, an operating public utility corporation organized under California law. It is engaged principally in the business of furnishing electric and gas services in California. PG&E's principal place of business is 77 Beale Street, San Francisco, California, 94105.

A certified copy of PG&E's Restated Articles of Incorporation, effective April 12, 2004, is on record before the Commission in connection with PG&E's A.04-05-005, filed with the Commission on May 3, 2004. These articles are incorporated herein by reference pursuant to Rule 2.2 of the Commission's Rules.

PG&E's most recent Proxy Statement dated April 18, 2017 was filed with the Commission on June 1, 2017 in A.17-06-005, and is incorporated herein by reference. PG&E's balance sheet and an income statement for the three months ending September 30, 2017 was filed with the Commission on November 17, 2017 in A.17-11-009, and is incorporated herein by reference.

Communications with regard to this Application should be addressed to:

DAVID T. KRASKA
MATHEW J. SWAIN
Law Department
Pacific Gas and Electric Company
77 Beale Street, B30A
San Francisco, CA 94105
Telephone: (415) 973-4586
Facsimile: (415) 973-5520
Email: mathew.swain@pge.com

B. Competing Utilities

CPUC Rule 3.1(b) (as incorporated by GO 131-D) requires an applicant to address utilities, corporations, persons, or other entities with which the proposed construction is likely to compete. This Project is located in within the City and County of San Francisco, the City of Brisbane and Daly City. The proposed construction lies entirely within the boundaries of PG&E's existing service territory, and as such, will not compete with any other utility, corporation or person.

C. Required Permits

CPUC Rule 3.1(d) (as incorporated by GO 131-D) requires an applicant to identify the franchises and such health and safety permits as the appropriate public authorities have required or may require for the Project. Significant portions of the route of the proposed Project lie within the existing franchise rights PG&E has acquired to build facilities within the public rights of way in San Francisco, Brisbane and Daly City. Additionally, Section 2.11 of the PEA (Exhibit B) lists the potential permits that may be required by other public authorities.

D. Alternatives To Transmission Facilities

Pursuant to Public Utilities Code Section 1002.3, PG&E has included in its discussion of alternatives in Section 4 of the PEA (Exhibit B) consideration of whether there are cost-effective alternatives to the Project that "meet the need for an efficient, reliable, and affordable supply of electricity, including but not limited to, demand-side alternatives…."

E. Design And Construction Management Cost Control Plan

Pursuant to Public Utilities Code Section 1003(e), PG&E describes below its plan for design and construction management and cost control for the Project. The Project is being managed by PG&E's Electric Transmission Department using industry accepted project management tools. Activities are planned and tracked use the Primavera P6 scheduling tool. Costs are estimated, forecast and controlled using the P6 schedule and PG&E's SAP business system. The project management team will plan, monitor and control Project activities and cost in relationship to the schedule. Monthly reports will be provided to PG&E management showing progress, status, planned work, cost information and issues and risks.

PG&E management will provide gated approvals for the Project. This allows management to set spending limits, provides opportunities to check the Project for compliance with project governance rules, provide input on major decisions and resolve issues that arise. Management will also control contingency funds approved for use with this Project.

The contracts for the engineering team are already in place and are managed by the project management team. The contracts for procurement and construction services and construction monitoring have not been put in place. The contract type will follow PG&E's procurement standards and be managed by the project management team.

F. Public Notice

Pursuant to GO 131-D, Section XI.A, notice of this Application will be given within 10 days of filing the Application by mail,[11/] by advertisement,[12/] and by posting:[13/] (1) to certain public agencies and legislative bodies; (2) to owners of property located on or within 300 feet of the Project area; (3) by advertisement in a newspaper or newspapers of general circulation; and

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11/ Pursuant to GO 131-D (Section XI.A.1), notice of the filing of an application for a CPCN must be sent by direct mail to "(a) The planning commission and the legislative body for each county or city in which the proposed facility would be located, the CEC, the State Department of Transportation and its Division of Aeronautics, the Secretary of Resources Agency, the Department of Fish and Game, the Department of Health Services, the State Water Resources Control Board, the Air Resources Board, and other interested parties having requested information. The utility shall also give notice to the following agencies and subdivisions in whose jurisdiction the proposed facility would be located: the Air Pollution Control District, the California Regional Water Quality Control Board, the State Department of Transportation's District Office, and any other State or Federal agency which would have jurisdiction over the proposed construction; and (b) All owners of land on which the proposed facility would be located and owners of the property within 300 feet of the right-of-way as determined by the most recent local assessor's parcel roll available to the utility at the time notice is sent[.]"

12/ Pursuant to GO 131-D (Section XI.A.2), publication of the notice of the filing of an application for a CPCN must be "[b]y advertisement, not less than once a week, two weeks successively, in a newspaper or newspapers of general circulation in the county or counties in which the proposed facilities will be located, the first publication to be not later than ten days after filing of the application[.]"

13/ Pursuant to GO 131-D (Section XI.A.3), notice of the filing of an application for a CPCN must be posted "[b]y posting a notice on-site and off-site where the project would be located."

(4) by posting a notice on-site and off-site at the Project location. PG&E has given, or will give, proper notice within the time limits prescribed in GO 131-D.

G. Compliance with Rule 2.5

CPUC Rule 2.5 provides that an applicant include a deposit, to be applied to the costs the Commission incurs to prepare a negative declaration or an environmental impact report, when the Commission is acting as the lead agency pursuant to CEQA. Pursuant to Rule 2.5, PG&E has calculated the total deposit to be $212,428.17. Rule 2.5 additionally provides: "Proponent shall pay the applicable deposit in progressive payments due as follows: One-third of the deposit at the time the application or pleading is filed, an additional one-third no later than 120 days after the time the application or pleading is filed, and the remaining one-third no later than 180 days after the time the application or pleading is filed." Therefore, PG&E has provided with this application a check payable to the Commission in the amount of $70,809.39.

H. PG&E's Financial Ability

CPUC Rule 3.1(h) (as incorporated by GO 131-D) asks for: "Statements or exhibits showing the financial ability of the applicant to render the proposed service together with information regarding the manner in which applicant proposes to finance the cost of the proposed construction or extension." PG&E will own the assets that comprise the Project, and such assets will be added to PG&E's utility rate base. PG&E intends to finance the Project's estimated cost of approximately $206 million with the same proportion of debt and equity with which all other rate base assets are financed: 47% long-term debt; 1% preferred stock; and 52% common stock.

PG&E anticipates that the funds to finance the Project will be primarily derived from cash generated by PG&E's operations and, to the extent necessary, from external sources of funds. External sources of funds would come from the issuance of some combination of debt and equity securities. PG&E's ability to fund this Project is demonstrated through PG&E's financial statements contained in PG&E Corporation's Quarterly Report on Form 10-Q filed with the United States Securities and Exchange Commission on November 2, 2017 for the period ending September 30, 2017. PG&E believes that its utility operations will continue to generate substantial cash with which to fund its construction activities, including the Project.

I. Proposed Rates for the Project

CPUC Rule 3.1(h) (as incorporated by GO 131-D) asks for a "statement of the proposed rates to be charged for service to be rendered by means of such construction or extension." The Project's costs are for transmission-related services, and PG&E therefore will seek to recover such costs through transmission rates under the jurisdiction of the Federal Energy Regulatory Commission. Accordingly, ratemaking issues are beyond the scope of this Application.

VII. APPLICATION EXHIBITS

The following Exhibits are attached to this Application:

A. Project Overview Map

B. Proponent's Environmental Assessment (Electronically Filed and Excluded from Served Version Due to File Size)

C. Preliminary Project Schedule

D. Map Showing the Location of Existing Electrical Transmission Lines Within One Mile of the Project

E. Confidential Exhibit (Submitted Under a Motion to File Under Seal) and Excluded from the Public Version

F. Freeman Sullivan & Co., Downtown San Francisco Long Duration Outage Cost Study (2013)

G. Minutes of the March 26-27 2015 California Independent System Operator Board of Governors Meeting

H. Detailed Cost Estimate for Project (Electronically Filed and Excluded from Served Version Due to File Size)

I. Preliminary Transmission EMF Management Plan and Substation Checklist

J. Letter from PG&E to the City and County of San Francisco Seeking Position Statement, dated September 1, 2017

K. Letter from the City and County of San Francisco Planning Department to PG&E Providing a Position Statement, dated October 4, 2017

L. Letter from the City and County of San Francisco City Administrator to PG&E Providing a Position Statement, dated October 4, 2017

M. Letter from PG&E to the City of Brisbane Seeking Position Statement, dated September 7, 2017

N. Letter from the City of Brisbane to PG&E Providing a Position Statement, dated September 13, 2017

O. Letter from PG&E to the City of Daly City Seeking Position Statement, dated September 1, 2017

P. Letter from the City of Daly city to PG&E Providing a Position Statement, dated September 18, 2017

Q. CAISO 2013-2014 Transmission Plan (Electronically Filed and Excluded from Served Version Due to File Size)

R. CAISO 2014-2015 Transmission Plan (Electronically Filed and Excluded from Served Version Due to File Size)

VIII. CATEGORIZATION OF PROCEEDINGS AND NEED FOR HEARINGS

Pursuant to CPUC Rule 2.1(c), the Application must contain: "The proposed category for the proceeding, the need for hearing, the issues to be considered including relevant safety considerations, and a proposed schedule. (See Article 7.) The proposed schedule shall be consistent with the proposed category, including a deadline for resolving the proceeding within 12 months or less (adjudicatory proceeding) or 18 months or less (ratesetting or quasi-legislative proceeding)." CPUC Rule 7.1(e)(2) provides: "When a proceeding does not clearly fit into any of the categories as defined in Rules 1.3(a), (d), and (e), the proceeding will be conducted under the rules applicable to the ratesetting category unless and until the Commission determines that the rules applicable to one of the other categories, or some hybrid of the rules, are best suited to the proceeding."

The Commission has consistently found that applications for CPCNs under GO 131-D do not fit within any of the enumerated categories and should therefore be considered as "ratesetting proceedings." Thus, even though transmission rates are set by FERC and are therefore beyond the scope of this proceeding, the ratesetting rules apply to this Application.

The issue in this proceeding, as set forth in GO 131-D, is whether the Project is necessary to promote the safety, health, comfort, and convenience of the public, and thus is required by the public convenience and necessity.

Safety considerations will be addressed in the following manner. The new switching station and rerouted underground cables will be constructed, operated and maintained in compliance with current safety requirements, including CPUC General Orders 95, 128, 165, 166 and 174, state and local building codes, and OSHA. PG&E workers will utilize construction Best Management Practices, standard health and safety procedures, and guard structures to ensure the safety of workers and nearby residents throughout construction. PG&E will also implement transportation safety practices and procedures and coordinate with local government agencies and transportation service providers to ensure safe access of emergency service providers during lane closures associated with construction. In addition, PG&E will prepare a Worker Environmental Awareness Program and will implement hazardous substance control/emergency response and fire risk procedures, and will comply with all measures and applicable laws, to address potential hazardous materials safety issues. Removed equipment and other waste generated during construction will be characterized and disposed of appropriately in accordance with applicable law.

Whether hearings are needed should be determined after protests, if any, are filed. PG&E's proposed certification schedule is set forth in Exhibit C.

IX. CONCLUSION

PG&E respectfully requests that the Commission:

1. Issue a Decision and Order granting PG&E a Certificate of Public Convenience and Necessity, certifying an applicable environmental document for the Project, and granting any other permission and authority necessary to construct, operate and maintain the Project.
2. Determine that the public convenience and necessity does now, and will in the future, require the proposed Project.

3. Authorize Energy Division to approve requests by PG&E for minor project modifications that may be necessary during final engineering and construction of the Project so long as Energy Division finds that such minor project modifications do not require a subsequent environmental document under Section 15162 of the CEQA Guidelines.

4. Grant such other and further relief as the CPUC finds just and reasonable.

Respectfully Submitted,

DAVID T. KRASKA
MATHEW J. SWAIN

By:______________________________

MATHEW J. SWAIN

Senior Counsel
Paragon Legal
601 California Street, Suite 615
San Francisco, CA 94108
Telephone: (415) 973-4586
Facsimile: (415) 973-5520
Email: Mathew.Swain@pge.com

Attorneys for Applicant
PACIFIC GAS AND ELECTRIC COMPANY

Dated: December 28, 2017

SCOPING MEMO INFORMATION

Category:

Ratesetting. Pursuant to Rule 2.1(c) of the Commission's Rules of Practice and Procedure, the application must propose a category for the proceeding as defined in Rule 1.3. If none of the enumerated categories are applicable, proceedings will be categorized under the catch-all "ratesetting" category. (CPUC Rule 7.1 (e)(2).) The Commission has consistently found that applications for CPCNs and PTCs under GO 131-D do not fit within any of the enumerated categories and should therefore be considered as "ratesetting proceedings."

Need for hearing:

No areas of environmental or other public concern are known. If environmental concerns are raised, those can be addressed in the environmental review process and do not require separate hearings. If other concerns about the Project are raised, PG&E recommends that a public participation hearing be held.

Issues:

Whether the Project is necessary to promote the safety, health, comfort, and convenience of the public, and thus is required by the public convenience and necessity.

Safety considerations:

This Project consists of constructing a new 230 kV switching station and rerouting two underground 230 kV lines that terminate at Martin Substation to reconfigure the existing 230 kV transmission system to provide one 230 kV path that bypasses Martin Substation. The new switching station and rerouted underground cables will be constructed, operated and maintained in compliance with current safety requirements, including CPUC General Orders 95, 128, 165, 166 and 174, state and local building codes, and OSHA. PG&E workers will utilize construction BMPs, standard health and safety procedures, and guard structures to ensure the safety of workers and nearby residents throughout construction. PG&E will also implement transportation safety practices and procedures and coordinate with local government agencies and transportation service providers to ensure safe access of emergency service providers during lane closures associated with construction. In addition, PG&E will prepare a Worker Environmental Awareness Program and will implement hazardous substance control/emergency response and fire risk procedures, and will comply with all measures and applicable laws, to address potential hazardous materials safety issues. Removed equipment and other waste generated during construction will be characterized and disposed of appropriately in accordance with applicable law.

Proposed Schedule:

See Exhibit C, attached.

Proponent's Environmental Assessment

Egbert Switching Station Project

Prepared for

Pacific Gas and Electric Company

December 2017

155 Grand Ave., Suite 800
Oakland, CA 94612

Contents

Tables

Figures

Appendices

Acronyms and Abbreviations

°F	degree(s) Fahrenheit
μg/m^3	microgram(s) per cubic meter
3-D	three–dimensional
AB	Assembly Bill
AC	alternating current
ADA	Americans with Disabilities Act
AIA	Airport Influence Area
APE	Area of Potential Effect
APM	Applicant-Proposed Measure
APN	Assessor's Parcel Number
ATCM	Airborne Toxic Control Measure
BAAQMD	Bay Area Air Quality Management District
BCDC	San Francisco Bay Conservation and Development Commission
bgs	below ground surface
BLM	Bureau of Land Management
BMP	best management practice
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAISO	California Independent System Operator
CalEEMod	California Emissions Estimator Model
Cal/EPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CAP	Clean Air Plan
CARB	California Air Resources Board

CBC	California Building Code
CBCO	City of Brisbane Code of Ordinances
C/CAG	City/County Association of Governments of San Mateo County
CCR	California Code of Regulations
CCSF	City and County of San Francisco
CCVT	Coupling capacitor voltage transformer
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	methane
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
CPCN	Certificate of Public Convenience and Necessity
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CRS	Cultural Resources Specialist
CWA	Clean Water Act
cy	cubic yard(s)

dBA	A-weighted decibel(s)
DER	distribution energy resources
DNL	day-night sound level
DOC	California Department of Conservation
DPM	diesel particulate matter
DSOD	Division of Safety of Dams
DTSC	Department of Toxic Substances Control
EB	eastbound
EDR	Environmental Data Resources Inc.
EIR	environmental impact report
EMF	electric and magnetic field
EOP	Emergency Operations Plan
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FMMP	Farmland Mapping and Monitoring Program
FPVC	Fusible polyvinyl chloride
FTA	Federal Transit Administration
FTC	flowable thermal concrete
GCC	Grid Control Center
GHG	greenhouse gas
GIS	Geographic Information System; gas-insulated switchgear
G.O.	General Order
Guidelines	CEQA Guidelines, California Code of Regulations Title 14, Chapter 3
H_2S	hydrogen sulfide
HAP	hazardous air pollutant

HCM	Highway Capacity Manual
HCP	Habitat Conservation Plan
HDPE	high-density polyethylene
hp	horsepower
HPFF	high-pressure, fluid-filled
HWCL	Hazardous Waste Control Law
HZ-1	Martin-Embarcadero No. 1
HZ-2	Martin-Embarcadero No. 2
I-280	Interstate 280
I-80	Interstate 80
IEEE	Institute of Electrical and Electronics Engineers
in/sec	inch(es) per second
IOZ	Infill Opportunity Zone
IPaC	Information Planning and Consultation
ISO	Independent System Operator
JPA	joint powers agency
kcmil	thousand circular mils
km	kilometer(s)
KOP	Key Observation Point
kV	kilovolt(s)
L90	noise level that is exceeded during 90 percent of the measurement period
L_{dn}	day-night sound level
L_{eq}	equivalent sound pressure level
L_{max}	maximum level
L_v	vibration velocity level
lb	pound(s)

LOP	Local Oversight Program
LOS	level of service
LRA	Local Responsibility Area
LUST	Leaking Underground Storage Tank
MGP	manufactured gas plant
MMT/year	million metric ton(s) per year
MPAC	Modular Protection, Automation, and Control
mph	mile(s) per hour
MRZ	mineral resource zones
MW	megawatt(s)
Mw	moment magnitude
N/A	not applicable
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NB	northbound
NCFA	North County Fire Authority
NFIP	National Flood Insurance Program
N_2O	nitrous oxide
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NOA	naturally occurring asbestos
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory

NWIC	Northwest Information Center
O_3	ozone
Pb	lead
PCB	polychlorinated biphenyl
PCE	Peninsula Clean Energy
PEA	Proponent's Environmental Assessment
peninsula	San Francisco Peninsula
PERP	Portable Equipment Registration Program
PFYC	Potential Fossil Yield Classification System
PG&E	Pacific Gas and Electric Company
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than 2.5 microns
PM_{10}	particulate matter with an aerodynamic diameter less than 10 microns
Port	Port of San Francisco
ppm	part(s) per million
PPV	Peak Particle Velocity
PRC	Public Resources Code
project	Egbert Switching Station Project
PSD	Prevention of Significant Deterioration
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act of 1976
RME	Resource Management Element
ROG	reactive organic gases
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
SamTrans	San Mateo County Transit District
SB	southbound

SBM HCP	San Bruno Mountain Habitat Conservation Plan
SCADA	supervisory control and data acquisition
SCAQMD	South Coast Air Quality Management District
SF_6	sulfur hexafluoride
SFBAAB	San Francisco Bay Area Air Basin
SFBC	San Francisco Bee-Cause
SFCTA	San Francisco County Transportation Authority
SFDPH	San Francisco County Department of Public Health
SFMTA	San Francisco Municipal Transportation Agency
SFPD	San Francisco Police Department
SFPUC	San Francisco Public Utilities Commission
SFRPD	San Francisco Recreation and Parks Department
SFUSD	San Francisco Unified School District
SIP	state implementation plan
SO_2	sulfur dioxide
SOx	sulfur oxides
SPCC	Spill Prevention, Control, and Countermeasure
SRA	State Responsibility Area
SSC	Species of Special Concern
SUD	Special Use District
SVP	Society for Vertebrate Paleontology
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TBC	Trans Bay Cable
TCR	Tribal Cultural Resource
TPP	Transmission Planning Process

UCMP	University of California at Berkeley Museum of Paleontology
U.S.	United States
U.S. 101	U.S. Highway 101
USA	Underground Service Alert
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USDA	United States Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
VRP	visibility reducing particles
WB	westbound
WGCEP	Working Group on California Earthquake Probabilities
WMP	Waste Management Plan
XLPE	cross-linked polyethylene
ZA-1	Embarcadero–Potrero

CHAPTER 1 EXECUTIVE SUMMARY

1.1 OVERVIEW

In accordance with the California Public Utilities Commission (CPUC) General Order (G.O.) 131-D, this Proponent's Environmental Assessment (PEA) has been prepared by Pacific Gas and Electric Company (PG&E) to support the application for a Certificate of Public Convenience and Necessity (CPCN) for the Egbert Switching Station project (project).

The proposed project will address San Francisco reliability concerns by reconfiguring two existing 230 kilovolt (kV) transmission lines terminating at Martin Substation to provide one independent 230 kV path bypassing Martin Substation to Embarcadero Substation. The project includes construction, operation, and maintenance of a new 230 kV switching station (proposed Egbert Switching Station, or switching station) connected to the 230 kV system by reconfiguring two existing underground, single-circuit 230 kV lines located in San Francisco, Daly City, and Brisbane. The project will provide an alternative transmission path to serve the customers of San Francisco in the event Martin Substation and/or the transmission lines are unavailable. The proposed Egbert Switching Station will connect with the rerouted existing Martin-Embarcadero No. 1 (HZ-1) and Jefferson-Martin 230 kV lines. The new underground, single-circuit transmission lines will extend the existing lines approximately 3.9 miles to create the proposed Egbert-Embarcadero, Jefferson-Egbert, and Martin-Egbert lines.

The proposed switching station will be located in San Francisco in an industrial area with some residential and commercial uses. The switching station will be looped into the existing HZ-1 line by constructing two line extensions within Egbert Avenue for approximately 0.4 mile for each extension. The line extensions will be spliced into the intersected existing line within the intersection of Bayshore Boulevard and Bacon Street to create two separate lines. The existing Jefferson-Martin line will be rerouted starting near the intersection of Guadalupe Canyon Parkway and Carter Street in Brisbane. The new line will extend for approximately 3.1 miles in a general northeast direction to the proposed switching station through portions of Daly City and San Francisco. The proposed line will be within city streets that mainly are adjacent to residential but with some areas of open space, park land, public, commercial, or industrial uses. In addition, construction will require staging areas, the exact locations of which will be determined at the time of construction based on availability. Figures 2.3-1 and 2.3-2 show the project vicinity and the proposed project location.

At Embarcadero, Jefferson, and Martin substations, minor indoor control room modifications will occur for protection and control of the lines rerouted from Jefferson and Embarcadero substations. PG&E will remove the HZ-1 conductors that will be isolated by the creation of the loop and will remove Jefferson-Martin 230 kV line terminal equipment within Martin Substation.

1.2 PURPOSE AND NEED AND PROJECT OBJECTIVES

The California Independent System Operator (CAISO) Board approved the proposed project based on recommendations from its staff in the 2014-15 Transmission Planning Process (CAISO, 2015). CAISO concluded that the proposed project was needed to increase the reliability and resiliency of the San Francisco Peninsula (peninsula) resulting from an extreme event that could render the electric transmission system at Martin Substation inoperable. The proposed project will provide an alternative 230 kV transmission path for the 290,000 customers of San Francisco that does not go through Martin Substation.

The objectives of the project are as follows:

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 will 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.

1.3 AGENCY AND PUBLIC OUTREACH

The project proponents met with several regulatory agencies; contacted the California Native American Heritage Commission (NAHC) for information on Native American cultural resources within the project vicinity and Native American tribes who may be interested in the proposed project; and met with the public in the vicinity.

1.3.1 AGENCY OUTREACH

The project proponents met with several regulatory agencies in the early planning stages of the project to solicit input on project design and potential environmental issues in the vicinity of the project. Table 1-1 summarizes the agency meetings that took place in development of this PEA and the CPCN application. Coordination with these agencies will continue through the project's planning process, and discretionary permits will be applied for where necessary.

No local discretionary (e.g., use) permits are required because CPUC has preemptive jurisdiction over the construction, maintenance, and operation of PG&E facilities in California. CPUC's authority does not preempt special districts, such as Air Quality Management Districts, other state agencies, or the federal government. The project proponents will obtain all ministerial building and encroachment permits from local jurisdictions, and CPUC G.O. 131-D requires the project proponents to comply with local building, design, and safety standards to the greatest degree feasible to minimize project conflicts with local conditions. The project proponents will obtain permits, approvals, and licenses, and would participate in reviews and consultations as needed with federal, state, and local agencies.

Table 1-1. Summary of Agency Meetings Conducted to Date

Agency	Outreach Dates
City and County of San Francisco – Department of Public Works	11/24/15 and 09/27/16
City and County of San Francisco – Planning Department	12/22/15 and 02/13/17
Caltrain	12/30/15
City of Brisbane – City Manager, Department of Public Works Director, Community Development Director	01/11/16, 08/23/16, and 03/06/17
City of Daly City – City Manager, Department of Public Works Director, Community Development Director	02/08/16, 09/14/16, and 03/06/17
High Speed Rail	08/05/16
City and County of San Francisco – City Administrator, Director of Real Estate, Emergency Planner	08/22/16
California Department of Transportation	09/22/16
City of Brisbane – Department of Public Works Director, Community Development Director, Chief of Police	09/22/16
City of Daly City – Department of Public Works	09/22/16
Office of City and County of San Francisco Supervisor Malia Cohen, District 10	10/24/16

1.3.2 NATIVE AMERICAN HERITAGE COMMISSION AND TRIBAL OUTREACH

Native American coordination began with the submission of a Sacred Lands file search request to the 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. The NAHC provided a list of six Native American tribes (Amah Mutsun Tribal Band, Amah Mutsun Tribal Band of Mission San Juan Bautista, North Valley Yokuts Tribe, Muwekma Ohlone Indian Tribe of the San Francisco Bay Area, The Ohlone Indian Tribe, and Indian Canyon Mutsun Band of Costanoan) who may have an interest in the proposed project. 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. NAHC and Native American tribe written correspondence is included in the PEA as Appendix C and is summarized in Table 3.5-5.

1.3.3 PUBLIC OUTREACH

PG&E held public open houses on May 22, 2017 (at the Visitacion Valley Branch Library, 201 Leland Avenue in San Francisco) and May 24, 2017 (at the Bayview Police Station, 201 Williams Street in San Francisco). PG&E sent open house invitations to mailing addresses within at least 300 feet of the proposed switching station and transmission lines. Approximately 10 members of the public attended the open houses.

1.4 SCOPE AND ORGANIZATION OF THE PEA

As required by CPUC guidelines, Appendix G of CEQA (hereafter referred to as the CEQA checklist) was used as the format for describing the setting and potential impacts of the project pursuant to CEQA. As lead agency, CPUC will review this information and will be responsible for preparing and providing public review of the environmental documents for the project, and for making final siting and project approval decisions.

This PEA is organized into five chapters with appendices. Table 1-2 identifies the location in this PEA where each item in the CPUC's *Proponent's Environmental Assessment Checklist for Transmission Line and Substation Projects* has been addressed (CPUC, 2008). If an item is not applicable or is confidential, justification is provided. For security reasons, Geographic Information System (GIS) data with Critical Energy Infrastructure Information will be submitted confidentially, although data layers may be used to prepare portable document file maps for public use.

Chapter 2.0, Project Description, of the PEA provides a detailed description of the project components and construction methods as well as project purpose and need.

Chapter 3.0, Environmental Setting and Impact Assessment Summary, describes the environmental setting, and presents an analysis of potential impacts to various categories of resources (as defined in Appendix G of the CEQA Guidelines), which may result from implementing the project. Each subsection includes a description of the regulatory context, environmental setting, resource-specific Applicant-Proposed Measures (APMs) for minimizing potential impacts, and analysis of potential impacts resulting from construction and from operation and maintenance of the project. Chapter 3.0 also addresses findings of significance, an analysis of the project's potential contribution to cumulative projects, and analysis of the project's potential for growth inducement. This chapter covers all elements of the CEQA checklist, including the following resource area sections:

- 3.1 Aesthetics
- 3.2 Agricultural and Forest Resources
- 3.3 Air Quality
- 3.4 Biological Resources
- 3.5 Cultural Resources
- 3.6 Geology and Soils
- 3.7 Greenhouse Gas Emissions
- 3.8 Hazards and Hazardous Materials
- 3.9 Hydrology and Water Quality
- 3.10 Land Use and Planning
- 3.11 Mineral Resources
- 3.12 Noise
- 3.13 Population and Housing
- 3.14 Public Services
- 3.15 Recreation
- 3.16 Transportation and Traffic
- 3.17 Utilities and Service Systems
- 3.18 Mandatory Findings of Significance, Cumulative, and Growth-Inducing Impacts

Chapter 4.0, Alternatives, describes PG&E's siting process and stakeholder outreach that were used to identify the study area, evaluate alternatives, and select the proposed project.

Chapter 5.0, List of Preparers, lists the PG&E staff and consultants who participated in the preparation of the PEA.

Appendices are as follows:

- **Appendix A**: List of Parcels within 300 Feet
- **Appendix B**: Electric and Magnetic Fields (EMF) Discussion
- **Appendix C:** Native American Heritage Commission and Native American Correspondence

1.5 CONCLUSIONS

The project was planned and engineered to avoid or minimize environmental impacts. As part of PG&E's standard construction practices, APMs have been incorporated into the project design, and will be implemented to avoid or minimize impacts to environmental resources. These APMs are identified in the respective resource sections listed above; Table 2.10-1 contains a summary list of all APMs for this project. With implementation of the proposed APMs, all potential project-related impacts will be avoided, further minimized, or reduced to a less-than-significant level. There are no known areas of controversy, and no major issues that must be resolved related to the project.

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
Chapter 1: PEA Summary	
1. The major conclusions of the PEA.	1.0
2. Any areas of controversy.	Not applicable (N/A)
3. Any major issues that must be resolved including the choice among reasonably feasible alternatives and mitigation measures, if any.	N/A
4. Description of inter-agency coordination.	CPCN Application; 1.4.1; 1.4.2
5. Description of public outreach efforts, if any.	1.4.3; CPCN Application
Chapter 2: Project Purpose and Need and Objectives	
2.1 Overview Explanation of the objective(s) and/or Purpose and Need for implementing the Proposed Project.	2.2; CPCN Application

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
2.2 Project Objectives Analysis of the reason why attainment of these objectives is necessary or desirable. Such analysis must be sufficiently detailed to inform the Commission in its independent formulation of project objectives which will aid any appropriate CEQA alternatives screening process.	2.2; CPCN Application
Chapter 3: Project Description	
3.1 Project Location	
1. Geographical Location: County, City (provide project location map(s)).	2.3 and 2.4; Figures 2.3-1, and 2.3-2
2. General Description of Land Uses within the project site (e.g., residential, commercial, agricultural, recreation, traverses vineyards, farms, open space, number of stream crossings, etc.).	2.3.1 and 3.10.3
3. Describe if the Proposed Project is located within an existing property owned by the Applicant, traverses existing rights of way (ROW) or requires new ROW. Give the approximate area of the property or the length of the project that is in an existing ROW or which requires new ROWs.	2.6
3.2 Existing System	
1. Describe the local system to which the Proposed Project relates; include all relevant information about substations, transmission lines and distribution circuits. *[**Note:** Regional system maps would remain confidential for security reasons.]*	2.3.2
2. Provide a schematic diagram and map of the existing system.	Figure 2.3-4, map within Application
3. Provide a schematic diagram that illustrates the system as it would be configured with implementation of the Proposed Project.	Figure 2.4-1
3.3 Project Objectives (Can refer to Chapter 2, Project Purpose and Need, if already described there.)	2.2
3.4 Proposed Project	
1. Describe whole of the Proposed Project. Is it an upgrade, a new line, new substations, switching station etc.?	2.1 and 2.4
2. Describe how the Proposed Project fits into the Regional system. Does it create a loop for reliability, etc.?	2.3 and 2.4
3. Describe all reasonably foreseeable future phases, or other reasonably foreseeable consequences of the Proposed Project.	2.4
4. Provide capacity increase in MW. If the project does not increase capacity, state it.	2.2.1

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
5. Provide Geographic Information System (GIS) (or equivalent) data layers for the Proposed Project preliminary engineering including estimated locations of all physical components of the Proposed Project as well as those related to construction. For physical components, this could include but is not limited to the existing components (e.g., ROW, substation locations, poles, etc.) as well as the proposed pole locations, transmission lines, substations, switching station etc. For elements related to construction include: proposed or likely lay-down areas, work areas at the pole sites, pull and tension sites, access roads (e.g., temporary, permanent, existing, etc.), areas where special construction methods may need to be employed, areas where vegetation removal may occur, areas to be heavily graded, etc. More details about this type of information are provided below.	Provided separately to CPUC staff. For security reasons, GIS data with direct or indirect Critical Energy Infrastructure Information layers will be submitted confidentially.
3.5 Project Components	
3.5.1 Transmission Line	
1. What type of line exists and what type of line is proposed (e.g., single-circuit, double-circuit, upgrade 69 kV to 115 kV).	2.5
2. Identify the length of the upgraded alignment, the new alignment, etc.	2.5
3. Would construction require one-for-one pole replacement, new poles, steel poles, etc.?	N/A
4. Describe what would occur to other lines and utilities that may be collocated on the poles to be replaced (e.g., distribution, communication, etc.).	N/A
3.5.2 Poles/Towers Provide the following information for each pole/tower that would be installed <u>and</u> for each pole/tower that would be removed:	
1. Unique ID number to match GIS database information.	N/A
2. Structure diagram and, if available, photos of existing structure. Preliminary diagram or "typical" drawings and, if possible, photos of proposed structure. Also provide a written description of the most common types of structures and their use (e.g., Tangent poles would be used when the run of poles continues in a straight line, etc.). Describe if the pole/tower design meets raptor safety requirements.	N/A
3. Type of pole (e.g., wood, steel, etc.) or tower (e.g., self-supporting lattice).	N/A
4. For poles, provide "typical" drawings with approximate diameter at the base and the tip; for towers, estimate the width at base and top.	N/A
5. Identify typical total pole lengths, the approximate length to be embedded, and the approximate length that would be above ground surface; for towers, identify the approximate height above ground surface and approximate base footprint area.	N/A
6. Describe any specialty poles or towers; note where they would be used (e.g., angle structures, heavy angle lattice towers, stub guys); make sure to note if any guying would likely be required across a road.	N/A

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
7. If the project includes pole-for-pole replacement, describe the approximate location of where the new poles would be installed relative to the existing alignment.	N/A
8. Describe any special pole types (e.g., poles that require foundations, transition towers, switch towers, microwave towers, etc.) and any special features.	N/A
3.5.3 Conductor Cable	
3.5.3.1 Above-Ground Installation	
1. Describe the type of line to be installed on the poles/tower (e.g., single circuit with distribution, double circuit, etc.).	N/A
2. Describe the number of conductors required to be installed on the poles or tower and how many on each side including applicable engineering design standards.	N/A
3. Provide the size and type of conductor (e.g., ACSR, non-specular, etc.) and insulator configuration.	N/A
4. Provide the approximate distance from the ground to the lowest conductor and the approximate distance between the conductors (i.e., both horizontally and vertically) Provide specific information at highways, rivers, or special crossings.	N/A
5. Provide the approximate span lengths between poles or towers, note where different if distribution is present or not if relevant.	N/A
6. Describe if other infrastructure would likely be collocated with the conductor (e.g., fiber optics, etc.); if so, provide conduit diameter of other infrastructure.	N/A
3.5.3.2 Below-Ground Installation	
1. Describe the type of line to be installed (e.g., single circuit cross-linked polyethylene-insulated solid-dielectric, copper-conductor cables).	2.5.2 and 2.5.3
2. Describe the type of casing the cable would be installed in (e.g., concrete-encased duct bank system); provide the dimensions of the casing.	2.5.2 and 2.5.3
3. Provide an engineering 'typical' drawing of the duct bank and describe what types of infrastructure would likely be installed within the duct bank (e.g., transmission, fiber optics, etc.).	Figures 2.5-4, 2.5-5, and 2.5-6
3.5.4 Substations and Switching Stations	
1. Provide "typical" Plan and Profile views of the proposed substation or switching station and the existing substation or switching station if applicable.	Figure 2.5-3
2. Describe the basic bus pattern or provide a basic one-line diagram and explain the types of equipment that would be temporarily or permanently installed and provide details as to what the function/use of said equipment would be. Include information such as, but not limited to: mobile substations or switching stations, switchgear, circuit breakers, transformers, capacitors, and new lighting.	2.5.1; Figure 2.5-2

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
3. Provide the approximate or "typical" dimensions (width and height) of new structures including engineering and design standards that apply.	2.5.1
4. Describe the extent of the Proposed Project. Would it occur within the existing fence line, existing property line or would either need to be expanded?	2.4
5. Describe the electrical need area served by the distribution substation or switching station.	Figure 2.3-5
3.6 Right-of-Way Requirements	
1. Describe the ROW location, ownership, and width. Would existing ROW be used or would new ROW be required?	2.6
2. If new ROW is required, describe how it would be acquired and approximately how much would be required (length and width).	2.6
3. List properties likely to require acquisition.	Table 2.6-1
3.7 Construction	
3.7.1 For All Projects	
3.7.1.1 Staging Areas	
1. Where would the main staging area(s) likely be located?	2.7.1.1; Figure 2.7-1
2. Approximately how large would the main staging area(s) be?	2.7.1.1
3. Describe any site preparation required, if known, or generally describe what might be required (i.e., vegetation removal, new access road, installation of rock base, etc.).	2.7.1.1
4. Describe what the staging area would be used for (i.e., material and equipment storage, field office, reporting location for workers, parking area for vehicles and equipment, etc.).	2.7.1.1
5. Describe how the staging area would be secured, would a fence be installed? If so, describe the type and extent of the fencing.	2.7.1.1
6. Describe how power to the site would be provided if required (i.e., tap into existing distribution, use of diesel generators, etc.).	2.7.1.1
7. Describe any grading activities and/or slope stabilization issues.	2.7.1.1
3.7.1.2 Work Areas	
1. Describe known work areas that may be required for specific construction activities (i.e., pole assembly, hill side construction, etc.).	2.7.1.2
2. For each known work area, provide the area required (include length and width) and describe the types of activities that would be performed.	2.7.1.2
3. Identify the approximate location of known work areas in the GIS database.	Provided separately to CPUC staff. Available GIS data layers will be submitted confidentially.

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
4. How would the work areas likely be accessed (e.g., construction vehicles, walk in, helicopter, etc.)?	2.7.1.2
5. If any site preparation is likely required, generally describe what and how it would be accomplished.	2.7.1.2
6. Describe any grading activities and/or slope stabilization issues.	2.7.3
7. Based on the information provided, describe how the site would be restored.	2.7.1.4, 2.7.1.6
3.7.1.3 Access Roads and/or Spur Roads	
1. Describe the types of roads that would be used and or would need to be created to implement the Proposed Project. See table below as an example of information required. Road types may include, but are not limited to: new permanent road; new temporary road; existing road that would have permanent improvements; existing road that would have temporary improvements, existing paved road; existing dirt/gravel road, and overland access.	2.7.1.3
2. For road types that require preparation, describe the methods and equipment that would be used.	N/A
3. Identify approximate location of all access roads (by type) in the GIS database.	N/A
4. Describe any grading activities and/or slope stabilization issues. See table in PEA Checklist as an example of information required. Road types may include, but are not limited to: new permanent road; new temporary road; existing road that would have permanent improvements; existing road that would have temporary improvements, existing paved road; existing dirt/gravel road, and overland access	N/A
3.7.1.4 Helicopter Access	
1. Identify which proposed poles/towers would be removed and/or installed using a helicopter.	N/A
2. If different types of helicopters are to be used, describe each type (e.g., light, heavy or sky crane) and what activities they will be used for.	N/A
3. Provide information as to where the helicopters would be staged, where they would refuel, where they would land within the Project site.	N/A
4. Describe any best management practices (BMPs) that would be employed to avoid impacts caused by use of helicopters, for example: air quality and noise considerations.	N/A
5. Describe flight paths, payloads, hours of operations for known locations and work types.	N/A

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
3.7.1.5 Vegetation Clearance	
1. Describe what types of vegetation clearing may be required (e.g., tree removal, brush removal, flammable fuels removal) and why (e.g., to provide access, etc.).	2.7.1.4
2. Identify the preliminary location and provide an approximate area of disturbance in the GIS database for each type of vegetation removal.	Provided separately to CPUC staff. Available GIS data layers will be submitted confidentially.
3. Describe how each type of vegetation removal would be accomplished.	2.7.1.4
4. For removal of trees, distinguish between tree trimming as required under GO-95D and tree removal.	N/A
5. Describe the types and approximate number and size of trees that may need to be removed.	N/A
6. Describe the type of equipment typically used.	2.7.1.4
3.7.1.6 Erosion and Sediment Control and Pollution Prevention during Construction	
1. Describe the areas of soil disturbance including estimated total areas, and associated terrain type and slope. List all known permits required. For project sites of less than one acre, outline the BMPs that would be implemented to manage surface runoff. Things to consider include, but are not limited to, the following: • Erosion and Sedimentation BMPs; • Vegetation Removal and Restoration; and/or • Hazardous Waste and Spill Prevention Plans.	2.7.1.5, 2.10, 3.4.4, 3.8.4, and 3.9.4
2. Describe any grading activities and/or slope stabilization issues.	2.7.3
3. Describe how construction waste (i.e., refuse, spoils, trash, oil, fuels, poles, pole structures, etc.) would be disposed.	2.7.1.5, 2.7.2, and 2.7.3
3.7.1.7 Cleanup and Post-Construction Restoration	
1. Describe how cleanup and post-construction restoration would be performed (i.e., personnel, equipment, and methods). Things to consider include, but are not limited to, restoration of the following: Natural drainage patterns; wetlands; vegetation, and other disturbed areas (i.e. staging areas, access roads, etc.).	2.7.1.6; Table 2.7-2
3.7.2 Transmission Line Construction (Above Ground)	
3.7.2.1 Pull and Tension Sites	
1. Provide the general or average distance between pull and tension sites.	N/A
2. Provide the area of pull and tension sites, include the estimated length and width.	N/A

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
3. According to the preliminary plan, how may pull and tension sites would be required, and where would they be located? Please provide the location information in GIS.	N/A
4. What type of equipment would be required at these sites?	N/A
5. If conductor is being replaced, how would it be removed from the site?	N/A
3.7.2.2 Pole Installation Removal	
1. Describe how the construction crews and their equipment would be transported to and from the pole site location. Provide vehicle type, number of vehicles, and estimated number of trips and hours of operation.	N/A
Pole and Foundation Removal	
1. Describe the process of how the poles and foundations would be removed.	N/A
2. Describe what happens to the hole that the pole was in (i.e., reused or backfilled)?	N/A
3. If the hole is to be filled, what type of fill would be used, where would it come from?	N/A
4. Describe any surface restoration that would occur at the pole site?	N/A
5. Describe how the poles would be removed from the site?	N/A
Top Removal If topping is required to remove a portion of an existing transmission pole that would now only carry distribution lines, please provide the following:	
1. Describe the methodology to access and remove the tops of these poles	N/A
2. Describe any special methods that would be required to top poles that may be difficult to access, etc.	N/A
Pole Tower Installation	
1. Describe the process of how the new poles/towers would be installed; specifically call out any special construction methods (e.g., helicopter installation) for specific locations or for different types of poles/towers.	N/A
2. Describe the types of equipment and their use as related to pole/tower installation.	N/A
3. Describe actions taken to maintain a safe work environment during construction (e.g., covering of holes/excavation pits, etc.).	N/A
4. Describe what would be done with soil removed from a hole/foundation site.	N/A
5. For any foundations required, provide description of construction method(s), approximate average depth and diameter of excavation, approximate volume of soil to be excavated, approximate volume of concrete or other backfill required, etc.	N/A

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
6. Describe briefly how poles/towers and associated hardware are assembled.	N/A
7. Describe how the poles/towers and associated hardware would be delivered to the site; would they be assembled off-site and brought in or assembled on site?	N/A
8. Provide a table of pole/tower installation metrics and associated disturbance area estimates as in PEA Checklist 3.7.2.2.	N/A
3.7.2.3 Conductor/Cable Installation	
1. Provide a process-based description of how new conductor/cable would be installed and how old conductor/cable would be removed, if applicable. *[**Note**, graphical representation of the general sequencing is helpful for the reader here.]*	N/A
2. Generally describe the conductor/cable splicing process.	N/A
3. If vaults are required, provide their dimensions and approximate location/spacing along the alignment.	N/A
4. Describe in what areas conductor/cable stringing/installation activities would occur.	N/A
5. Describe any safety precautions or areas where special methodology would be required (e.g., crossing roadways, stream crossing).	N/A
3.7.3 Transmission Line Construction (Below Ground)	
3.7.3.1 Trenching	
1. Describe the approximate dimensions of the trench (e.g., depth, width).	2.7.2.2
2. Describe the methodology of making the trench (e.g., saw cutter to cut the pavement, back hoe to remove, etc.).	2.7.2.2
3. Provide the total approximate cubic yardage of material to be removed from the trench, the amount to be used as backfill and the amount to subsequently be removed/disposed of off-site.	2.7.2, 2.7.3, and 3.17.4
4. Provide off-site disposal location, if known, or describe possible option(s).	3.17.3.4
5. If engineered fill would be used as backfill, provide information as to the type of engineered backfill and the amount that would be typically used (e.g., the top two feet would be filled with thermal-select backfill).	2.7.2
6. Describe if dewatering would be anticipated, if so, how the trench would be dewatered, what are the anticipated flows of the water, would there be treatment, and how would the water be disposed.	2.7.2
7. Describe the process for testing excavated soil or groundwater for the presence of pre-existing environmental contaminants that could be exposed as a result of trenching operations.	3.8.4.2

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
8. If a pre-existing hazardous waste were encountered, describe the process of removal and disposal.	3.8.4.2
9. Describe any standard BMPs that would be implemented.	APM AQ-1; GHG-1; WQ-1
3.7.3.2 Trenchless Techniques: Microtunnel, Bore and Jack, Horizontal Directional Drilling	
1. Provide the approximate location of the sending and receiving pits.	2.7.2.2; Figure 2.5-1d
2. Provide the length, width and depth of the sending and receiving pits.	2.7.2.2
3. Describe the methodology of excavating and shoring the pits.	2.7.2.2
4. Describe the methodology of the trenchless technique.	2.7.2.2
5. Provide the total cubic yardage of material to be removed from the pits, the amount to be used as backfill and the amount to subsequently be removed/disposed of off-site.	2.7.2.2
6. Describe process for safe handling of drilling mud and bore lubricants.	2.7.2.2
7. Describe process for detecting and avoiding "fracturing-out" during HDD operations.	N/A
8. Describe process for avoiding contact between drilling mud/lubricants and stream beds.	N/A
9. If engineered fill would be used as backfill, provide information as to the type of engineered backfill and the amount that would be typically used (e.g., the top two feet would be filled with thermal-select backfill).	2.7.2
10. Describe if dewatering would be anticipated, if so, how the pit would be dewatered, what are the anticipated flows of the water, would there be treatment, and how would the water be disposed.	2.7.2
11. Describe the process for testing excavated soil or groundwater for the presence of pre-existing environmental contaminants.	2.7.1.5; 2.7.2; 3.8.4.2
12. If a pre-existing hazardous waste were encountered, describe the process of removal and disposal.	2.7.2; 3.8.4.2
13. Describe any grading activities and/or slope stabilization issues.	2.7.2.2
14. Describe any standard BMPs that would be implemented.	APM AQ-1; GHG-1; WQ-1
3.7.4 Substation and Switching Station Construction	
15. Describe any earth moving activities that would be required; what type of activity and, if applicable, estimate cubic yards of materials to be reused and/or removed from the site for both site grading and foundation excavation.	2.7.3
16. Provide a conceptual landscape plan in consultation with the municipality in which the substation or switching station is located.	Figure 2.5-3

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
17. Describe any grading activities and/or slope stabilization issues.	2.7.3
18. Describe possible relocation of commercial or residential property, if any.	N/A
3.7.5 Construction Workforce and Equipment	
19. Provide the estimated number of construction crew members.	2.7.6
20. Describe the crew deployment, would crews work concurrently (i.e., multiple crews at different sites); would they be phased, etc.	2.7.6
21. Describe the different types of activities to be undertaken during construction; the number of crew members for each activity i.e. trenching, grading, etc.; and number and types of equipment expected to be used for said activity. Include a written description of the activity. See example in PEA Checklist 3.7.5.	2.7.6; Tables 2.7-1 through 2.7-3
22. Provide a list of the types of equipment expected to be used during construction of the Proposed Project as well as a brief description of the use of the equipment. See example in PEA Checklist 3.7.5.	2.7.6; Table 2.7-4
3.7.6 Construction Schedule	
23. Provide a Preliminary Project Construction Schedule; include contingencies for weather, wildlife closure periods, etc. Include Month Year, or Month Year to Month Year for each. See example in PEA Checklist 3.7.6.	2.8; Table 2.8-1
3.8 Operation and Maintenance	
1. Describe the general system monitoring and control (i.e., use of standard monitoring and protection equipment, use of circuit breakers and other line relay protection equipment, etc.).	2.9.1
2. Describe the general maintenance program of the Proposed Project, include items such as: • Timing of the inspections (i.e., monthly, every July, as needed); • Type of inspection (i.e., aerial inspection, ground inspection); and • Description of how the inspection would be implemented. Things to consider, who/how many crew members; how would they access the site (walk to site, vehicle, ATV); would new access be required; would restoration be required, etc.	2.9 and 2.9.2
3. If additional full time staff would be required for operation and/or maintenance, provide the number and for what purpose.	N/A
2.9 Applicant Proposed Measures	
1. If there are measures that the Applicant would propose to be part of the Proposed Project, please include those measures and reference plans or implementation descriptions.	2.10

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
Chapter 3: Environmental Setting *[Note: PG&E has elected to combine Environmental Setting with the impact assessment. Detailed descriptions should be limited to those resource areas which may be subject to a potentially significant impact.]*	
3.1 Aesthetics	
1. A description of the physical environment in the vicinity of the project (e.g., topography, land use patterns, biological environment, etc.)	3.1.3
• Local environment (site-specific)	3.1.3
• Regional environment	3.1.3
2. A description of the regulatory environment/context	
• Federal	3.1.2
• State	3.1.2
• Local	3.1.2
3.2 Agriculture Resources	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.2.3
• Local environment (site-specific)	3.2.3
• Regional environment	3.2.3
2. A description of the regulatory environment/context	
• Federal	3.2.2
• State	3.2.2
• Local	3.2.2
3.3 Air Quality	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.3.3
• Local environment (site-specific)	3.3.3
• Regional environment	3.3.3
2. A description of the regulatory environment/context	
• Federal	3.3.2
• State	3.3.2
• Local	3.3.2

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
3.4 Biological Resources	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.4.3
• Local environment (site-specific)	3.4.3
• Regional environment	3.4.3
2. A description of the regulatory environment/context	
• Federal	3.4.2
• State	3.4.2
• Local	3.4.2
3.5 Cultural Resources	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.5.3
• Local environment (site-specific)	3.5.3
• Regional environment	3.5.3
2. A description of the regulatory environment/context	
• Federal	3.5.2
• State	3.5.2
• Local	3.5.2
3.6 Geology, Soils and Seismic Potential	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.6.3
• Local environment (site-specific)	3.6.3
• Regional environment	3.6.3
2. A description of the regulatory environment/context	
• Federal	3.6.2
• State	3.6.2
• Local	3.6.2
3.7 Applicant Proposed Measures to address GHG Emissions	3.7.4
See the menu of suggested APMs in PEA Checklist Section 6.4 that applicants can consider. Applicants can and are encouraged to propose other GHG reducing mitigations. Priority is given to on-site and/or nearby mitigation measures. Off-site mitigation measures within California will be considered.	

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
3.8 Hazards and Hazardous Materials	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.8.3
• Local environment (site-specific)	3.8.3
• Regional environment	3.8.3
2. A description of the regulatory environment/context	
• Federal	3.8.2
• State	3.8.2
• Local	3.8.2
3.9 Hydrology and Water Quality	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.9.3
• Local environment (site-specific)	3.9.3
• Regional environment	3.9.3
2. A description of the regulatory environment/context	
• Federal	3.9.2
• State	3.9.2
• Local	3.9.2
3.10 Land Use and Planning	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.10.3
• Local environment (site-specific)	3.10.3
• Regional environment	3.10.3
2. A description of the regulatory environment/context	
• Federal	3.10.2
• State	3.10.2
• Local	3.10.2
3.11 Mineral Resources	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.11.3
• Local environment (site-specific)	3.11.3

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
• Regional environment	3.11.3
2. A description of the regulatory environment/context	
• Federal	3.11.2
• State	3.11.2
• Local	3.11.2
3.12 Noise	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.12.3
• Local environment (site-specific)	3.12.3
• Regional environment	3.12.3
2. A description of the regulatory environment/context	
• Federal	3.12.2
• State	3.12.2
• Local	3.12.2
3.13 Population and Housing	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.13.3
• Local environment (site-specific)	3.13.3
• Regional environment	3.13.3
2. A description of the regulatory environment/context	
• Federal	3.13.2
• State	3.13.2
• Local	3.13.2
3.14 Public Services	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.14.3
• Local environment (site-specific)	3.14.3
• Regional environment	3.14.3
2. A description of the regulatory environment/context	
• Federal	3.14.2

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
• State	3.14.2
• Local	3.14.2
3.15 Recreation	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.15.3
• Local environment (site-specific)	3.15.3
• Regional environment	3.15.3
2. A description of the regulatory environment/context	
• Federal	3.15.2
• State	3.15.2
• Local	3.15.2
3.16 Transportation and Traffic	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.16.3
• Local environment (site-specific)	3.16.3
• Regional environment	3.16.3
2. A description of the regulatory environment/context	
• Federal	3.16.2
• State	3.16.2
• Local	3.16.2
3.17 Utilities and Public Services	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.17.3
• Local environment (site-specific)	3.17.3
• Regional environment	3.17.3
2. A description of the regulatory environment/context	
• Federal	3.17.2
• State	3.17.2
• Local	3.17.2
Chapter 3: Environmental Impact Assessment Summary	

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
3.1 Aesthetics Provide visual simulations of prominent public view locations, including scenic highways to demonstrate the before and after project implementation. Additional simulations of affected private view locations are highly recommended.	3.1.3.3, Figures 3.1-3a through 3.1-7b
3.2 Agriculture Resources Identify the types of agricultural resources affected.	3.2.4.3
3.3 Air Quality	
1. Provide supporting calculations / spreadsheets / technical reports that support emission estimates in the PEA.	3.3.4.3; Table 3.3-7; supporting spreadsheets provided separately to CPUC staff.
2. Provide documentation of the location and types of sensitive receptors that could be impacted by the project (e.g., schools, hospitals, houses, etc.). Critical distances to receptors is dependent on type of construction activity.	3.3.4.3
3. Identify Project greenhouse gas (GHG) emissions as follows:	
• Quantify GHG emissions from a business as usual snapshot. That is, what the GHG emissions will be from the proposed project if no mitigations were used	3.7.4.3, Table 3.7-3
• Quantify GHG emission reductions from every Applicant Proposed Measure that is implemented. Itemize quantifications and place in a table format	3.7.4.3, Table 3.7-3
• Identify the net emissions of a project after mitigations have been applied.	3.7.4.3, Table 3.7-3
• Calculate and quantify GHG emissions (CO_2 equivalent) for the project including construction & operation.	3.3.4.3, Table 3.7-4
• Calculate and quantify the GHG reduction based on reduction measures proposed for the project.	3.3.4.3, Table 3.7-4
• Propose Applicant Proposed Measures (APMs) to implement and follow to maximize GHG reductions. If sufficient, CPUC will accept them without adding further mitigation measures.	3.7.4.2
• Discuss programs already in place to reduce GHG emissions on a system wide level. This includes Applicant's voluntary compliance with USEPA SF6 reduction program, reductions from energy efficiency, demand response, LTPP, et al.	3.7.2
3.4 Biological Resources - In addition to an impacts analysis:	
1. Provide a copy of the Wetland Delineation and supporting documentation (i.e., data sheets). If verified, provide supporting documentation. Additionally, GIS data of the wetland features should be provided as well.	N/A
2. Provide a copy of special status surveys for wildlife, botanical and aquatic species, as applicable. Any GIS data documenting locations of special-status species should be provided.	GIS data layers unavailable per CDFW licensing agreement.

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
3.5 Cultural Resources - In addition to an Impacts Analysis:	
1. Cultural Resources Report documenting a cultural resources investigation of the Proposed Project. This report should include a literature search, pedestrian survey, and Native American consultation.	Provided separately to CPUC staff. Portions of the report are confidential.
2. Provide a copy of the records found in the literature search.	Provided separately to CPUC staff. Copy of the record search is confidential.
3. Provide a copy of all letters and documentation of Native American consultation.	Appendix C
3.6 Geology, Soils and Seismic Potential - In addition to an impacts analysis:	
1. Provide a copy of geotechnical investigation if completed, including known and potential geologic hazards such as ground shaking, subsidence, liquefaction, etc.	N/A
3.7 Applicant Proposed Measures to address GHG Emissions	3.7.4.2
See the menu of suggested APMs in PEA Checklist Section 6.4 that applicants can consider. Applicants can and are encouraged to propose other GHG reducing mitigations. Priority is given to on-site and/or nearby mitigation measures. Off-site mitigation measures within California will be considered.	
3.8 Hazards and Hazardous Materials [Reference and list the documents that apply.] - In addition to an impacts analysis:	
1. Environmental Data Resources report.	Provided separately to CPUC staff.
2. Hazardous Substance Control and Emergency Response Plan.	To be provided once project is approved to align with project specific activities, materials, and areas.
3. Health and Safety Plan.	To be provided once project is approved and construction contractor(s) develop project-specific health and safety plans.
4. Worker Environmental Awareness Program (WEAP).	To be provided once project is approved to align with APMs and other project measures.
5. Describe what chemicals would be used during construction and operation of the Proposed Project. For example: fuels, etc. for construction, naphthalene to treat wood poles before installation.	3.8.4.3
3.9 Hydrology and Water Quality – In addition to an impacts analysis:	

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
1. Describe impacts to groundwater quality including increased run-off due to construction of impermeable surfaces, etc.	3.9.4.3
2. Describe impacts to surface water quality including the potential for accelerated soil erosion, downstream sedimentation, and reduced surface water quality.	3.9.4.3
3.10 Land Use and Planning - In addition to an impacts analysis:	
3. Provide GIS data of all parcels within 300' of the Proposed Project with the following data: APN number, mailing address, and parcel's physical address.	GIS data layers unavailable per licensing agreement
3.11 Mineral Resources - Data needs already specified under Chapter 3 would generally meet the data needs for this resource area.	3.11
3.12 Noise	
1. Provide long term noise estimates for operational noise (e.g., corona discharge noise, and station sources such as substations, switching stations, etc.).	3.12.5.3
3.13 Population and Housing Data needs already specified under Chapter 3 would generally meet the data needs for this resource area.	3.13
3.14 Public Services Data needs already specified under Chapter 3 would generally meet the data needs for this resource area.	3.14
3.15 Recreation Data needs already specified under Chapter 3 would generally meet the data needs for this resource area	3.15
3.16 Transportation and Traffic Describe the likely probable routes that are the subject of the traffic analysis.	3.16.3.2
1. Discuss traffic impacts resulting from construction of the Proposed Project including ongoing maintenance operations.	3.16.4.3
2. Provide a preliminary description of the traffic management plan that would be implemented during construction of the Proposed Project.	3.16.4.2
3.17 Utilities and Services Systems	
1. Describe how treated wood poles would be disposed of after removal, if applicable.	N/A
3.18 Cumulative Analysis	
1. Provide a list of projects (i.e., past, present and reasonably foreseeable future projects) within the Project Area that the applicant is involved in.	Table 3.18-2
2. Provide a list of projects that have the potential to be proximate in space and time to the Proposed Project. Agencies to be contacted include but are not limited to: the local planning agency, Caltrans, etc.	Table 3.18-2

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
3.18.6 Growth-Inducing Impacts, if Significant	
1. Provide information on the Proposed Project's growth inducing impacts, if any. The information should include, but is not necessarily limited, to the following:	
• Any economic or population growth, in the surrounding environment that will directly or indirectly, result from the Proposed Project	N/A
• Any increase in population that could further tax existing community service facilities (i.e., schools, hospitals, fire, police, etc.), that will directly or indirectly result from the Proposed Project	N/A
• Any obstacles to population growth that the Proposed Project would remove	N/A
• Any other activities, directly or indirectly encouraged or facilitated by the Proposed Project that would cause population growth that could significantly affect the environment, either individually or cumulatively	N/A
Chapter 4: Detailed Discussion of Significant Impacts *[Note: With implementation of PG&E's APMs, all impacts will be less than significant. Therefore the first two sections (6.1, Mitigation Measures Proposed to Minimize Significant Effects, and 6.2, Description of Project Alternatives and Impact Analysis) are not required.]*	
3.18.6 Growth-Inducing Impacts *[**Note**: Growth-inducing impacts are addressed in the Impact Assessment]*	
Information required to analyze the Proposed Project's effects on growth would vary depending on the type of project proposed. Generally, for transmission line projects the discussion would be fairly succinct and focus on the following:	
1. Would the Proposed Project foster economic or population growth, either directly or indirectly, in the surrounding environment?	3.13.4.3
2. Would the Proposed Project cause an increase in population that could further tax existing community service facilities (i.e., schools, hospitals, fire, police, etc.)?	3.13.4.3
3. Would the Proposed Project remove obstacles to population growth?	3.13.4.3
4. Would the Proposed Project encourage and facilitate other activities that would cause population growth that could significantly affect the environment, either individually or cumulatively?	3.13.4.3
Other Process-Related Data Needs	
1. Excel spreadsheet that includes all parcels within 300 feet of any project component with the following data: APN number, owner mailing address, and parcels physical address. *[**Note**: notice of all property owners within 300 feet is required under GO 131-D.]*	Appendix A; PEA compact disc

1.6 REFERENCES

California Independent System Operator. 2015. *2014-2015 Transmission Plan*. http://www.caiso.com/Documents/Board-Approved2014-2015TransmissionPlan.pdf. March 27.

California Public Utilities Commission (CPUC). 2008. *Proponent's Environmental Assessment Checklist for Transmission Line and Substation Projects.* http://www.cpuc.ca.gov/environment/. Working Draft. November 24.

CHAPTER 2 PROJECT DESCRIPTION

This chapter describes the Egbert Switching Station Project objectives, location, components, easement requirements, construction methods, and operation and maintenance. It also includes the anticipated permits and approvals, and the APMs that PG&E has committed to in addition to the requirements stipulated in the project permits and applicable regulations to facilitate avoidance and/or minimization of potential adverse environmental impacts. This document has been prepared in accordance with the California Public Utilities Commission's (CPUC's) *Proponent's Environmental Assessment Checklist* (CPUC, 2008).

2.1 OVERVIEW

This Proponent's Environmental Assessment (PEA) evaluates the environmental impacts associated with construction, operation, and maintenance of the project. The project includes the following components:

- **Egbert Switching Station:** a proposed switching station.
- **Jefferson-Egbert Transmission Line:** a modification to the existing Jefferson-Martin 230 kV line where the line is rerouted from the existing Martin Substation to the proposed Egbert Switching Station, creating a new line.
- **Egbert-Embarcadero and Martin-Egbert Transmission Lines**: a modification to the existing Martin-Embarcadero No. 1 (HZ-1) 230 kV line where proposed line extensions loop the proposed Egbert Switching Station through the line, creating two separate new lines.

Minor modifications to the existing Martin, Embarcadero, and Jefferson substations will be required to support the project.

2.2 PROJECT OBJECTIVES

2.2.1 PROJECT PURPOSE AND NEED

The Egbert Switching Station Project is intended to enhance the electric reliability in San Francisco and mitigate an extreme event at Martin Substation that could cause a lengthy loss of electric service. Given the significant adverse economic, safety, and convenience impacts of prolonged power outages in San Francisco, CAISO recommended construction of an alternative 230 kV path to bypass Martin Substation. The project will consist of a new 230 kV switching station located approximately 1.6 miles from Martin Substation, and re-routing two 230 kV transmission lines from Martin Substation to the new switching station. This will create another route for electrical power from the south to serve San Francisco that does not go through Martin Substation.

The project responds to the San Francisco's need for a redundant and geographically-distinct source of 230 kV power that bypasses Martin Substation. The project's need is not dependent on the load forecasts in San Francisco. The project will not provide a capacity increase.

The CAISO evaluated the reliability risk to San Francisco posed by an extreme event and recommended this project be undertaken. CAISO commenced its assessment in the 2013-2014 transmission planning cycle. "The reliability assessment focuses on whether the specific risks and circumstances regarding the San Francisco Peninsula warrant mitigation measures beyond the minimum prescribed by mandatory reliability standards and the effectiveness of various proposed solutions in mitigating the identified risks. The ISO assessment has determined that there are unique circumstances affecting the San Francisco area that form a credible basis for considering mitigations of risk of outages and of restoration times that are beyond the minimum reliability standards. The Peninsula area does have unique characteristics in the western interconnection due to the urban load center, geographic and system configuration, and potential risks with challenging restoration times for these types of events." CAISO 2013-2014 Transmission Plan at 72. As a result of CAISO's evaluation of the unique risks that the San Francisco Peninsula faces, CAISO enhanced its Planning Standards in September 2014 "to recognize that the unique characteristics of the San Francisco Peninsula form a credible basis for considering for approval of corrective action plans to mitigate the risk of outages for extreme events that are beyond the level that is applied to the rest of the ISO controlled grid." CAISO Planning Standards, § 7.1 at 7-8 (Sept. 4, 2014); see also CAISO 2014-2015 Transmission Plan at 69-70.

CAISO completed its reliability assessment of the San Francisco Peninsula in the 2014-2015 planning cycle. It summarized the basis for recommending this project as follows:

> one of the reliability-driven projects, the Martin 230 kV bus extension project, resulted from the extensive analysis of the San Francisco peninsula which had been identified by PG&E as being particularly vulnerable to lengthy outages in the event of extreme (NERC Category D) contingencies. The analysis commenced in the 2013-2014 planning cycle, and concluded in this 2014-2015 planning cycle. This work ultimately concluded that while an additional an additional supply to the peninsula would not materially impact reliability of supply or service restoration times on the peninsula, *further reinforcement of the existing system on the peninsula is necessary. One aspect, the Martin bypass, requires ISO approval* – the other aspects are more appropriately classified as capital maintenance, and are being undertaken by PG&E with the support of the ISO.

CAISO 2014-2015 Transmission Planning Process (TPP) at 2 (emphasis added). CAISO stated that the Project is "necessary to ensure compliance with NERC and ISO planning standards." *Id.* at 7; see also *id*. at 72-73. The CAISO Board of Governors unanimously approved the 2014-2015 TPP, including the Project, at its May 14, 2015 meeting.

By constructing a new 230 kV switching station in the vicinity of Martin Substation and rerouting two existing 230 kV lines into the new station, the project will provide geographically diverse redundancy to the system while mitigating the risk of an extreme event that renders Martin Substation inoperable.

2.2.2 STATEMENT OF PROJECT OBJECTIVES

The objectives of the project are to:

1) Improve the 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, economically, and technically feasible project that minimizes environmental impacts and will 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.

2.3 PROJECT LOCATION AND EXISTING SYSTEM

The proposed Egbert Switching Station Project will include construction, operation, and maintenance of a new 230 kV switching station (Egbert Switching Station, or switching station) in San Francisco, California. The switching station will provide a geographically diverse alternative for 230 kV power between Embarcadero Substation and Jefferson Substation with the extension of two existing 230 kV lines in San Francisco, Brisbane, and Daly City. Figure 2.3-1 shows the location of the project on the northern portion of the peninsula within San Francisco and San Mateo Counties.

2.3.1 PROJECT LOCATION

The 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. The new Egbert Switching Station is proposed to be constructed on approximately 1.7 acres in San Francisco (Figure 2.3-2). The proposed switching station site is in the neighborhood of Bayview, located on the eastern side of U.S. Highway 101 (U.S. 101). This neighborhood has a mix of residential, industrial, and commercial uses. See Section 2.6 for information on property rights and right-of-way (ROW) requirements.

The project will reroute two existing underground 230 kV transmission lines currently connected to the existing Martin Substation (the existing HZ-1 line and the existing Jefferson-Martin line) to the proposed Egbert Switching Station. The existing HZ-1 line will be looped-in to Egbert Switching Station with construction of two transmission lines underground, creating a Martin-Egbert line and an Egbert-Embarcadero line. An underground transmission line extension will connect the existing underground Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. Work will also occur at PG&E's Jefferson, Embarcadero, and Martin substations. Protection and control modifications will be required at all three substations and the removal of line terminal equipment is planned at Martin Substation.

The project includes approximately 3.9 miles of new underground transmission line installed mainly in paved areas, with approximately 420 feet to be installed by trenchless technology (likely auger bore) under U.S. 101. The proposed Jefferson-Egbert line starts its bypass near the intersection of Carter Street and Guadalupe Canyon Parkway in Brisbane, and continues north along Carter Street through Daly City then northward through San Francisco streets to Mansell Avenue. Once at Mansell Avenue, the proposed Jefferson-Egbert line heads east to the

Figure 2.3-1. Project Vicinity

Figure 2.3-2. Project Location

trenchless crossing under U.S. 101. East of U.S. 101, the route turns north within Crane Avenue and continues north across private property to Egbert Switching Station. Both the proposed Egbert-Embarcadero and Martin-Egbert lines will connect the bisected HZ-1 line to the proposed Egbert Switching Station with the construction of two new approximately 0.4 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, and open space.

In addition, construction will require equipment staging and laydown areas. Fieldwork and agency coordination will be conducted in advance of finalizing the construction plan to identify appropriate staging and laydown areas in existing city streets, in warehouses, and/or on existing paved or graveled areas that are commercially available in existing locations. The precise location of some of the staging or laydown areas may depend on rental availability, specific encroachment permits, and other construction occurring in the area, and will be coordinated with the cities as appropriate. These sites will be finalized once the construction contractors have been chosen. Construction materials for the project may be stored at existing PG&E-owned properties or leased properties suitable for construction storage without physical modifications.

2.3.2 EXISTING SYSTEM

The San Francisco Peninsula has no in-area utility-scale generation making it entirely dependent on electric power imports. There are about 417,000 electric customers served by PG&E's 230 kV and 115 kV transmission systems from the south and the Trans Bay Cable (TBC) from the east (Figure 2.3-3). PG&E's transmission system is sufficient to meet the power needs on the Peninsula and within San Francisco if the TBC is out of service. The TBC cannot meet the Peninsula's or San Francisco's power needs if PG&E's transmission system is out of service.

2.3.2.1 Existing San Francisco Transmission System

Of the 417,000 customers shown on Figure 2.3-3, 290,000 customers within San Francisco are served from either Martin Substation or TBC[1]. These are the customers that will directly benefit from the proposed project. Power into Martin Substation is delivered via two underground 230 kV lines and six overhead 115 kV power lines from the south. One 230 kV line comes from Jefferson Substation (Jefferson-Martin line), and the other from San Mateo Substation (San Mateo-Martin line). The six overhead 115 kV lines that bring power into Martin Substation come from San Mateo Substation on lattice towers routed in a common corridor. The TBC is a high voltage direct current line from the East Bay and connects at PG&E's Potrero Switchyard.

Power from Martin Substation and the TBC is delivered to six San Francisco substations by PG&E's 230 kV and 115 kV underground transmission systems from PG&E's Martin Substation in Daly City. The six San Francisco substations distribute power to the 290,000 customers within San Francisco (Figure 2.3-4).

[1] The number of PG&E account holders in San Francisco served by Martin Substation undercounts the number of individuals and businesses served by the substation because many office or retail commercial buildings house multiple tenants but have only one PG&E account holder, which is usually the building owner.

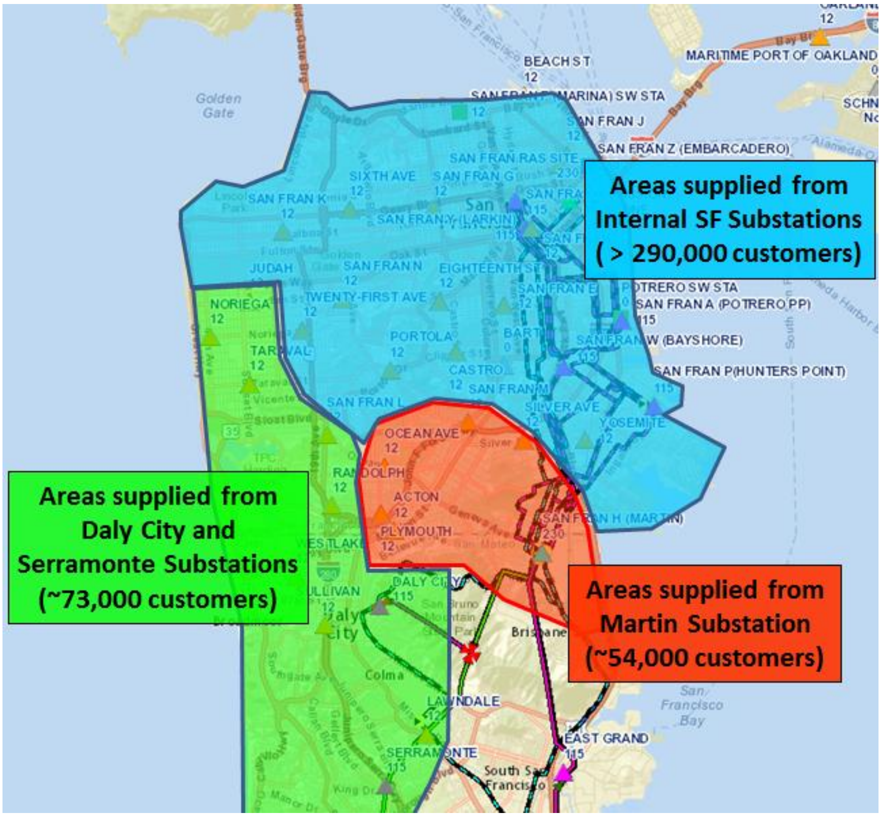


Figure 2.3-3. Areas Supplied by Martin Substation and TBC

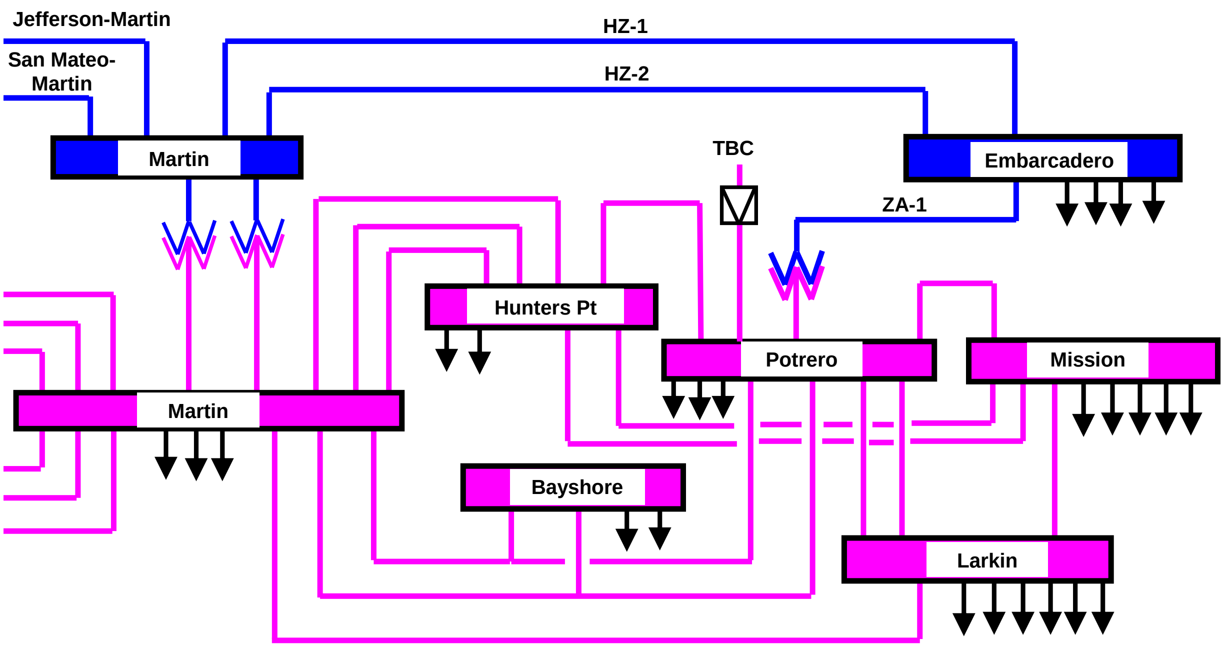
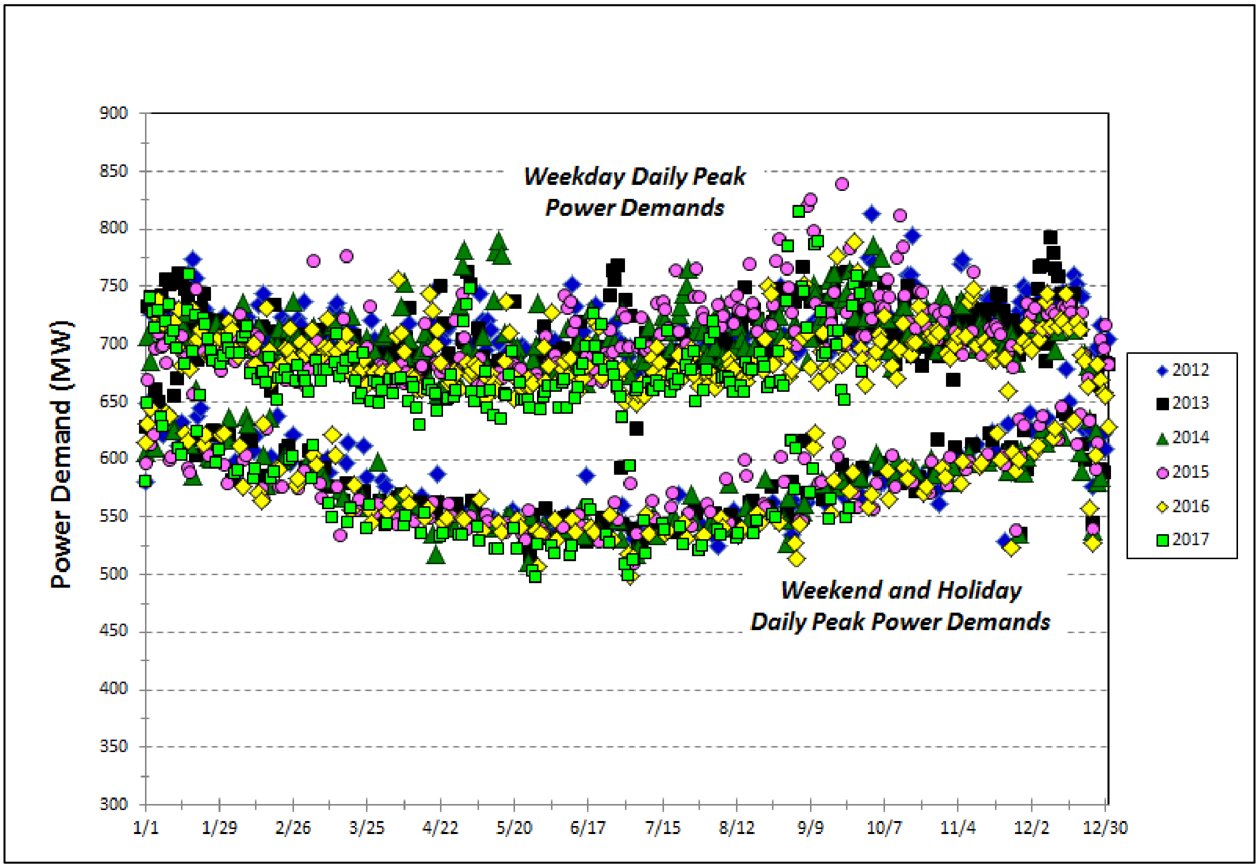


Figure 2.3-4. Electric Transmission System Serving San Francisco
(Note: 230 kV is shown in blue, 115 kV is shown in fuchsia, TBC is Trans Bay Cable, and arrows indicate distribution to customers.)

The transmission system feeding the six substations consists of three 230 kV and six 115 kV underground cables. Two of the 230 kV cables run from Martin Substation to Embarcadero Substation in San Francisco (HZ-1 and HZ-2) and are the primary source of power to Embarcadero Substation. The third cable (ZA-1) connects Embarcadero Substation to Potrero Switchyard. The six 115 kV cables connect to Potrero/Bayshore, Hunters Point, and Larkin substations and complete the connections between Martin Substation and the six substations. The two HZ cables, along with the six 115 kV cables, have sufficient capacity to supply 100 percent of the electrical needs of the six transmission-fed substations in San Francisco if the TBC is out of service.

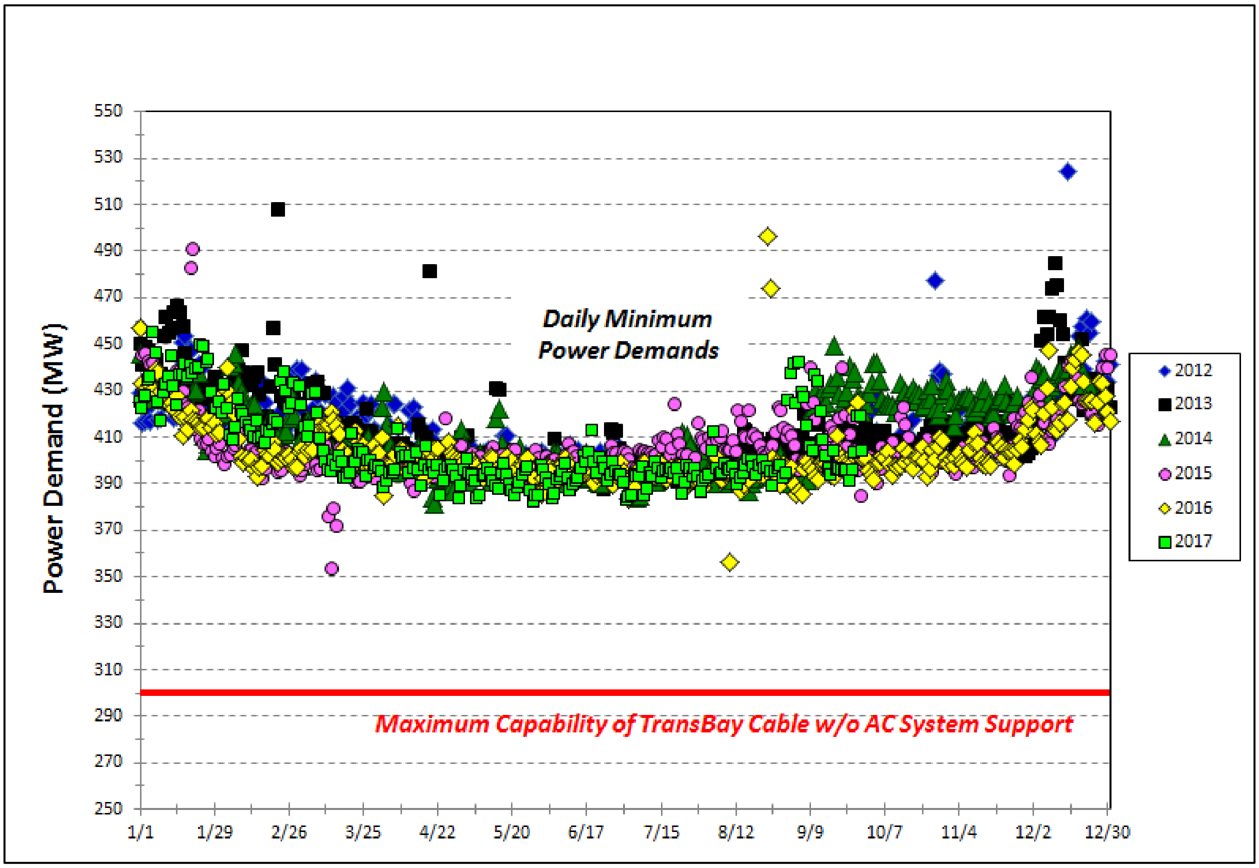
The direct current TBC uses inverters at Potrero Switchyard to convert the power to alternating current (AC). With the AC system out of service, the TBC alone can supply less than 40 percent of San Francisco's peak electrical needs on a hot day (assumes an 800-megawatt [MW] load), and less than 47 percent of San Francisco's typical weekday peak electrical load (assumes a 650-MW load). Even with the TBC operating at capacity of 400 MW,[2] Martin Substation still must deliver over 400 MW of power into San Francisco to serve peak loads, over 250 MW of power into San Francisco on a typical weekday, and over 150 MW of power on weekends (Figures 2.3-5 and 2.3-6).



Source: PG&E, 2017

Figure 2.3-5. Daily Peak Power Demands for the Six Substations within San Francisco

[2] The TBC can provide up to 400 MW when there is an AC power source at Potrero Switchyard 115 kV bus. Without AC power (e.g., loss of Martin Substation), the TBC can provide only 300 MW.



Source: PG&E, 2017

Figure 2.3-6. Daily Minimum Power Demand for the Six Substations within San Francisco

2.4 PROPOSED PROJECT

The project proposes to reroute one of the existing 230 kV lines terminating at Martin Substation to provide a 230 kV path bypassing Martin Substation. In case of a service outage of the transmission system, the proposed project will allow electric service to be routed through the rerouted line and a new switching station to San Francisco.

The new Egbert Switching Station facility is proposed to be constructed in San Francisco. The Jefferson-Martin 230 kV line will be interconnected with a new line to Egbert Switching Station, creating the proposed Jefferson-Egbert 230 kV line (Figure 2.4-1). The existing Jefferson-Martin line remnant between the point of interconnection with the new line and Martin Substation will be left in place for possible use by future transmission or distribution electrical projects. The line terminal equipment at Martin Substation will be removed once the proposed Jefferson-Egbert transmission line is in service (Figure 2.4-2).

The proposed Egbert Switching Station will be looped into the HZ-1 line, creating two new lines (i.e., the proposed Martin-Egbert and Egbert-Embarcadero 230 kV lines). To loop the switching station into the HZ-1 line, one new line will connect into the HZ-1 line heading north to Embarcadero Substation, and the other new line will connect into the HZ-1 line heading south to Martin Substation. Each of the new lines will connect to the HZ-1 line at existing HZ-1 vaults. The line remnant between the two vaults will be retired; the conductor will be removed, but the conduit is expected to be retired in place. Once completed, electrical power will be able to travel from Jefferson Substation to Embarcadero Substation without going through Martin Substation (Figure 2.4-1). The proposed Egbert Switching Station will have a space for a future bay, but it will not be installed as part of this project. No future projects requiring a new bay are currently planned.

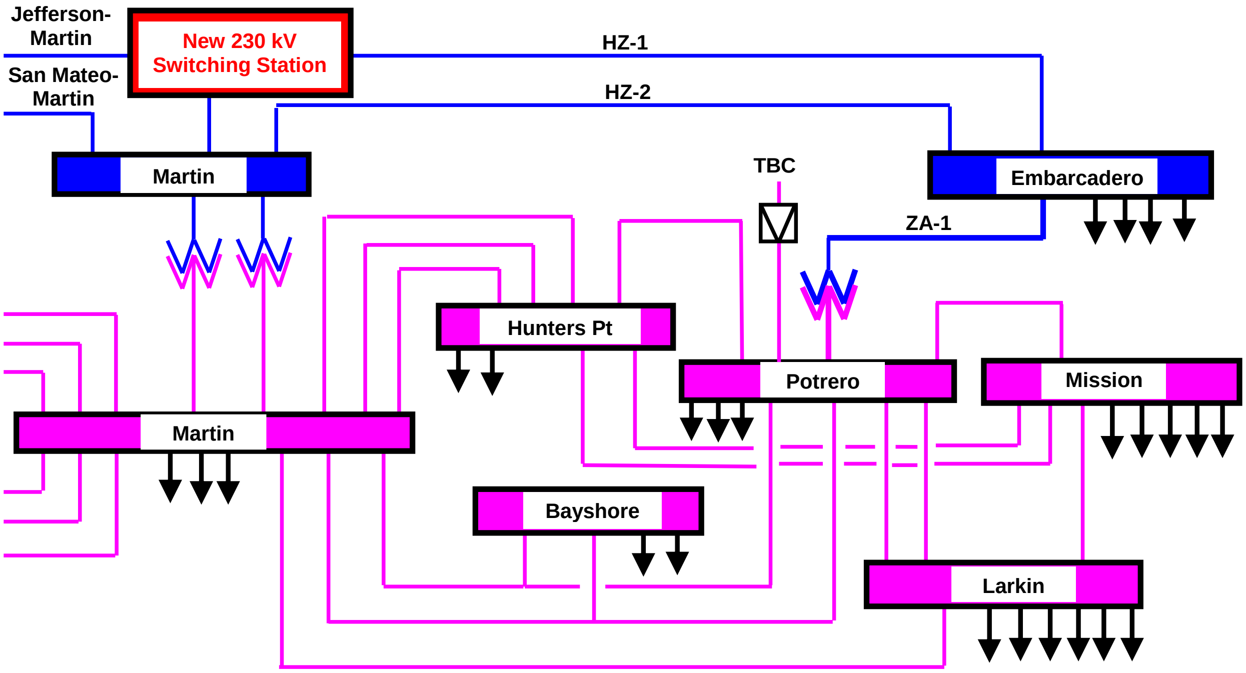


Figure 2.4-1. Proposed Transmission System
(Note: 230 kV is shown in blue, 115 kV is shown in fuchsia, TBC is Trans Bay Cable, and arrows indicate distribution to customers.)

Figure 2.4-2. Martin Substation Area

2.5 PROJECT COMPONENTS

The project involves switching station, substation, and underground transmission line construction activities consisting of the following three major elements:

1. Construct the proposed Egbert 230 kV Switching Station.

2. Extend the existing underground Jefferson-Martin 230 kV transmission line to the proposed Egbert Switching Station, creating the proposed Jefferson-Egbert 230 kV line.

3. Loop the proposed Egbert Switching Station through the existing underground HZ-1 230 kV transmission line, creating the proposed Egbert-Embarcadero 230 kV line and the proposed Martin-Egbert 230 kV line.

New transmission line lengths are expected to be installed underground; no tower or poles are expected to be installed. Table 2.5-1, Transmission Line Sections, Approximate Length, provides an approximation of line length added and removed from service as part of the project. While the majority of the new lines are expected to be open trench construction, at least one portion of the proposed Jefferson-Egbert line has been identified to be installed under U.S. 101 using trenchless technology (Section 2.5.2.2, Trenchless Crossing at U.S. 101). Figure 2.5-1 shows the proposed switching station location and transmission line routes, work area within the existing Martin Substation, and potential staging areas.

Table 2.5-1. Transmission Line Sections, Approximate Length

Transmission Line Section	Approximate Length
New 230 kV Transmission Line Construction	
Open Trench	
Proposed Jefferson-Egbert Line *Existing Jefferson-Martin Line interconnection to proposed Egbert Switching Station*	3.1 miles
Proposed Egbert-Embarcadero Line *Existing HZ-1 Line interconnection to proposed Egbert Switching Station*	0.4 mile
Proposed Martin-Egbert Line *Existing HZ-1 Line interconnection to proposed Egbert Switching Station*	0.4 mile
Trenchless	
Proposed Jefferson-Egbert Line *U.S. Highway 101 crossing*	420 feet
Total Approximate Length of New Construction	4 miles
Existing Bypassed 230 kV Transmission Line Removed from Service	
Existing Jefferson-Martin Line *Proposed Jefferson-Egbert Line interconnection to the existing Martin Substation*	2 miles
Existing HZ-1 Line Between the proposed Egbert-Embarcadero and Martin-Egbert lines interconnections	200 feet
Total Approximate Length of Line Removed from Service	2 miles

In addition, construction will require equipment staging and laydown areas as discussed in Section 2.7.1.1, Staging Areas.

The system protection scheme of the proposed Egbert-Embarcadero, Jefferson-Egbert, and Martin-Egbert lines will be coordinated within the existing control rooms at the existing Embarcadero, Jefferson, and Martin substations, respectively. Once the proposed Jefferson-Egbert line is in operation, construction will include a minor modification within the existing Martin Substation with the removal of the Jefferson-Martin line terminal equipment.

2.5.1 PROPOSED EGBERT SWITCHING STATION

The project involves construction of a new 230 kV switching station (Egbert Switching Station) to be located at 1755 Egbert Avenue, San Francisco (Figure 2.5-1e). The new 230 kV switching station will use gas-insulated switchgear (GIS) equipment. The 230 kV GIS will be configured as a breaker-and-a-half bus arrangement to accommodate the three transmission cables (from the existing Martin, Jefferson, and Embarcadero substations). Possible future use of the proposed Egbert Switching Station not associated with this project, or any currently planned project, includes use of a spare terminal and potential accommodation of up to two future 230 kV connections. An approximately 11,000-square-foot building will house the following (Figure 2.5-2):

- GIS equipment
- Modular Protection, Automation, and Control (MPAC) for control, metering, and protection
- AC and direct current station batteries systems for power backup

The GIS equipment will connect to the underground transmission cables via gas-insulated bus and through a cable-to-sulfur hexafluoride (SF_6) termination unit located outside of the building walls. The building height will be approximately 40 feet above grade to accommodate the installation, operation, and maintenance requirements of the electrical equipment. The proposed switching station's outdoor equipment includes the following Figure 2.5-2:

- 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

- Oil pump house for the proposed Egbert-Embarcadero and Martin-Egbert lines

- Station service transformer for 120/240 AC power

The series reactor connected to the proposed Jefferson-Egbert line will 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 lines will serve to mitigate the high capacitance created by the long underground transmission cables. A Spill Prevention, Control, and Countermeasure (SPCC) Plan is expected be prepared for the proposed switching station to establish procedures, methods, and equipment requirements for the

Figure 2.5-1. Detailed Site and Route Map
(6 figures, a-f)

Figure 2.5-1b Detailed Site and Route Map

Figure 2.5-1c Detailed Site and Route Map

Figure 2.5-1d Detailed Site and Route Map

Figure 2.5-1e Detailed Site and Route Map

Figure 2.5-1f Detailed Site and Route Map

Figure 2.5-2. Proposed Egbert Switching Station Site Plan

aboveground oil storage in the oil pump system (house) and shunt reactors. The series and shunt reactors will be partially enclosed to provide visual screening. The switching station site will be enclosed by a perimeter fence with vehicle and pedestrian access. Figure 2.5-3 provides conceptual views of the switching station from Egbert Avenue and from a passenger's perspective on a southbound Caltrain.

The Institute of Electrical and Electronics Engineers (IEEE) provides recommended practice for seismic design of substations. The switching station equipment will follow High Level IEEE 693 seismic design requirements. Equipment housed on a building floor above the ground level would be qualified for amplified input motions. Provisions will be made for adequate restraint and anchorage of all switching station equipment. Conventional seismic design approaches as well as base isolation technologies will be considered for protection of the building, equipment, and components.

2.5.2 PROPOSED JEFFERSON-EGBERT LINE

A new 230 kV line will be installed between an existing Jefferson-Martin line vault near the intersection of Guadalupe Canyon Parkway and Carter Street in Brisbane and the proposed Egbert Switching Station in San Francisco (Figure 2.5-1a-f).

The proposed Jefferson-Egbert line starts its bypass from the existing vault near the intersection of Carter Street and Guadalupe Canyon Parkway, and continues north along Carter Street in franchise (public ROW) along city streets. From Carter Street, the line turns west 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 line heads east to a trenchless crossing of a state of California property east of San Bruno Avenue. The trenchless line continues east across U.S. 101 to the intersection at Bayshore Boulevard and Crane Street. The line then continues north along Crane Street, crossing Paul Avenue onto privately owned properties at 400 Paul Avenue and 200 Paul Avenue, until the line terminates at the proposed Egbert Switching Station. Routing on these two parcels will be refined during final design with review of the as-built data center infrastructure at 400 Paul Avenue. When the existing Jefferson-Martin line from Jefferson Substation is spliced with the new line at the vault, the splice will create the proposed Jefferson-Egbert line (Figure 2.5-1a). The remnant of the existing Jefferson-Martin line toward Martin Substation will be removed from service by disconnecting the line at the vault. The line remnant between the vault and Martin Substation will be left in place for possible, yet unplanned, future use not associated with this project.

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

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

Figure 2.5-3. Proposed Egbert Switching Station Architectural Renderings

2.5.2.1 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 will utilize a single cable per phase 2,500 thousand circular mils (kcmil) 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 will be approximately 2 feet 9 inches wide by 2 feet 0 inches high, although typical dimensions may vary depending on soil stability and the presence of existing substructures. The duct bank will maintain a minimum 36 inches of cover (Figure 2.5-4). The duct bank will utilize four 6-inch and two 4-inch polyvinyl chloride (PVC) conduits, which will be encased in a thermal concrete casing.

Fiber optic lines for system protection and communication will be installed in the 4-inch-diameter conduits that will be installed alongside the 6-inch-diameter conduits and within the duct bank. The existing fiber optic cable that follows the existing Jefferson-Martin 230 kV underground transmission line is a 72-strand cable. A 72-strand fiber cable will be installed from the existing Jefferson-Martin 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 will 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 (Figure 2.5-5).

Most of the duct bank will be in a two-by-two duct configuration, as shown on Figure 2.5-4. 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.

2.5.2.2 Trenchless Crossing at U.S. Highway 101

Auger bore installation is the expected method for the proposed Jefferson-Egbert line to cross beneath U.S. 101. The eastern end of the crossing is located at the intersection of Bayshore Boulevard and Crane Street. The crossing will continue underneath U.S. 101 and San Bruno Street until reaching its western end, which is located to the west of the intersection of Mansell Street (westbound) and San Bruno Avenue. The total estimated length of the crossing is approximately 420 feet (Figure 2.5-1e). Other locations along the routes may be considered for trenchless technology as engineering design continues and identifies constraints such as utility congestion or other constraints where use of trenchless technology would reduce construction impacts.

2.5.3 PROPOSED EGBERT-EMBARCADERO AND MARTIN-EGBERT LINES

To create the proposed Egbert-Embarcadero and Martin-Egbert lines, two new line segments will be installed between the proposed Egbert Switching Station and the existing HZ-1 line near the intersection of Bayshore Boulevard and Bacon Street (Figure 2.5-1f). One new line will be spliced into the HZ-1 line north of the intersection in Bayshore Boulevard to create the proposed Egbert-Embarcadero line. The other line will be spliced into the HZ-1 line on the western side of

Figure 2.5-4. Typical Duct Bank, Proposed Jefferson-Egbert Line

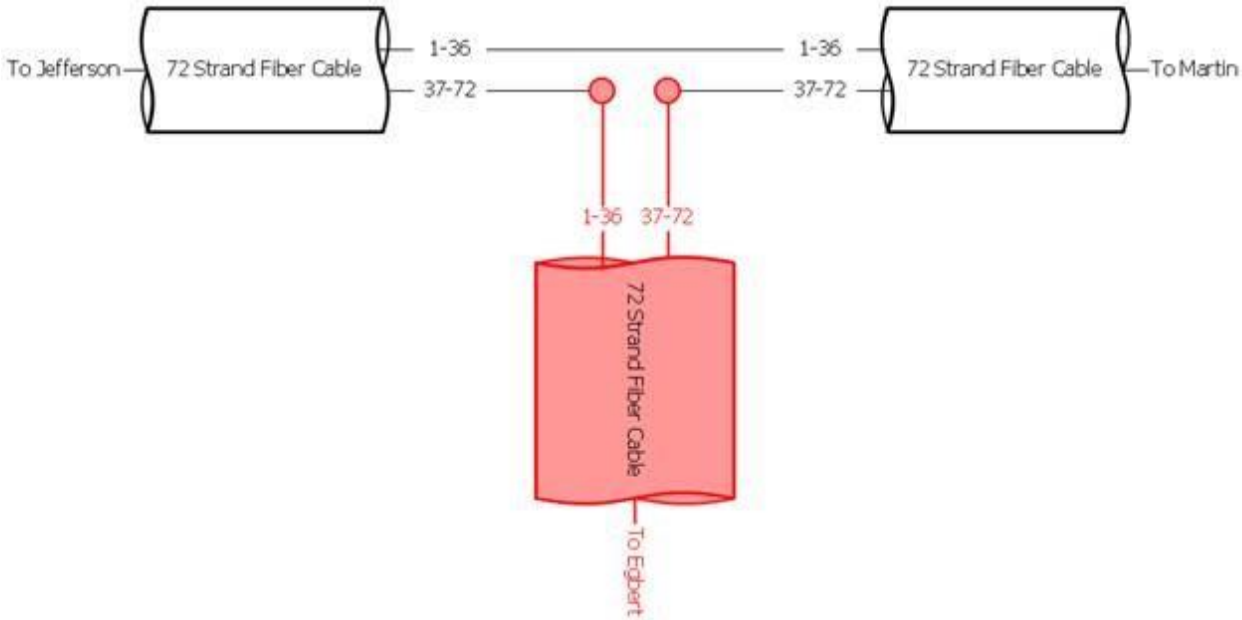


Figure 2.5-5. Fiber Optic Configuration

the Bacon Street and Bayshore Boulevard intersection to create the proposed Martin-Egbert line. The electrical interconnection with the new line extensions will occur at existing HZ-1 vaults on Bayshore Boulevard and Bacon Street, respectively. The new lines will extend to the east from the Bayshore Boulevard and Bacon Street intersection along Egbert Avenue to the proposed switching station site. At the end of the street, franchise ends and three properties (three private properties and one property owned by the state of California) are expected to be crossed to enter into the site.

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

- Installing a new duct bank system for each line with one or two vaults located on Egbert Avenue
- Installing and splicing new pipe and fiber optic lines to loop the intersected HZ-1 line into the proposed switching station

2.5.3.1 Underground Cable

To match the existing cable type and installation, the two new line extensions connecting to the HZ-1 line will utilize a single cable per phase 2,500 kcmil copper conductor, 230 kV HPFF Kraft paper insulated cable.

The dimension of the duct bank will be approximately up to 4 feet wide by 2 feet 6 inches high, and the pipe will maintain a minimum 36 inches of cover (Figure 2.5-6). The duct bank will utilize one 10-inch steel pipe and one 2-inch PVC conduit, which will be encased in a slurry or appropriate alternative such as sand. The electrical conductors will be installed in the steel pipe, and fiber optic cable will be installed in the PVC pipe.

Figure 2.5-6. Typical Duct Bank, Proposed Egbert-Embarcadero and Martin-Egbert Lines

2.5.3.2 Bypassed HZ-1 230 kV Transmission Line

The bypassed HZ-1 line remnant will be removed from service with modifications to both the existing civil and electrical interconnections. The cable, dielectric fluid, and splices will 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 utilized for other future, yet unplanned, transmission/distribution projects not associated with this project.

2.5.4 EXISTING MARTIN SUBSTATION

The project does not require installation of major equipment or construction at the existing Martin Substation. Once the proposed Egbert Switching Station is in operation and the existing Jefferson–Martin 230 kV line has been rerouted to the new switching station, the Jefferson line terminal and associated equipment at Martin Substation will be removed. Equipment modifications to Martin Substation will occur within the existing substation fence line (Figure 2.4-2). Indoor relay-related work will occur within the substation control room as necessary to coordinate with the protection and control equipment at the proposed Egbert Switching Station.

2.5.5 EXISTING EMBARCADERO AND JEFFERSON SUBSTATIONS

Minor modifications for protection and control of the rerouted existing Jefferson and Embarcadero lines are expected to occur at the existing Embarcadero and Jefferson substations. The indoor work will occur within the substation control room, and will include relay-related work to coordinate the system protection schemes.

2.6 PROPERTY RIGHTS REQUIREMENTS

The project is located primarily in franchise agreement parcels, in city streets, or on PG&E-owned property, with the exception of permanent easements required at the locations shown in Table 2.6-1, Permanent Easements Expected for Project. In accordance with PG&E's franchise agreements, no ROW acquisition is anticipated for transmission lines within public streets and California Department of Transportation (Caltrans) ROW.

Table 2.6-1. Permanent Easements Expected for Project

Property Address	Assessor's Parcel Number (APN)	Approximate Easement Dimensions
200 Paul Avenue, San Francisco	5431A-001G	25 feet wide by 220 feet long
400 Paul Avenue, San Francisco	5431A-051	25 feet wide by 950 feet long
Egbert Avenue, San Francisco	5431A-001Z	25 feet wide by 20 feet long
125 Paul Avenue, San Francisco	5431A-019	25 feet wide by 20 feet long
Egbert Avenue, San Francisco	5415-008	25 feet wide by 60 feet long
1700 Egbert Avenue, San Francisco	5415-007	25 feet wide by 125 feet long
San Bruno Avenue, San Francisco	5473-014	25 feet wide by 15 feet long

PG&E will acquire the necessary rights for the land needed to accommodate all anticipated construction work areas associated with the underground electric transmission line requirements. PG&E will obtain ministerial encroachment permits to conduct work in public ROWs in accordance with municipal requirements. PG&E will rent space or acquire temporary construction easements from private or public landowners to stage materials and equipment during construction.

PG&E plans to purchase the property in fee for the 1.7-acre switching station site at 1755 Egbert Avenue in San Francisco (APN 5431A-001A). Land entitlement issues are not part of the regulatory proceeding through which the CPUC is considering whether to grant or deny PG&E's application for a Certificate of Public Convenience and Necessity (CPCN). Rather, any land rights issues would be resolved in subsequent negotiations following the CPUC's decision on PG&E's application.

2.7 CONSTRUCTION

Construction of the project components will proceed as described in the following subsections.

2.7.1 GENERAL CONSTRUCTION CONSIDERATIONS

General considerations relevant to the construction of the project components are discussed focusing on staging areas, work areas, access roads, vegetation clearance, erosion and sediment control and pollution prevention during construction, and cleanup and post-construction restoration.

2.7.1.1 Staging Areas

Approximately one to three staging areas totaling up to approximately 15 acres will be identified for use once a construction contractor is selected. It is anticipated that most of the staging areas will 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 Daly City and San Francisco, and along Amador Street in San Francisco have been identified (Figure 2.7-1); however, specific staging area locations will 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/or spreading gravel on the 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 (Figure 2.5-1e). Typical materials that will be used for construction of the underground

Figure 2.7-1. Potential Staging Areas

conduits (such as PVC conduit, steel pipe, rebar, shoring, and cable reels) will 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 will 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.

2.7.1.2 Temporary Work Areas

The majority of the temporary work areas is expected to be located in franchise for construction of the three new transmission lines (Figure 2.5-1a-f), the proposed Egbert Switching Station (Figure 2.5-1e), within Martin Substation (Figure 2.4-2), 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 line termination equipment removal at Martin Substation will use the area within the substation adjacent to the equipment.

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

Prior to the duct bank installation, vaults will be installed approximately every 1,800 to 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 about 1,500 feet long by 12 feet wide. This workspace will include the following sequential activities:

- An active excavation or open trench, which typically extends 100 to 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 per crew depending upon 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 to 200 feet of trench will be open at any one time depending on the permitting requirements of the cities of San Francisco, Daly City, and Brisbane. Final lane closure plans will be determined following detailed investigations into existing utilities and final construction planning.

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

A trench or excavation (vault or bore pit) will be widened or shored where needed to meet California Division of Occupational Safety and Health safety requirements. A support or excavation system will be installed to maintain the integrity of the excavation and to provide a safe workspace for the assembly of the cable pipe or duct bank package, as well as to provide means for the support of any existing below-grade facilities that the proposed route crosses. The type of excavation support will likely vary throughout the project based on soil conditions, depth of water table, depth of excavation, and the existing facilities to be supported and/or avoided. Methods for excavation support may include, but are not limited to, the following:

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

The current work plan is that initially, two crews will be used for trenching of the Jefferson-Egbert line, with a crew starting at each end. As trenching nears completion on the Jefferson-Egbert line, one crew will move to begin trenching on the new line segments connecting to HZ-1. Open trenching on Egbert Avenue is expected to occur on one line at a time. Once the trenching is complete and conduit integrity is certified, final roadway restoration and any asphalt or concrete paving will be completed.

At the trenchless U.S. 101 crossing location, the eastern pit of auger bore operations will 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 will 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 will use a work area of approximately 3,000 square feet (Figure 2.5-1e). The vertical launching and receiving pits will be approximately 15 feet by 25 to 35 feet, depending on location and depth of shallow obstructions. Temporary vehicle barriers will be installed around the pits, and a temporary chain-link fence will be installed around both boring equipment work areas.

To intersect the existing HZ-1 line, work areas will be established on each side of the line before the splice areas near the intersection of Bacon Street and Bayshore Boulevard (Figure 2.5-1f). An excavation will be made over the existing line in each location to prepare to intersect the line. To manage the fluid in this HPFF line, the current work plan is to use liquid nitrogen to freeze the fluid before cutting into the line. These work areas, commonly referred to as freeze pits, will be approximately 10 by 35 feet. A small shed will be built in each work area to support the freeze monitoring. A liquid nitrogen source (truck or tank) will be staged nearby to maintain the freeze.

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

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

The remnant of the HZ-1 line will be removed from service by working at the HZ-1 splice work areas and/or existing vaults. A work area of approximately 20 by 50 feet will be established at the two existing HZ-1 vault locations to access the line to support removing the existing line remnant from service before the new line extensions are spliced.

Appropriate traffic control configuration is set up and in place ahead of construction activities, and may include traffic control cones, candles, 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 will apply for a Caltrans encroachment permit and a permit from the San Francisco Municipal Transportation Agency (SFMTA), as well as Special Traffic Permits from the cities of San Francisco, Daly City, and Brisbane. PG&E will also coordinate provisions for emergency vehicle and local access with city personnel.

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

2.7.1.3 Access Roads/Spur Roads

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

2.7.1.4 Vegetation Clearance

Transmission line portions of the project will be underground, and most work and staging areas are expected to be in city streets and paved, graveled, or ruderal areas (such as the ROW across 400 Paul Avenue). The new switching station and 400 Paul Avenue are primarily non-vegetated. These sites are composed primarily 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 is 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 line will be located in the landscaped median of Mansell Street. Landscaping within this median includes nonnative 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 will be minimized to that needed for construction; and all temporarily disturbed areas will be restored to pre-construction conditions once construction is completed. Although not anticipated, should any street trees be affected, PG&E will work with the appropriate city department for tree removal permits as required.

Any roots from trees and deep-rooted shrubs will be pruned above the transmission line duct bank to avoid interference.

2.7.1.5 Erosion and Sediment Control and Pollution Prevention During Construction

PG&E will prepare and implement an Erosion and Sediment Control Plan as part of a Stormwater Pollution Prevention Plan (SWPPP) for this project. Measures will address elements such as track-out controls, stockpile handling, dewatering discharge, drain inlet protection, and replacement of any disturbed pavement or landscaping. See Section 3.9, Hydrology and Water Quality, 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 (SWRCB). Temporary approvals for water use and discharge will be obtained as required by the construction contractor, and construction water will be disposed of in accordance with state and federal standards.

Trash will be collected in bins or appropriate containers at the job site, and will then be removed to the staging areas for off-haul to the appropriate solid waste facility. Soils are expected to be characterized in situ for disposal, and spoils and asphalt/concrete waste will be hauled off for appropriate disposal following characterization. Excavated material is not expected to be used as backfill. When necessary, clean backfill will be imported to the project area. Backfill is typically expected to be a concrete mix or slurry sourced from a local concrete supplier.

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.

2.7.1.6 Cleanup and Post-Construction Restoration

Restoration typically consists of removal of equipment and materials and covering the area disturbed by construction with gravel or re-paving, depending on the original condition of the work area. Work areas, whether vegetated or not, will be restored to conditions equal to or better than pre-construction conditions. Vegetated areas disturbed by the project may include limited street- or landscaped areas that would be replanted per agreement with the city or landowner. As part of the final construction activities, PG&E will 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.

2.7.2 UNDERGROUND TRANSMISSION LINE CONSTRUCTION

This section includes an overview of construction methods typically used for underground transmission lines, including the open trenching and trenchless methods expected for this project. Construction of underground transmission lines will 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 line crosses under U.S. 101, a trenchless technology method will be used, likely auger bore. Vehicles and equipment that are typically used to construct an underground transmission line project are listed in Section 2.7.6, Table 2.7-1, Equipment Expected to be Used During Project Construction – Transmission Line.

Table 2.7-1. 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
	Portable air compressor	3
	Dump truck	3
	Pickup truck	9
	Roller	1
	Semi-truck	2
	Concrete truck	~~3~~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

Table 2.7-1. Equipment Expected to be Used During Project Construction – Transmission Line

Phase/Task	Workers, Equipment	Quantity
	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

Prior to any excavation, PG&E will notify other utility companies (via the Underground Service Alert) to locate and mark existing underground structures along the proposed alignments, and will also conduct exploratory excavations (potholing) to prove the locations for proposed facilities as needed. PG&E will apply for a ministerial Excavation Permit from the cities of San Francisco, Brisbane, and 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 will be implemented to allow for certain construction activities and to maintain public safety as described in Section 3.16, Transportation and Traffic.

Materials removed during trench and trenchless excavations, having been pre-characterized, will be placed directly into trucks and will be 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 is not expected to be used as backfill. Depending on agreements in place at the time of project construction, current landfill capacity, and the results of soil characterization, the project may use Ox Mountain Sanitary

Landfill, Recology Hay Road Landfill, or another appropriately approved disposal site. Currently based on soil types, approximately 5 percent of the material (1,700 cy) potentially may be hazardous material, and is therefore 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 (FTC), lime slurry, or an appropriate alternative such as sand will be used around the pipes. Controlled density fluidized thermal backfill will be above the pipes. Each material has unique properties specific to its application, while both are designed to have thermal characteristics for heat displacement. For a typical trench, the bottom 2 feet encases the conduit with FTC, or lime slurry in the case of the HPFF installations, while the remainder of the trench is filled with diggable controlled density fill to the roadway sub-base 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/or excavations at the switching station will be conducted using a pump or well points. Groundwater encountered will be sampled and characterized prior to removal and discharge as described in Section 3.9, 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 and/or disposal facility.

2.7.2.1 Open Trench

The first operation during construction of the duct bank and splice vault system will be the placement of the vaults. As these are the physically largest components of the facility to be placed underground, it is typical to have the initial construction crew excavate and place the vaults prior to the trenching and duct bank installation crew work. This process provides fixed ends for the trenching and duct bank crews to work toward, should any minor adjustments on the location of the vaults occur during construction. Once adjacent vaults are installed, trenching and duct bank installation between the vaults can begin. Cable installation will occur once the full length of the duct bank for a new line is installed.

Step 1—Vault Installation

The proposed lines will require the installation of vaults at approximately 1,800- to 2,000-foot intervals. The typical complete pre-cast vault installation usually takes 4 to 7 days, using a standard of 10 working hours per day from breaking ground to finishing grade. An approximately 28-foot-long, 12-foot-wide, and 13-foot-deep excavation will be performed using excavators. The vault excavation requires shoring components such as driven sheet piles or slide rail steel sheeting. Once the initial excavation and shoring is installed, preparation of the sub-base consists of the installation of crushed rock to level to a finished grade.

Once the vault preparation steps (i.e., excavating, shoring, and finished grade leveling) are completed, pre-cast vault sections are lifted and set using either a hydraulic or a lattice-type crane. These vaults will generally be 30 feet 6 inches long by 9 feet 2 inches wide and 9 feet 2 inches tall as depicted on Figure 2.7-2. Most vaults are expected to have two manholes for access to the cable. Vaults on the proposed Jefferson-Egbert line will have a hand hole either adjacent to, or more in-line, to allow access to the communication conduit separate from the cable conduit. With all sections of the vault set in place, backfilling can start as the shoring is removed. Once the vault is placed and backfilled, temporary road restoration work will occur.

Figure 2.7-2. Typical Vaults with Manholes

Step 2—Trenching/Duct Bank Installation

After the route is marked, the pavement within the trench line will be removed by saw cutting of the pavement (where applicable) followed by excavation of the trench. The trench excavation to install the duct bank will be approximately 4 feet 6 inches wide by 8 feet deep on average, but may occasionally be shallower (as little as 5 feet) or deeper (10 feet), depending on field conditions and the presence of other utilities. The trench dimensions for the HZ-1 line may be greater at pipe splice points to allow access for the welders.

Upon reaching final trench excavation depth, a second work crew secures the trench walls via shoring. Once the shoring process is complete for approximately 150 to 300 feet, another crew will install conduit, providing a raceway for the electrical cable. As the trench for the underground 230 kV cable is completed, a crew will install the cable conduit / pipe and encasement duct bank. The duct bank cover will measure at least 36 inches.

Where the electrical transmission duct bank crosses or runs parallel to other substructures that have operating temperatures at earth temperature, the preferred radial clearance is 24 inches; however, in some locations, a minimum radial clearance of 12 inches may be required depending on the existing utilities within the route. For example, these substructures include fiber optic lines, gas lines, telephone lines, water mains, storm lines, and sewer lines. In addition, a 5-foot-minimum radial clearance will be required where the new duct bank crosses another heat-radiating substructure at right angles. A 15-foot-minimum radial clearance will be required between the duct bank and any parallel substructure with an operating temperature significantly exceeding the normal earth temperature. Such heat-radiating facilities may include other underground transmission lines, primary distribution cables (especially multiple-circuit duct banks), steam lines, or heated oil lines.

PG&E has performed subsurface utility surveys, and will continue to identify utilities prior to final design. PG&E will evaluate the proximity of utilities and potential for induced current and/or corrosion, and in coordination with the utility-system owner, will determine whether steps are necessary to reduce the potential to induce current or cause corrosion. PG&E will take the necessary steps in coordination with those utility system owners to minimize any potential effects through measures such as increased cathodic protection or utility relocation. The steps are summarized as follows:

- During final design, PG&E prepares a study of corrosion and induced currents.
- PG&E sends results of the study to each affected owner for review and comments.
- Owners submit requirements for protection of each of their facilities.
- PG&E makes changes accordingly or compensates the owner for future protection measures, in accordance with the owner's preference.

Once the conduits are installed and backfilled, controlled density fluidized thermal backfill will be placed above the concrete that encases the conduit (or the slurry or sand that encases the pipe on the HPFF lines) and compacted. Restoration is based upon matching the roadway's existing sub-base and surface (i.e., asphalt, concrete, or a combination of both). A road base backfill or slurry concrete cap will be installed, and the road surface will be restored in compliance with the locally issued permits. While the completed trench sections are being restored, additional trench lines will be opened farther down the road. This process will continue until the entire conduit / pipe system is in place.

Step 3—Cable Pulling, Splicing, and Termination

This cable system consists of three major components: the cable, splices that connect cable sections, and terminators that connect the cable to the equipment at the substations or switching station.

Cable Pulling

A cable consists of three individual conductors (one per electrical phase) and a communication fiber optic cable. Pulling between two vaults typically takes approximately 2 to 3 days, assuming 10 working hours per day. To pull each XLPE conductor (Jefferson–Egbert Line) through the duct bank, a cable reel is placed at the end of a duct bank section in a vault, and a pulling rig is placed at the other end of the duct bank section in another vault. With a small rope called a fish line, a larger rope is pulled into the duct. The large rope is attached to pulling eyes on a conductor end, and the large rope pulls the conductor into the duct. To ease pulling tensions, a lubricant is applied to the conductor as it enters the duct. The three electric conductors and the communication cable are pulled through their individual ducts at the rate of two of the three sections between vaults per day. The XLPE system consists of three power cables, a ground conductor, and a communications cable. In this instance, a "section" would be a single cable pulled between manholes. To pull all five cables (as outlined above) between two manholes would typically be completed over approximately 2 days. New barrels of cable lubricants will have secondary containment. Used barrels will be placed into 50-gallon drums, and will be disposed of using a disposal vendor. During lubrication and oil pumping activities, construction crews will place spill containment at all locations.

For the HPFF lines (proposed Egbert-Embarcadero and Martin-Egbert lines), the pulling operation will be similar; however, all three electric cables will be pulled concurrently into a single conduit. The HPFF circuit has a pilot wire (not fiber optic) in its own smaller conduit that will be pulled separately. At the proposed Egbert Switching Station, the HPFF cable reels will be set up near the GIS equipment building, where each phase cable will be fed through the individual stainless steel riser pipe. Once the cable reaches the trifurcator (where the single 10-inch pipe converts to individual phase pipes to connect to the GIS equipment), the cables will be joined together by means of a pulling yolk, and will be pulled simultaneously.

Cable Splicing

Prior to starting the actual splicing, the vault is outfitted with steel racks to ensure that the cable splices are securely affixed to the vault's inner walls. This activity usually is completed within 2 days. A splice trailer is positioned adjacent to the vault manhole openings. A mobile power generator will be located directly behind the trailer. The vaults must be kept dry 24 hours per day to prevent water or impurities from contaminating the unfinished splices. Splicing at one vault typically takes 5 days, assuming 10 working hours per day. Therefore, installation of racking and splicing at each vault is expected to take approximately 7 days total to complete.

For the XLPE splices (proposed Jefferson-Egbert line) that tie into the existing line, the splicing operation will also include the disassembly of the existing splice and removal of the portion of cable no longer needed. Once this has been completed, the typical splicing procedure outlined above for new splices will be completed.

For the HPFF lines (proposed Egbert-Embarcadero and Martin-Egbert lines), the process will also include lowering the HPFF line pressure (from approximately 200 to 50 pounds per square inch) and freezing the dielectric fluid in the pipes on the downstream side (i.e., the side of the bifurcation point that will remain) of the existing splices. The freeze serves to create a "plug" in the existing HPFF pipe to minimize the amount of dielectric fluid to be removed between these existing splices. The freeze is established via a cooling coil circulating liquid nitrogen that is wrapped around the 10-inch steel pipe, approximately 20 feet downstream from the existing splice. The operation will require excavating the existing line pipe and establishing a freeze pit as depicted on Figure 2.7-3. The freeze pit will be excavated with traditional excavating equipment, such as a backhoe or excavator. Once the excavation is complete, excavation support will be installed. Typically, this support will consist of trench jacks and plates, or wood lagging and beams, determined based on soil conditions and groundwater table. Once the excavation is supported, a temporary wood-framed shed will be constructed over the excavation to prevent public access, as well as to provide weatherproofing. This temporary structure will have a door to provide construction personnel access to the freeze pit for on-site monitoring.

The freeze pit will require a parked nitrogen truck or tank to be located in relatively close proximity to provide a constant source of liquid nitrogen, and will require 24-hour staffing to monitor the freeze and ensure that it maintains proper operational temperatures. The total freeze time to complete the required activities (described as follows) is expected to be approximately 6 to 8 weeks.

Once the freeze has been established (typically 2 days), the existing dielectric fluid in the segment of cable between the freeze pits will be drained off into trucks and disposed of in accordance with state and federal requirements (approximately 3 days). With the dielectric fluid removed from the pipe, the existing splices will be disassembled and the cable will be removed (usually 2 weeks). Once the new 10-inch steel pipes leading to the proposed Egbert Switching Station are installed (typically 1 week), the new cable will be pulled into the pipe (typically 2 days), and the reconstruction of the existing splice can take place (typically 2 weeks). Upon completion of the splicing and terminating operations, the pipe will be filled and pressurized with dielectric fluid from a tanker truck, resulting in a total freeze time of approximately 6 weeks.

The cable for each of the three lines will continue underground into the proposed Egbert Switching Station, and will connect to a termination structure approximately 14 feet high (Figure 2.7-4). Terminating a cable takes approximately 1 week to complete.

Figure 2.7-3. Freeze Pit Layout

Figure 2.7-4. Typical 230 kV Cable Termination

2.7.2.2 Trenchless (Auger Bore)

Trenchless technology is anticipated to be used to install the portion of the line beneath U.S. 101 because of the lack of available corridors within the existing franchise. The auger bore conduit will 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, thereby 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 multi-stage 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 will 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 will be extruded by a different material casing (e.g., a pipe that is centrifugally cast, glass-fiber-reinforced, polymer mortar—commonly referred to in the industry as a HOBAS pipe), which is considered a "two-pass" installation.

Typical accuracy of auger boring is in the range of +/-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 includes the following steps:

- Excavating and shoring the launching and receiving pits.
- Inserting the auger boring rig into the launching pit.
- Advancing the auger bore casing.
- Installing the HOBAS casing, and pushing the steel boring casing out.
- Pulling fused sections of high-density polyethylene (HDPE)/Fusible PVC (FPVC) conduits into the bore holes.
- Grouting the annulus between the casing and conduits.
- Connecting the ends of HDPE pipes into the duct banks.
- Pulling the cables through the HDPE/FPVC pipes, through the duct banks, and then into the splice vaults.

- Restoring the area to pre-construction conditions.

The auger boring machine and support equipment will be readied for operation within the available temporary workspace. Plastic sheeting, or other appropriate containment, will 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 will have secondary containment. Used containers will be placed into 50-gallon drums and will be disposed of using a disposal vendor. During activities using a lubricant, construction crews will place spill containment at the location. Silt fence or other erosion control devices will be implemented around the boring equipment site. A temporary chain-link fence will be installed around the boring site.

At the eastern work zone, the auger bore pit will be located approximately 90 feet from U.S. 101 near the intersection of Bayshore Boulevard and Crane Street, which is roughly at grade with the adjacent U.S. 101. The auger bore will run underneath U.S. 101 and San Bruno Avenue for a total approximate length of 420 feet. The western work zone is located to the west of the intersection of Mansell Street (westbound) and San Bruno Avenue. The auger bore path will be installed at a depth of 12 to 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 will be protected within temporary traffic control barriers. Excavation will result in a total loose volume of approximately 425 cy, most of which will 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 will 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 shoring type will be determined by soil and groundwater conditions. Soil borings obtained during final design work will 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 will be required.

Final engineering design may indicate that trenchless construction at other locations on the proposed Jefferson-Egbert 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. 101 as described above.

2.7.2.3 Existing 230 kV Lines Remnants – Removal from Service

To accommodate the splice to create the proposed Jefferson-Egbert line, the remnant of the existing Jefferson-Martin XLPE cable will removed from service. The line remnant will 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 will be de-energized and capped at the vault work area.

Removing the HZ-1 line remnant from service will 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 HZ-1 line between the new line interconnection points. Access is expected to be from existing vaults, freeze locations, or the splice locations with the new lines described above. The steel casing pipe is anticipated to be either 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.

2.7.3 EGBERT SWITCHING STATION CONSTRUCTION

Construction of the new switching station will begin with site preparation followed by the installation of the ground grid and building and exterior equipment foundations. The construction of the building will precede the exterior equipment installation, which will then be followed by the internal equipment installation, bus work, and cabling. Final grading, paving, and exterior wall construction along with cleaning and any landscaping will occur while testing and commissioning completes. Equipment expected to be used, including duration and purpose, is provided in Table 2.7-2, Equipment Expected to be Used During Project Construction – Switching Station.

Table 2.7-2. 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	~~9~~5
	Long haul dump truck	~~13~~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	~~13~~4
	Long haul dump truck	~~8~~2

Table 2.7-2. Equipment Expected to be Used During Project Construction – Switching Station

Phase/Task	Workers, Equipment	Quantity
	Compactor	1
Remaining Equipment Foundations	Workers	6
	Pickup truck	5
	Crawler backhoe	1
	Concrete truck	1
	Dump truck	~~2~~4
	Compactor	1
Ground Grid and Conduits	Workers	6
	Pickup truck	5
	Crawler backhoe	1
	Trencher	1
	Dump truck	~~2~~4
	Compactor	1
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
	Workers	34

Table 2.7-2. Equipment Expected to be Used During Project Construction – Switching Station

Phase/Task	Workers, Equipment	Quantity
Install GIS Equipment and Wire; Control Room and Battery Room Equipment; 230 kV Bus Work; Cable Installation; and Dress/Test/Wire Equipment	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
Cleanup and Landscaping	Workers	8
	Pickup truck	6
	Small backhoe	1
	Concrete truck	2

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 will be obtained, and construction areas will be delineated, which will include the switching station site and trenching for underground high-voltage lines leading to the switching station (Figure 2.5-1e). Public safety systems (e.g., fencing and signage) will 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 percent (or approximately 1,000 cy) of the soil may be contaminated. In situ soil characterization will occur, or spoils may be stored on-site until waste characterization is completed, before being disposed of in one or more of the facilities described in Section 3.17.

PG&E will 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 will be laid out inside the property at a depth of approximately 18 inches. The grid is typically made up of sections that average 40 by 40 feet, but the final size of the grid sections will 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, but this will not be known until the ground grid is designed based on the ground grid analysis and soil resistivity.

Step 2 — Building and Perimeter Fencing

This step includes all 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 will 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 either existing service drop or a new distribution tap from Egbert Avenue.

The expected depth of excavation on site contouring will be approximately 1 foot over 16,000 square feet. The excavation for the building, driveways, and equipment slabs will be approximately 2 feet over 36,000 square feet. Twenty-five 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 will be secured during operation by a 12-foot-high fence around the perimeter with likely two 20-foot-wide access gates. The perimeter fence will be set back 5 to 10 feet away from the property line along Egbert Avenue to provide opportunities for a new sidewalk and landscaping. The new switching station will include outdoor lighting for safety and security purposes. 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. The outdoor lighting will 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 will connect new lines to the 230 kV HPFF line (HZ-1, from Embarcadero Substation) and the 230 kV solid dielectric line (Jefferson-Martin 230 kV, from Jefferson Substation). These connections will occur via cable-to-GIS terminations located on the exterior walls of the GIS enclosure buildings. The XLPE cables (Jefferson–Egbert Line) will transition from a horizontal duct bank arrangement to a vertical installation with supporting clamps located below the terminations and GIS bus. For the HPFF lines (proposed Embarcadero–Egbert and Martin-Egbert lines), the 10-inch steel pipe will transition to a vertical arrangement. Once above grade, a trifurcator assembly will be installed to allow separation of the individual phase cables located within individual stainless steel pipes. This trifurcator assembly will also provide a connection point for the fluid pumping plant, which provides the necessary fluid pressure on the HPFF cables to maintain the required electrical insulation levels. Once the cables have been trifurcated, they will connect each cable to its GIS terminations. Above-ground interconnections will be located within the Egbert Property and proposed fence line.

Step 4 — Equipment Installation and Testing

Equipment installation will 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. All cable installation work at the switching station building will take place outside the GIS equipment building.

Step 5 — Cable Connection, Energizing, and Commissioning

Once installed, the new 230 kV cables will be connected into the new switching station equipment followed by cables being energized and final switching station tests being performed. Final site restoration (including general cleanup, final grading and/or paving, and any wall finish or exterior landscaping) is expected to occur during this step as well.

2.7.4 MARTIN SUBSTATION MODIFICATION

Construction at the existing Martin Substation will include minor modification to disconnect the Jefferson-Martin line terminal and remove its associated equipment (Figure 2.4-2). The Jefferson line terminal at Martin Substation can be removed after the proposed Egbert Switching Station facility is in operation and the Jefferson-Martin 230 kV line has been rerouted to the new switching station (e.g., when the proposed Jefferson-Egbert line is in operation). The following equipment will be removed:

- Three 230 kV single-phase series reactor
- 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 (CCVTs)
- Three 230 kV surge arresters
- Four 230 kV dead-end tubular steel structures and associated bus bars and cables
- One set of 230 kV CCVT tubular steel structures

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

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

The foundations will 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 2.7-3, Equipment Expected to be Used During Project Construction – Remote-end Substations. Approximately eight trucks trips are expected to off-haul concrete foundation material to an appropriate recycling/disposal facility.

Table 2.7-3. 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	~~1~~2
	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

2.7.5 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 will be integrated into the final design and installed as part of the station construction. Also as part of the final design, the system protection equipment at Jefferson, Martin, and Embarcadero substations and the grid control centers (GCCs) will be evaluated. The equipment (relays) may require adjustments to coordinate with the new equipment or may need to be upgraded or replaced.

Simple setting adjustments may be all that is necessary 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 is required if the vintage, capability, and compatibility cannot be matched with the new equipment at the switching station.

The work will occur within the control rooms of the existing facilities, and is minor in nature. The replacement of protective relay devices is a typical operation and maintenance activity, and would be performed prior to placing the new equipment into service. 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 2.7-3, Equipment Expected to be Used During Project Construction – Remote-end Substations.

2.7.6 CONSTRUCTION WORKFORCE AND EQUIPMENT

Transmission line and switching station construction activities are expected to occur simultaneously. Different phases of the construction process will 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 force of 88 personnel. Typically, two to three crews of six to 16 construction personnel will support transmission line activities; and on average, approximately 34 construction personnel will 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 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 percent 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 along with expected crew workforce in Table 2.7-1, Equipment Expected to be Used During Project Construction – Transmission Line. Vault installation typically averages 10 days per vault. Trenching and duct bank installation duration assumes that work progresses at about 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 about 40 days within the period anticipated for the proposed Jefferson-Egbert line trenching. Trenching for the HZ-1 line loop-in is expected to start when the proposed Jefferson-Egbert line trenching is complete. Thus, cable installation for the proposed Jefferson-Egbert line will occur while trenching along Egbert Avenue occurs. Splicing the proposed Jefferson-Egbert line is expected to overlap with the Egbert Avenue trenching and cable installation. Cable splicing of the proposed Martin-Egbert and Egbert-Embarcadero lines is anticipated to conclude about the same time as the proposed Jefferson-Egbert line.

Switching station construction is anticipated to employ an average of approximately 34 construction personnel over about 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 pads construction activities. Equipment installation and cabling activities occur over an approximately 6-month period. Testing and commissioning are planned to occur during site restoration activities over an approximately 3-month period. An estimated four truck drivers are expected to support the site preparation and the site restoration phases. Equipment expected to be used during project construction is summarized by activity along with expected crew workforce in Table 2.7-2, Preliminary Construction Workforce and Equipment Use – Switching Station.

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. Also at this time, relay work at the remote-end substations (Embarcadero, Jefferson, and Martin) will 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 2.7-3, Preliminary Construction Workforce and Equipment Use – Remote-end Substations.

The equipment that will be used during project construction is outlined in Table 2.7-4, Construction Equipment Summary. This is a preliminary equipment list, and other equipment may be identified when the project design is finalized or during construction if unexpected conditions require additional and/or different equipment.

Table 2.7-4. Construction Equipment Summary

Equipment	Use
Pickup truck	Transport personnel, material, and equipment
Man lift	Lift crew to working height
Dump truck	Haul excavated materials; import backfill
Boom truck	Lift crew to working height
Mobile crane	Lift/load/move/set large equipment or materials, including vaults
Large backhoe	Excavate trenches
Small or crawler backhoe	Move materials
Small backhoe with breaker	Break concrete
Bulldozer	Move materials
Oil truck	Transport oil
Semi-truck	Haul trailers with equipment or materials
Excavator	Excavate trenches; excavate for vault installation; excavate bore pits
Hydraulic breaker for excavator	Break pavement for excavation
Sheet driver for excavator	Drives sheets for trench stability and safety
Trencher	Excavate trenches

Table 2.7-4. Construction Equipment Summary

Equipment	Use
Compactor	Compact soil
Roller	Compress new pavement on streets
Large/Front loader	Move soil and material
Portable air compressor	Provide compressed air for tools
Portable/Mobile generator	Gas-powered equipment; power for construction
Baker (water) storage tanks	Store water pumped from trenches, if needed
Pumps	Remove water from trench, if needed
Shoring boxes	Maintain trench walls, prevent collapse of loose soils or sand
Tank trucks	Transport water from Baker tanks to process/disposal facility
Cable winch	Pulls and tension cable
Cable reel cart	Transport reels; guide cables into conduits
Auger boring machine equipment	Boring for cable installation
Welding machine	Join metal materials such as pipe
Pavement saw cutting equipment	Cut pavement
Concrete truck	Haul and pour concrete slurry
Boom truck	Lift crew to working height
Man lift	Lift crew to working height
Forklift	Lift and move material
Rigging truck	Lift and move material
Jack hammer	Break concrete
Oil truck	Transport oil

2.8 PERMITTING AND CONSTRUCTION SCHEDULE

The estimated construction duration for the project is approximately 22 months, as shown in Table 2.8-1, Preliminary Proposed Permitting and Construction Schedule. PG&E seeks to complete construction and place the line in service by early spring 2023. 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. 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.

Table 2.8-1. Preliminary Proposed Permitting and Construction Schedule

Task Name	Proposed Schedule
CPUC/CPCN process	
CPUC conducts CEQA review, including public review	Dec 2017–Jul 2018
CPUC issues Proposed Decision, subject to public comments	Dec 2018
CPUC grants a CPCN and certifies the CEQA document	Jan 2019
Secondary permits issued by other government agencies	Aug 2019
Acquisition of land rights	Sep 2019
Materials procurement	May 2020
Construction begins	May 2020
Construction substantially completed	Dec 2021
Project operational	Feb 2022
Construction and restoration completed	Mar 2022

Note:
CEQA = California Environmental Quality Act

Construction will typically occur between 7 a.m. and 8 p.m. or during times that will be set through coordination with the city and county of San Francisco, and with the cities of Daly City and Brisbane. If trenching work will cause traffic congestion, the 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. All applicable city, county, state, federal, and railroad regulation, ordinances, and restrictions will be identified and complied with prior to and during construction.

2.9 OPERATION AND MAINTENANCE

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

2.9.1 MONITORING AND CONTROL

Monitoring and control functions for the new switching station facilities will be connected to the existing PG&E transmission energy management system by telecommunication circuits. The new transmission line segments will be monitored and protected by sets of relays located at each end of the line. The required constant communication between protective relays at each end will be over redundant communication paths. The relays are also connected into PG&E's Supervisory Control and Data Acquisition (SCADA) system. Any alarms resulting from relay actions will be promptly annunciated at PG&E's GCC located in Vacaville, California. In the event of an alarm, required corrective actions can be quickly initiated by operators on round-the-clock duty at the GCC.

Data collection devices for the SCADA system may include remote terminal units, microprocessor relays, data concentrators, and fault recorders. The devices will be capable of storing data for download via local and/or remote access.

2.9.2 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 needing maintenance, repair, or replacement will assure continued safe operation of the project. Existing operation and maintenance crews will access the switching station site and transmission lines on existing roads by vehicle. Aboveground components will be inspected at least annually for corrosion, equipment misalignment, loose fittings, and other common mechanical problems. The underground portion of the line will be inspected regularly from inside the vaults using a handhole or a manhole for access; therefore, inspections will not significantly disturb traffic using city streets.

Typical XLPE 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 lines and energized vaults and infrared inspection of the terminations to detect hot spots

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

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

2.10 APPLICANT-PROPOSED MEASURES

PG&E proposes to implement the APMs listed in Table 2.10-1 to avoid or further minimize potential less-than-significant project impacts. The APMs are discussed in context, with their respective environmental resources, in the APMs subsection within each resource category subsection in Chapter 3.0, Environmental Setting and Impact Assessment Summary.

Table 2.10-1. Applicant-Proposed Measures Summary Table

3.1 Aesthetics
APM Aesthetics (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.
3.2 Agricultural and Forest Resources
The project will have no impact on agricultural and forest resources, and no APMs are proposed.

Table 2.10-1. Applicant-Proposed Measures Summary Table

3.3 Air Quality
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 Table 3.3-6, 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, 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.

Table 2.10-1. Applicant-Proposed Measures Summary Table

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.

3.4 Biological Resources

APM Biological Resources (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 2.10-1. Applicant-Proposed Measures Summary Table

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 2.10-1. Applicant-Proposed Measures Summary Table

3.5 Cultural Resources
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: 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 2.10-1. Applicant-Proposed Measures Summary Table

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).
APM Paleontological Resources (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.
3.6 Geology and Soils
APM Geology and Soils (GS)-1: Appropriate Design Measures Implementation. A site-specific geotechnical investigation will be performed to develop appropriate conclusions and recommendations for final design.

Table 2.10-1. Applicant-Proposed Measures Summary Table

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

3.7 Greenhouse Gas Emissions

APM Greenhouse Gas (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 SF_6 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 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 USEPA'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.

3.8 Hazards and Hazardous Materials

APM Hazardous Materials (HM)-1: Development and Implementation of Hazardous Material and Emergency Response Procedures.

Table 2.10-1. Applicant-Proposed Measures Summary Table

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 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.

Table 2.10-1. Applicant-Proposed Measures Summary Table

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 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.
3.9 Hydrology and Water Quality
APM Water Quality (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

Table 2.10-1. Applicant-Proposed Measures Summary Table

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.
3.10 Land Use and Planning
APM Land Use (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.
3.11 Mineral Resources
The project will have no impact on mineral resources, and no APMs are proposed.

Table 2.10-1. Applicant-Proposed Measures Summary Table

3.12 Noise
APM Noise (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 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.
3.13 Population and Housing
The project will have no impact on population and housing, and no APMs are proposed.
3.14 Public Services
The project will have no impact on public services, and no APMs are proposed.

Table 2.10-1. Applicant-Proposed Measures Summary Table

3.15 Recreation
The project will have no impact on recreational resources, and no APMs are proposed.
3.16 Transportation
APM Transportation and Traffic (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 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.
3.17 Utilities and Service Systems
The project will have no impact on utilities and service systems, and no APMs are proposed.

2.11 REQUIRED APPROVALS

The CPUC is the lead agency under CEQA for this project. This PEA is being prepared as part of an application to obtain a CPCN for the project from the CPUC. Because the project will disturb more than 1 acre of land, PG&E will apply for a National Pollutant Discharge Elimination System Stormwater Construction Permit for discharges of stormwater associated with Small Linear Underground/Overhead Construction Projects (General Permit) from the SWRCB.

Caltrans will be consulted for approval and acquisition of an encroachment permit for the proposed Jefferson-Egbert line crossing U.S. 101.

PG&E will acquire the following ministerial permits from the City of San Francisco:

- Excavation Permit
- SFMTA Permit
- Special Traffic Permits
- Building Permit
- Grading Permit
- Night Noise Permits

PG&E will acquire the following ministerial permits from the cities of Brisbane and Daly City:

- Excavation Permit
- Special Traffic Permits
- Night Noise Permits

2.12 ELECTRIC AND MAGNETIC FIELDS DISCUSSION

Recognizing that there is public interest and concern regarding potential health effects from exposure to electric and magnetic fields (EMF) from power lines, this document provides some general background information in Appendix B regarding EMF. The CPUC has repeatedly recognized that EMF is not an environmental impact to be analyzed in the context of CEQA because (1) there is no agreement among scientists that EMF creates a potential health risk, and (2) there are no defined or adopted CEQA standards for defining health risk from EMF. See, for example, CPUC Decision No. 04-07-027 (July 16, 2004); Delta DPA Capacity Increase Substation Project Final Mitigated Negative Declaration and Supporting Initial Study (November 2006), A.05-06-022, Section B.1.14.1, page B-31, adopted in Decision 07-03-009 (March 1, 2007).

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

2.13 REFERENCES

California Independent System Operator. 2015. *2014-2015 Transmission Plan*. http://www.caiso.com/Documents/Board-Approved2014-2015TransmissionPlan.pdf. March 27.

CHAPTER 3 ENVIRONMENTAL SETTING AND IMPACT ASSESSMENT SUMMARY

The following sections (3.1 through 3.18) provide an assessment of environmental impacts anticipated from construction, operation, and maintenance of the project. The environmental impacts are evaluated for the following resource areas, consistent with the requirements of the California Environmental Quality Act (CEQA):

1. Aesthetics
2. Agriculture and Forest Resources
3. Air Quality
4. Biological Resources
5. Cultural Resources
6. Geology and Soils
7. Greenhouse Gas Emissions
8. Hazards and Hazardous Materials
9. Hydrology and Water Quality
10. Land Use and Planning
11. Minerals
12. Noise
13. Population and Housing
14. Public Services
15. Recreation
16. Transportation and Traffic
17. Utilities and Service Systems
18. Mandatory Findings of Significance and Cumulative Impact Analysis

Sections 3.1 through 3.18 present the environmental impact analysis for each resource area evaluated for the project. A checklist is provided at the beginning of each section to summarize the anticipated level of impact (i.e., No Impact, Less Than Significant, Less Than Significant with Mitigation Incorporated, and Potentially Significant Impact) to each resource area, according to CEQA significance criteria. Each section addresses applicable regulations, analysis methodology, environmental setting, environmental impacts, and APMs to minimize or avoid potential impacts. Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary regulations. A summary of local standards and ordinances pertaining to the resource within the project area is provided for informational purposes and to assist with the CEQA review process in each section.

The analysis concludes that impacts will be less than significant after implementation of APMs.

3.1 AESTHETICS

3.1.1 INTRODUCTION

This section describes existing conditions and potential impacts on aesthetic resources as a result of construction, operation, and maintenance of the project. The analysis concludes that impacts on aesthetic resources will be less than significant; the APMs described in Section 3.1.4.2 will further reduce the project's less-than-significant impacts on aesthetic resources.

The project's potential effects on aesthetic resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.1-1 and discussed in more detail in Section 3.1.4.

Table 3.1-1. CEQA Checklist for Aesthetics

Would the Project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

3.1.2 REGULATORY BACKGROUND AND METHODOLOGY

The following subsections describe the regulatory background related to the project area as well as the methodology used to estimate aesthetic impacts.

3.1.2.1 Regulatory Background

Federal

No federal regulations related to aesthetic or visual resources are applicable to the project.

State

California Scenic Highway Program

California's Scenic Highways Program, a provision of the Streets and Highways Code, was established by the Legislature in 1963 to preserve and enhance the natural beauty of California. The State Scenic Highway System includes highways that are either eligible for designation as scenic highways or have been designated as such. The status of a state scenic highway changes from eligible to officially designated when the local jurisdiction adopts a scenic corridor protection program, applies to the California Department of Transportation (Caltrans) for scenic highway approval, and receives the designation from Caltrans (Caltrans, 2017). A City or County may propose adding routes with outstanding scenic elements to the list of eligible highways. However, state legislation is required for a highway to be officially designated.

No designated state scenic routes are located near the project. Interstate 280 (I-280), an Eligible State Scenic Highway, lies 0.75 mile away to the west of the proposed switching station site; however, intervening buildings generally screen views of the site from this roadway.

Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the project is not subject to local discretionary regulations. This section includes a summary of local standards and ordinances pertaining to the visual character of the project area for informational purposes and to assist with the CEQA review process.

As shown on Figure 2.3-2, the project area is located within portions of the county of San Mateo, city and county of San Francisco, city of Daly City, and city of Brisbane. 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 of San Francisco. This section reviews visual resource-related policies contained in City plans and ordinances.

City of San Francisco San Francisco General Plan

Goals and policies related to the preservation of aesthetic resources in the context of new and existing development are outlined within the City's 10 Area Plans that set specific policies and guidelines for certain neighborhoods in San Francisco, in addition to General Plan Elements pertaining to recreation and open space, urban design, and transportation.

City 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 United States Highway 101 (U.S. 101) to the San Francisco waterfront.

Housing

> *POLICY 2.1. Improve the physical and social character of Third Street to make it a more livable environment.*
>
> *POLICY 5.1. Preserve and enhance the existing character of residential neighborhoods.*

Urban Design

> *POLICY 10.1 Better define Bayview's designated open space areas by enabling appropriate, quality development in surrounding areas.*

> *POLICY 10.2. Improve the visual quality and strengthen the pedestrian orientation of the Third Street core area.*

Recreation and Open Space Element

In addition to the related neighborhood plans discussed above, the Recreation and Open Space Element of San Francisco's General Plan (San Francisco Planning Department, 2014a) includes policies that pertain to the project area. This element includes Map 03, which identifies Paul Avenue south of the site and Carroll Avenue east of the site as Proposed Green Connections. Green Connections are further discussed below.

> *POLICY 3.2 Establish and Implement a network of Green Connections that increases access to parks, open spaces, and the waterfront. (p. 37)*

Green Connections Final Report

The Green Connections Final Report (San Francisco Planning Department, 2014b) lists streets nearby the site (Paul Avenue south of the site and Carroll Avenue east of the site) as future routes in a citywide plan. The plan includes design standards for these routes to enhance pedestrian and cyclist use.

A Green Connection is a special street or path that connects people to parks and open spaces and enhances the ecology of the street environment: routes are intended to improve access to parks for both people and wildlife. The three project goals served by these special streets are:

1) Public Health: Increase active transportation to parks;
2) Sustainability: Enhance urban ecology; and,
3) Livability: Support neighborhood stewardship and placemaking. (p. 23)

San Francisco General Plan: Urban Design Element

The Urban Design Element (San Francisco Planning Department, 2010b) includes policies regarding aesthetic considerations of development (e.g., the height of buildings). Map 4-Design Guidelines for Height of Buildings 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 1.11: Indicate the purposes of streets by means of a citywide plan for street landscaping.*

> *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 3.3: Promote efforts to achieve high quality of design for buildings to be constructed at prominent locations.

POLICY 4.12: Install, promote and maintain landscaping in public and private areas.

POLICY 4.13: Improve pedestrian areas by providing human scale and interest.

San Francisco General Plan: Transportation Element

The Transportation Element (San Francisco Planning Department, 2010c) includes policies regarding public sidewalks and streetscape elements.

POLICY 23.3: Maintain a strong presumption against reducing sidewalk widths, eliminating crosswalks and forcing indirect crossings to accommodate automobile traffic.

POLICY 23.5: Establish and enforce a set of sidewalk zones that provides guidance for the location of all pedestrian and streetscape elements, maintains sufficient unobstructed width for passage of people, strollers and wheelchairs, consolidates raised elements in distinct areas to activate the pedestrian environment, and allows sufficient access to buildings, vehicles, and streetscape amenities.

San Francisco Municipal Code

The Municipal Code (San Francisco, City of, 2017) includes a Better Streets Policy, which presents design guidelines for creating better streets within the city.

Streetscape and Pedestrian Improvements on Existing Right-of-Ways.

(A) The Better Streets Plan shall govern design and dimensions of all pedestrian and streetscape elements, including but not limited to those elements shown in Table 1 and defined in the Better Streets Plan, on any public right-of-way.

(B) All public and private sponsors that propose or are required to make changes to any such right-of-way shall:

(i) Be consistent with the principles and guidelines for streetscape and pedestrian elements and overall streetscape design found in the Better Streets Plan.

(ii) Select streetscape elements from a City-approved palette of materials and furnishings, where applicable.

(iii) Select streetscape elements that are consistent with the overall character and materials of the corridor and district.

(iv) Follow, to the maximum extent possible, the street design guidelines set forth in the NACTO Urban Street Design Guide (2013) and the NACTO Urban Bikeway Design Guide (2014), and any subsequent editions of these Guides. (C) Street improvements shall be subject to approval by all applicable City agencies.

3.1.2.2 Methodology

The project described in Chapter 2.0, Project Description, proposes a new 230 kV switching station. The project includes three new underground 230 kV transmission line connections between the new switching station (Egbert Switching Station) and the existing Embarcadero, Jefferson, and Martin substations; the transmission lines will be located underground, will not be visible to the public, and will not affect existing visual resources. The relay-related work at Embarcadero, Jefferson and Martin substations will be within the control room, will not be visible to the public, and will not affect existing visual resources. Because work at these locations will not be visible to the public, Embarcadero and Jefferson substations are not addressed further in this section. Removal of the Jefferson-Martin line termination equipment at Martin Substation will result in a minor decrease in the amount of equipment located inside the existing perimeter wall. This reduction in the amount of visible equipment will not appreciably affect the appearance of the existing facility or existing visual resources. The proposed transmission lines and potential staging areas will 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 described in Section 2.5.1, and visual effects related to construction activities along the lines, at potential staging areas, and at Martin Substation.

The visual analysis is based on review of technical data, including proposed project maps and drawings provided by PG&E and Jensen Architects, aerial and ground-level photographs of the proposed project area, 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 proposed project area and to identify potentially affected sensitive viewing locations.

As part of the PEA aesthetics analysis, as seen from key representative public viewpoints or Key Observation Points (KOPs) (Figures 3.1-1 and 3.1-2a-g), a set of visual simulations was prepared to illustrate before and after visual conditions in the proposed switching station area (Figures 3.1-3 through 3.1-6). Four vantage points have been selected to represent close-range public viewing locations, where the proposed switching station would be most visible. Described briefly below, the simulation methods employ 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 photo log sheet notation, Global Positioning System recording, and basemap annotation. Digital aerial photographs and switching station design information supplied by PG&E provided the basis for developing a three–dimensional (3-D) computer model of the new switching station components.

Insert

Figure 3.1-1 Photograph Viewpoint Locations

Insert

Figure 3.1-2 Photographs of the Project and Vicinity

Figure 3.1-2a (1. Bay View Playground looking west
2. Third Street and Carroll Avenue transit stop looking west)

Insert

Figure 3.1-2b Photographs of the Project and Vicinity

(3. Carroll Avenue at Waterbend Apartments Community Garden looking southwest
4. Emergency access road at Waterbend Apartments looking north)

Insert

Figure 3.1-2c Photographs of the Project and Vicinity

(5. Mendell Street at Bancroft Avenue looking south
6. Williams Avenue at Caltrain overcrossing looking south)

Insert

Figure 3.1-2d Photographs of the Project and Vicinity

(7. Thornton Avenue near Florence Fang Community Garden looking south
8. Egbert Avenue at Newhall Street looking east)

Insert

Figure 3.1-2e Photographs of the Project and Vicinity

(9. Bitting Avenue near Newhall Street looking southeast
10. Bitting Avenue near Kalmanovitz Street looking southeast)

Insert

Figure 3.1-2f Photographs of the Project and Vicinity

(11. Paul Avenue near Bayshore Boulevard looking northeast
12. Paul Avenue at Caltrain overcrossing looking north)

Insert

Figure 3.1-2g Photographs of the Project and Vicinity

(13. Highway 101 looking northeast
14. Bayview Park near end of Key Avenue looking northwest)

For each simulation viewpoint, viewer location was input from global positioning system data using 5 feet as the assumed eye level. Computer "wireframe" perspective plots were overlaid on the simulation photographs to verify scale and viewpoint location. Digital visual simulation images were then produced based on computer renderings of the 3-D model combined with digital versions of the selected site photographs. The simulations are presented on Figures 3.1-3 through 3.1-6; each of these figures consists of two full-page images designated "a" and "b," with the existing views shown in the "a" figure and the "after" visual simulations shown in the "b" figure. Discussion of these simulations is included in Section 3.1.4.5.

This visual assessment employs methods based, in part, on those adopted by the United States Department of Transportation Federal Highway Administration (FHWA), and other accepted visual analysis techniques. The impact analysis describes change to existing visual resources, and assesses viewer response to that change. Central to this assessment is an evaluation of representative views from which the proposed switching station will be visible to the public. The visual impact assessment is based on evaluation of the changes to the existing visual resources that will result from construction and operation of the proposed switching station. These changes were assessed, in part, by evaluating the "after" views provided by the computer-generated visual simulations and comparing the simulations to the existing visual environment.

3.1.3 ENVIRONMENTAL SETTING

Figure 3.1-1 includes a map and an annotated aerial photograph that shows the location of the proposed Egbert Switching Station site within its urban landscape context. Regional and local landscape setting is provided in 3.1.3.1.

The proposed switching station site layout and its relationship to the immediate surroundings is shown on Figure 2.5-1e.

3.1.3.1 Regional and Local Landscape Setting

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. Situated approximately 0.8 mile west of the San Francisco southeastern waterfront, the site is at an elevation of approximately 30 feet above sea level. Topography in proximity to the site is relatively flat, while approximately 0.75 mile to the south, Bayview Park (a public access open space) rises to an elevation of approximately 400 feet. To the southwest, located approximately 1 mile from Martin Substation and approximately 3.5 miles from the proposed switching station site, the ridgeline of San Bruno Mountain reaches an elevation of approximately 1,200 feet.

In the immediate vicinity of the site, a mix of transportation corridors, industrial and warehouse facilities, and utility structures (including numerous overhead distribution power lines) interspersed with semi-detached and multi-unit residential buildings are established urban landscape features. Bordering the site's eastern perimeter is a Union Pacific Railroad (UPRR) right-of-way (ROW) that is used by Caltrain as a regional passenger transportation corridor to connect downtown San Francisco with peninsular communities. The site is approximately 750 feet west of 3rd Street, a major north-south arterial that connects San Francisco's downtown (approximately 3 miles to the north) with the city's southeastern districts. The recent introduction of light rail transit along 3rd Street with improved streetscape amenities along this corridor has coincided with increased residential development in the area, including both new construction and renovation of former industrial buildings.

Two freeways, U.S. 101 and I-280, provide connections to the southern peninsula and locations beyond and are approximately 0.25 mile to the west and approximately 0.75 mile to the northwest of the new switching station, respectively. Paralleling the eastern side of U.S. 101, Bayshore Boulevard provides access to numerous commercial enterprises surrounded by extensive open air parking to the west of the proposed switching station site. The northern perimeter of the switching station site is bordered by Egbert Avenue, a street that dead-ends at the Caltrain corridor and provides the only direct vehicular access to the site. The absence of a grade crossing at the railway corridor and security fencing along the railroad corridor restricts east-west vehicular and pedestrian movement at this location.

3.1.3.2 Project Viewshed

A project viewshed is defined as the general area from which a project is visible. For purposes of describing a project's visual setting and assessing potential visual impacts, the viewshed can be broken down into foreground, middleground, and background zones. The foreground is defined as the zone within 0.25 to 0.5 mile or less of the viewer; the middleground is defined as the zone that extends from the foreground to a maximum of 3 to 5 miles of the viewer; and the background zone extends from the middleground to infinity (United States Department of Transportation, 2015).

Viewing distance is a key factor that affects the potential degree of project visibility. Visual details generally become most apparent to the viewer when they are observed in the foreground, at a distance of 0.25 to 0.5 mile or less. For the purpose of this analysis, the potential effects on foreground viewshed conditions are emphasized, particularly those areas within 0.25 mile of the switching station site.

3.1.3.3 Visual Character and Representative Views of the Proposed Switching Station Area

This section describes the existing visual character found in the proposed switching station area. Figure 3.1-2 presents 14 photographs that show representative visual conditions and public views within the area. Figure 3.1-1 delineates the proposed switching station site and photograph viewpoint locations.

The site occupies approximately 1.7 acres at the northeastern corner of an area of industrial and commercial properties bordered by Egbert Avenue on the north, the Caltrain corridor on the east, Paul Avenue on the south, and Bayshore Boulevard on the west. An unpaved storage yard currently occupies the site, which is enclosed along its northern and eastern perimeters by continuous single-story, corrugated metal-clad shed structures, and is surrounded by chain-link fencing. Bordering the site on the south and west are industrial operations that include multi-story structures as well as open-air storage facilities and paved areas for vehicle parking. On the north, the site occupies approximately 200 feet of frontage along Egbert Avenue, across from which is a self-storage facility, with the Portola Place townhome residential development to the northwest. While limited views of the site are available from places along the heavily travelled 3rd Street and U.S. 101 corridors, open views toward the site are primarily confined to locations within a block or approximately 500 feet of the site. Longer-range views toward the site are generally constrained by intervening structures.

Photograph 1 (Figure 3.1-2) is a view toward the site taken adjacent to a children's play area within Bay View Playground, which is a 3.5-acre park that also includes a swimming pool, playground, baseball field, picnic areas, and recreation center. This location within the park is approximately 950 feet east of the site and, because of several intervening multi-story buildings situated primarily along nearby 3rd Street (seen just beyond the fence in the immediate foreground), the site is only visible through a relatively narrow opening. From this location, views toward the site are also partially obstructed by the perimeter park fence, vehicles, signage, and other streetscape elements seen in the foreground along 3rd Street.

A slightly more open view toward the site, approximately 750 feet east of the Caltrain corridor, is available from a transit stop on 3rd Street at Carroll Avenue (shown in **Photograph 2**). Taken from a slightly elevated perspective of the transit platform and approximately 200 feet southwest of the **Photograph 1** viewpoint, multi-story buildings, street trees, and vehicles along Carroll Avenue dominate foreground views toward the site. A portion of the site can be seen between the structures visible in the foreground, while a number of multi-story warehouse and commercial/office buildings are visible west of the site in the background.

The recently completed multi-story Waterbend housing development is situated just east of the Caltrain corridor approximately 175 feet from the site. As shown on **Photographs 3 and 4**, open views toward the site are possible from some outdoor areas located west and north of this residential complex. In addition, the site is visible from west-facing apartments. **Photograph 3** is a view looking west from a fenced community garden area located across from the housing complex to the north along Carroll Avenue, approximately 300 feet from the site. In the immediate foreground beyond the garden, parked cars line both sides of the street, which dead ends at the Caltrain corridor, beyond which low shed structures and fencing enclosing the site's northeastern perimeter can be seen. On the left, a multi-story concrete warehouse structure is discernible beyond the site; and on the right, multi-story residences making up the Portola Place townhome development can be seen beyond a single-story metal structure, which is part of a self-storage facility occupying the eastern perimeter of the townhome complex. **Photograph 4** is a view from the emergency access drive along the western edge of the residential complex looking northwest toward the site, visible along a low embankment beyond the Caltrain corridor. The double row of recently installed trees seen in the foreground partially blocks views toward the site and more distant views of residences to the north.

Photograph 5 is a view from the edge of an established residential development located adjacent to the eastern side of the Caltrain corridor, approximately 475 feet northeast of the site. Dominating the immediate foreground is a close-range view of the rail line and its perimeter metal security fencing. A single-story beige corrugated metal storage building borders the far side of the rail corridor, beyond which multi-story residences and industrial and commercial structures can be seen in the middle distance against the backdrop of a densely developed residential hillside. From this location, views of the site are largely obstructed by adjacent structures; however, the eastern perimeter of the site is partially visible south of the storage facility.

Photographs 6 and 7 are two open, elevated views looking south along the Caltrain corridor showing the site within the broader urban landscape context. **Photograph 6** is a view from the Williams Avenue Caltrain overcrossing, approximately 0.25 mile north of the site. An open paved surface in the foreground overlooks the rail corridor seen to the left, with multi-story residential complexes (shown in **Photographs 3 through 5**) visible beyond. In the foreground to the right are one- and two-story metal storage units that occupy a large paved self-storage facility alongside the railway and are back-dropped by the Portola Place residential development. Light-colored metal rooftops of the existing structures situated on the switching station site are discernible in the center of the view beyond the storage facility. Large-scale industrial buildings and warehouses dominate the view directly behind the site, with dense low-rise residential neighborhoods visible. Bayview Park can be seen on the upper left, and more distant undeveloped ridgelines are visible in the backdrop. **Photograph 7**, taken at slightly higher elevation, shows a view from Thornton Avenue near the northern side of the Florence Fang Asian Community Garden, approximately 1,800 feet from the site. From this vantage point and distance (although the site is discernible to the right of the railway beyond the self-storage building rooftops seen in the center of the view), and given the scale of existing buildings in the area, the site blends in with the surrounding urban landscape.

The Portola Place residential development is situated immediately north of the site, and residential views toward the site are screened or obstructed to varying degrees by intervening vegetation and structures. **Photograph 8**, taken from the southwestern edge of the residential development, is a view looking east along Egbert Avenue from the Newell Avenue intersection. The existing entry to the site is partly visible along the street beyond a two-story industrial building, and can be seen against the backdrop of the Waterbend Apartment complex situated on the far side of the Caltrain corridor. Some of the residences near the southern edge of the development directly face the site; however, as shown in **Photographs 9 and 10** taken from Bitting Avenue between Newhall Street and Kalmanovitz Street, a perimeter wall and vegetation located along the southern edge of the residential development generally obstruct views toward the site from the street.

Photographs 11 and 12 are views from two locations along Paul Avenue, which is a local street dividing the industrial-commercial developments south and west of the site from the predominantly residential neighborhoods located further south. This street also provides direct access from the Bayshore Boulevard-U.S. 101 freeway to the 3rd Street corridor, as well as areas to the east. **Photograph 11** is a view taken along Paul Avenue near the intersection of Bayshore Boulevard looking northeast, approximately 0.25 mile from the site. Set back slightly along the northern side of Paul Avenue, with mature vegetation along the street frontage, a large-scale multi-story concrete storage facility and a smaller concrete industrial building dominate the foreground. Partially visible through a gap between the two structures, the site can be seen against hillside residences at Hunters Point Ridge in the backdrop. Looking northwest where Paul Avenue crosses the Caltrain corridor, **Photograph 12** is an elevated view toward the site from approximately 1,000 feet. The multi-story Waterbend apartment complex is visible on the right; and on the left, industrial buildings and infrastructure surrounded by open pavement and chain-link fencing dominate the foreground view, while utility poles are noticeable elements along the railway ROW. From this location, a small portion of the site seen as low, light-colored structures in the center of the view is discernible against the distant backdrop of residences in the Silver Terrace neighborhood to the north.

The site is within 0.25 mile of the heavily-traveled U.S. 101 corridor; however, the site is generally not visible from this roadway corridor because of the presence of intervening structures of varying sizes, along with areas of mature vegetation that lie to the north and east of the highway. **Photograph 13**, taken from northbound U.S. 101, depicts the tall concrete storage structure seen in **Photograph 11**, along with a stand of mature trees and stockpiles of sand and gravel effectively blocking views of the site.

Photograph 14 is a view toward the site from Bayview Park, an approximately 46-acre park located on Bayview Hill approximately 0.50 mile southeast of the site. The visual character of this public park is a naturalistic, largely forested landscape with paved hiking trails offering panoramic views of the city and bay. Although not particularly noticeable, the site can be seen near the center–right of this photograph, in front of the expanse of terra cotta-colored roofs of the Portola Place residential complex, and surrounded on three sides by taller industrial and residential structures.

3.1.3.4 Potentially Affected Viewers

Accepted visual assessment methods, including those adopted by FHWA, establish sensitivity levels as a measure of public concern for changes to scenic quality. Viewer sensitivity, which is one of the criteria for evaluating visual impact significance, can be divided into high, moderate, and low categories. Factors considered in assigning a sensitivity level include viewer activity, view duration, viewing distance, adjacent land use, and special management or planning designation. According to the United States Department of Transportation Visual Impact Assessment for Highway Projects, research on the subject suggests that certain activities tend to heighten viewer awareness of visual and scenic resources, while others tend to be distracting (United States Department of Transportation, 2015). The proposed switching station viewshed includes several types of concerned viewer groups, including rail passengers, roadway motorists, residents, and recreational users.

The largest potentially affected viewer group consists of rail passengers travelling on the Caltrain passenger rail line that runs adjacent to the site. Approximately 90 passenger trains pass the site each weekday, most travelling between downtown San Francisco and locations along the southern peninsula (Caltrain, 2016). The site will primarily be seen by riders seated on the western side of train carriages, and will appear within the context of other industrial structures. While the maximum speed of Caltrain travel is 79 miles per hour (mph), train speeds near the site are estimated to be closer to 45 mph, and affected train passenger views are generally brief in duration, typically lasting a few seconds. Viewer sensitivity is considered low to moderate.

Motorists make up the second-largest viewer group, and include people traveling on 3rd Street, which is a major north-south road and local transit corridor, as well as travelers on a number of local streets. While the traffic volumes on 3rd Street are relatively high, motorist views toward the site are quite limited because of intervening buildings and vegetation. A limited number of motorists use other public streets near the site, including Egbert and Carroll Avenues to the east and west, Williams Avenue to the north, and Paul Avenue to the south. The majority of these are local residents and truck drivers accessing nearby industrial sites. Affected views are generally brief in duration, typically lasting less than 1 minute. Viewer sensitivity is considered low to moderate.

A third viewer group includes nearby residents. The closest residences are located directly across Egbert Avenue in the Portola Place townhome development, approximately 50 feet from the site. A masonry wall and planting screen most ground-level views from streets within the development; however, some two-story residences (particularly those located along the southeastern perimeter of the complex) have direct views of the site. Depending on orientation, views are also available from some apartments within multi-family 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 ROW, industrial structures and warehouses, and outdoor storage yards. Residential views tend to be long in duration, and the sensitivity of this viewer group is considered moderate to high.

A fourth viewer group includes pedestrians and bicyclists using 3rd Street and nearby urban streets, in addition to visitors at nearby parks and open space. The future improvements to pedestrian and bicycle routes under the city's Green Connections Plan may expand this group. Views toward the site from the nearest public open space, Bay View Playground, which is 800 feet to the east on 3rd Street, are largely screened by multi-story buildings. From Bayview Park, 0.5 mile away, views of the site appear within the context of an urban-industrial landscape setting, and the switching station site is not evident from San Bruno Mountain, located more than 2.5 miles away. Duration of pedestrian and recreational views ranges from brief or moderate, and the sensitivity of this viewer group is considered low to moderate.

3.1.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for aesthetic impacts derived from Appendix G of the CEQA Guidelines, provide APMs to reduce impacts, and assess potential project-related construction and operational aesthetic impacts.

3.1.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project-related impacts on aesthetics was evaluated for each of the criteria listed in Table 3.1-1, as discussed in Section 3.1.4.3.

3.1.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

APM Aesthetics (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.

3.1.4.3 Potential Impacts

Project impacts related to aesthetics and visual resources were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

The project consists of minor modifications (removal of existing equipment) to the existing Martin Substation, construction of the new Egbert Switching Station, and extensions to two existing 230 kV transmission lines. The project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and will extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

<u>Proposed Transmission Lines and Martin Substation Minor Modification</u>

The proposed transmission lines will be installed underground and will include open trench construction activities in existing roadways and use of trenchless technology (likely auger bore) under U.S. 101. Construction will progress along the three lines over a total period of approximately 18 to 19 months but typically progressing at a rate of 40 linear feet per day per crew during open trenching. Equipment removal at Martin Substation may take up to 3 months. Equipment, materials, and construction personnel will be part of the landscape along the proposed transmission lines, potential staging areas, and Martin Substation during the construction phase.

During the project's operation and maintenance phase, the underground transmission lines will be accessed through manholes in vaults. Activities at Martin Substation will continue unchanged as part of the regular operation and maintenance.

<u>Proposed Egbert Switching Station</u>

The new 230 kV switching station is proposed to be constructed on a previously disturbed site currently occupied by an unpaved storage yard. Unlike conventional switching stations where the equipment is mostly outdoors and largely visible to the public, this switching station proposes to enclose the switchgear components in an approximately 11,000-square-foot building, while outdoor equipment (including a 230 kV series reactor, two 230 kV shunt reactors, station service voltage transformers, pump house, and their respective cable-to-air bushing connections) will be largely shielded from view by above-grade vertical visual screening enclosures. A local architectural firm has been retained to design the building and has prepared preliminary designs that enclose or screen new equipment on the site. While final design has not yet started, the conceptual and schematic designs are for a steel framed building with panels overlaid with a metal material that will match or compliment the equipment screens and fencing material. The conceptual designs have been reviewed and favorably received by San Francisco Planning Department in February 2017. The building housing the switchgear components is approximately 40 feet high to accommodate the installation, operation, and maintenance requirements of the electrical equipment. The height of the outdoor equipment enclosures ranges from 28 to 40 feet above-grade, and consists of solid as well as perforated material. In addition, a 12-foot-high perimeter security wall (metal mesh is shown in simulations but type has not been finalized) will surround much of the site perimeter, except for a portion of the site, where the new facility borders an existing industrial building on the south. Along the Egbert Avenue frontage, the wall will be set back 5 to 10 feet from the property line to allow an area for new sidewalk and will also include likely two 20-foot-wide entry gates. Including the outdoor equipment pad, the facility footprint covers an area measuring approximately 315 feet by 265 feet, or approximately 1.7 acres.

Table 3.1-2 outlines the approximate dimensions of the major switching station components.

Table 3.1-2. Approximate Dimensions of Major Components at Egbert Switching Station

Major Component	Height (feet)	Length (feet)	Width (feet)
Series reactor screen	40	120	175
Switchgear building enclosure	40	107	84
Shunt reactor fire walls and screening	28	107	54
Station service voltage transformer screen	28	55	55
Perimeter wall	12	825	-

Lighting. The new switching station will include outdoor lighting for safety and security purposes, and will be designed to avoid casting light or glare off-site. The new lighting will be operated only as needed to support security technology and safety.

Visual Change. A set of visual simulations, presented on Figures 3.1-3 through 3.1-6, documents the visual change that would occur as a result of the proposed project, and provides the basis for evaluating potential visual effects of the project on key public views. Table 3.1-3 presents an overview of the visual simulations, including viewpoint location and number, visible project change that would be seen from each of the viewpoints, and approximate viewing distance to the proposed switching station.

Figure 3.1-3a is a close-range perspective of the site, in a view looking northwest from the emergency access drive along the western edge of the Waterbend apartment complex. The existing site can be seen along a low embankment beyond the Caltrain corridor, and shows temporary structures, material stockpiles, and machinery in the open storage yard. This ground-level view approximates views available to residents of west-facing apartments within the complex. Metal security fencing and the railbed dominate the immediate foreground, and newly installed trees lining the fence partially block views of the site. Part of the adjacent gray concrete industrial warehouse can be seen on the left side.

Insert

Figure 3.1-3a. Existing View from Waterbend Apartments

Figure 3.1-3b. Visual Simulation of Proposed Project from Waterbend Apartments

Insert

Figure 3.1-4a. Existing View from Mendell Street

Figure 3.1-4b. Visual Simulation of Proposed Project from Mendell Street

Insert

Figure 3.1-5a. Existing View from Williams Avenue

Figure 3.1-5b. Visual Simulation of Proposed Project from Williams Avenue

Insert

Figure 3.1-6a. Existing View from Bitting Avenue

Figure 3.1-6b. Visual Simulation of Proposed Project from Bitting Avenue

Table 3.1-3. Summary of Simulation Views of the Proposed Switching Station Site

Viewpoint # (Figure 3.1-1)	Location	Visible Project Change	Approximate Distance to Nearest Site Element	PEA Figure Number
4	Emergency access road at Waterbend Apartments	• Eastern side of equipment building and part of upper outdoor equipment screen • Eastern perimeter wall • Removal of temporary equipment sheds and open storage yard	280 feet	3.1-3
5	Mendell Street at Bancroft Avenue	• Upper portion of equipment building • Upper and lower outdoor equipment screen • Eastern perimeter wall	500 feet	3.1-4
6	Williams Avenue overcrossing	• Upper portion of equipment building • Lower outdoor equipment screen • Part of northern perimeter wall • Removal of temporary equipment sheds	1,300 feet	3.1-5
10	Bitting Avenue near Kalmanovitz Street	• Parts of upper and lower outdoor equipment screens • Part of northern perimeter wall	260 feet	3.1-6

The Figure 3.1-3b visual simulation depicts the eastern side of the proposed switching station, seen to the right of the existing warehouse building. The simulation shows the eastern façade of the metal clad building and a portion of one of the perforated metal screening panels that shields the facility's outdoor equipment. Much of the outdoor switching station equipment is screened from view in this ground-level perspective. Additionally, portions of the proposed switching station components would be seen from some nearby, upper-level residences. As discussed under CEQA question c) below, when seen from an elevated perspective of nearby residences, the outdoor switching station equipment would generally be shielded from view. In terms of scale and appearance, the building and panels at the proposed switching station facility are compatible with those of the adjacent industrial warehouse and other structures found along the railroad ROW. It is also noted that the switching station will be built within approximately 3 years, at which time the newly planted deciduous trees seen in the foreground along the emergency access drive at the apartment complex could be taller with broader canopies. Moreover, within 5 to 10 years, these trees could provide substantial visual screening with respect to views toward the site from this location. Taken together, the project-related changes represent a minor, incremental effect that will not degrade the overall character and visual quality of the existing view.

Figure 3.1-4a and 3.1-4b portrays "before" and "after" views from Mendell Street approximately 500 feet from the site looking southwest, and represents a comparatively close-range, relatively unobstructed view toward the site seen by residents of nearby townhomes as well as being indicative of the view seen by passengers travelling the adjacent Caltrain corridor. Dominant elements in the foreground include metal security fencing, the railbed, and the corrugated metal wall of adjacent storage facility located across the railroad ROW. A multi-story industrial building and warehouse are visible directly behind the site, whose location is indicated by the outer wall of a temporary shed structure and chain-link fence covered by weedy vegetation along the railroad embankment.

The Figure 3.1-4b visual simulation depicts an open view of the northeastern corner of the proposed switching station. In this simulation, much of the northern facade along with an oblique view of the eastern façade and perimeter fence parallel to the railroad ROW is visible. The new facility's perforated metal-clad building can be seen along with horizontal screens against the backdrop of an industrial warehouse and more distant hillside residences and landscaping in the background. As seen from this vantage point, the proposed switching station (with its pronounced horizontally aligned screening components, textured metal surface, and muted color) is compatible with the existing structures situated immediately behind and in front of the facility. The similarity in terms of overall scale and form of the proposed switching station helps to visually integrate it into the surrounding urban-industrial setting; therefore, the proposed switching station does not substantially alter existing visual conditions in the area.

Figure 3.1-5a and 3.1-5b is both an existing and simulation view from Williams Avenue, looking toward the site where it crosses the Caltrain corridor approximately 0.25 mile to the north. From this open, elevated vantage point, the site can be seen in the broader Bayview urban landscape context of mixed residential and industrial-commercial elements. This location represents views seen by nearby residents of the Silver Terrace neighborhood as well as by motorists and pedestrians along Williams Avenue. On the right, metal storage units along the rail corridor embankment are prominent foreground elements, which are seen against a backdrop of the landscaped perimeter of the Portola Place residential development located to the west. The site is partially discernible on the right, including the existing shed structure rooftops, visible beyond the single-story storage building adjacent to the railroad embankment. On the left, the Waterbend apartment complex and nearby industrial lofts overlook the rail corridor just beyond the open paved area in the foreground.

The Figure 3.1-5b simulation portrays the proposed switching station and shows the Egbert Avenue frontage, including the new perforated metal-clad equipment building, elevated horizontal outdoor equipment screening structure, and perimeter fence. From this vantage point, the proposed switching station is seen against a backdrop of a larger industrial building of similar form. Additionally, the color, form, and scale of the new facility are visually consistent and compatible with the adjacent storage facility seen in the foreground. As described above and demonstrated by comparison of the existing view and post-project simulation, the visual changes associated with the proposed switching station in this location will not substantially alter existing visual conditions in the area.

Figure 3.1-6a shows a close-range view of the site from the Portola Place townhome development. This street view looks south toward the Egbert Avenue frontage from a distance of approximately 260 feet, along Bitting Avenue near Kalmanovitz Street at the southern edge of the residential complex where existing multi-story residences directly face the site.

Figure 3.1-6a shows a vine-covered masonry wall in the foreground separating the southern edge of the development from Egbert Avenue. Utility poles and overhead conductors situated along Egbert Avenue are visible beyond the wall, while a stand of evergreen (juniper) trees partially screen views toward the multi-story apartment complexes seen in the distance and, along with the wall, blocks views of the existing site. On the right, a portion of the tree-covered Bay View Hill can also be seen in the backdrop.

The Figure 3.1-6b simulation shows the northwestern corner of the proposed switching station with the new perforated steel equipment screening elements visible above the wall. The new facility components are set back more than 80 feet from the Egbert Avenue frontage. This ample setback helps to minimize the perceived height of the proposed switching station in relation to surrounding structures, including nearby residences and streetscape elements such as overhead power lines, as well as more distant multi-story apartments. As demonstrated by the simulation, the perforated panels provide a degree of transparency to the structure, particularly when viewed against a sky backdrop; this partial transparency preserves the view toward the Bay View Hill, seen in the backdrop on the right. These aesthetic characteristics further reduce the potential visual impact of the structure when seen at close range. In terms of scale and overall form, the proposed switching station will be compatible with the existing visual character found in the site vicinity, and therefore represents a minor incremental change to the existing visual environment.

a) Will the project have a substantial adverse effect on a scenic vista? ***No Impact.***

CEQA requires that the project be evaluated as to whether its implementation has a substantial, adverse effect on a scenic vista. For purposes of this evaluation, a scenic vista is defined as a distant public view along or through an opening or corridor that is recognized and valued for its scenic quality.

For the equipment removal at Martin Substation, during the construction phase and subsequent operation and maintenance phases, the change would not be particularly noticeable from the ridgeline of San Bruno Mountain because of the viewing distance of approximately 1 mile as well as the visual presence of the overall substation facility. Transmission lines construction activity, including use of potential staging areas, would not be noticeable from San Bruno Mountain given the viewing distance and because of similar equipment and activity that is common to existing traffic and construction equipment in the area.

For the proposed Egbert Switching Station site during construction and operation and maintenance phases, although there are no recognized scenic vistas within the switching station viewshed, panoramic public views are available from Bayview Park, located approximately 0.75 mile from the switching station site, where distant views of landscape features such as the San Francisco skyline, San Francisco Bay, and the East Bay Hills can be seen. Because of the viewing distance and the urbanized character of the site vicinity, the proposed switching station will not be particularly noticeable when seen from Bayview Park (Photograph 14 on Figure 3.1-2g).

Therefore, the project will not have a substantial adverse effect on a scenic vista, and there will be no construction or operation and maintenance impact.

b) Will the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? *No Impact.*

As documented in Section 3.1.3, there are no designated State Scenic Highways within the project viewshed; therefore, the project will not substantially damage scenic resources within a State Scenic Highway. I-280, an Eligible State Scenic Highway, passes within 0.75 mile to the northwest; however, intervening buildings and roadside vegetation block views of the site from this roadway. As a result, the project will not affect scenic resources within a state scenic highway corridor, and there will be no construction or operation and maintenance impact.

c) Will the project substantially degrade the existing visual character or quality of the site and its surroundings? *Less-than-significant Impact.*

Construction

<u>Proposed Transmission Lines and Martin Substation Minor Modification</u>

Construction activities along the proposed transmission lines and at Martin Substation, and use of potential staging areas, as described in Section 2.7 will not substantially degrade the existing visual character or quality of the site and its surroundings. The transmission lines will be installed primarily within roadways adjacent to residential, industrial, and commercial uses, as shown on Figure 3.10-2.

As part of construction restoration, work areas will be restored to conditions equal or better than pre-construction conditions. Because the visible construction activities will be short-term and temporary in nature and because the equipment and activities will be seen within the context of various equipment that is common to existing traffic and construction equipment in the area, the construction related visual effects of the transmission lines, potential staging areas, and Martin Substation construction activities will be less than significant.

During operation, the transmission lines will be underground and maintenance will occur quarterly and bi-annually at vault locations; operation and maintenance of the transmission lines will not degrade the existing visual character or quality of the line and its surroundings.

Removal of some existing equipment at Martin Substation will be a minor incremental change that will not be particularly noticeable because it will be seen within the context of the overall large-scale existing facility. Therefore, it will not substantially degrade existing visual character or quality of the substation site or surrounding landscape; no permanent impact will occur.

<u>Proposed Egbert Switching Station</u>

Construction of the proposed Egbert Switching Station, described in Section 2.7.3, will not substantially degrade the existing visual character or quality of the site and its surroundings. Construction of the switching station is expected to take approximately 19 months, during which time potential temporary construction-related visual impacts could occur because of the presence of construction equipment and vehicles as well as work crews and temporary structures. Work will primarily be performed within the property limits of the facility; however, some off-site equipment staging areas, laydown yards, equipment and material storage areas, and areas to store temporarily excavated materials near Egbert Switching Station site may be secured at existing PG&E or other existing industrial or commercial facilities for larger equipment or construction materials not immediately incorporated into the work.

Temporary activity associated with construction could be visible from nearby city streets and the Caltrain corridor that lies adjacent to the site. The switching station is situated in an urbanized area near ongoing industrial operations and where large equipment, trucks, and storage structures not unlike construction equipment to be used at the site are part of the landscape setting. Currently Egbert Avenue serves as a conduit for trucks and other equipment serving nearby industrial operations, including activities at the site where close-range views of these operations are available to some residents in the Portola Place development. As a result, the temporary visual effect associated with project construction would be an incremental change, and the effect with implementation of APM AE-2 would be less than significant.

Operation and Maintenance

<u>Proposed Egbert Switching Station</u>

The project will introduce a new switching station on a previously disturbed site currently occupied by temporary shed structures and used as a semi-open air industrial materials storage yard. The site is in a developed urban environment, and throughout much of the site area, intervening structures will partially or fully obstruct views of the site. These intervening structures include numerous industrial, commercial, and residential buildings, many of which are considerably larger than the new facility. Close-range, unobstructed views toward the site occur from a limited area within several hundred feet of the facility; however, as described in Section 3.1.4.3 and depicted on Figures 3.1-3a through 3.1-6b, the switching station design includes enclosure buildings, screening panels, and a perimeter wall that will generally screen the new equipment from public view. Chapter 2.0, Project Description, includes two conceptual architect's renderings that portray additional public views of the project (Figure 2.5-3). Close-range views of the site would also be seen from some nearby private residences. When seen from an elevated perspective of nearby upper level residences, the site would also be seen within the context of an adjacent industrial building and other existing development and that the outdoor switching station equipment would generally be shielded from view. Additionally, the Figure 3.1-5b simulation demonstrates that in elevated public views from a somewhat greater distance, the site will be seen in the context of the surrounding urban environment and the new switching station enclosure will not be particularly noticeable. Overall, the new facility design is visually compatible and will generally blend in with development seen in the surrounding urban landscape in terms of color, texture, scale, and form.

In light of the aesthetic characteristics and visual conditions described above and given the presence of industrial buildings, storage facilities, utility structures, and a railroad corridor in the immediate vicinity, the site will represent an incremental visual change that will not substantially degrade the existing visual character or quality of the urban landscape setting.

d) Will the project create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area? *Less-than-significant Impact.*

Construction

Nighttime construction is not anticipated unless certain short-term construction procedures are required because of safety considerations or because of activities that need to be completed once started (e.g., line splicing, etc.), or to take advantage of line clearances during off-peak hours. Potential staging areas may use nighttime lighting for security. This effect will be temporary and, by directing lights away from any residential uses, will be less than significant.

Operation and Maintenance

Proposed Transmission Lines and Martin Substation Minor Modification. The proposed transmission lines will be located underground, and equipment will be removed from Martin Substation, thus neither activity will create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.

Proposed Egbert Switching Station - Glare. The switching station includes equipment enclosures and perimeter walls that will be painted a neutral gray color with a non-reflective finish, as well as a natural-color equipment building that will be faced with the same neutral grey-color metal screening. Additional switching station components will be a galvanized finish that will weather to a dull, non-reflective patina. The switching station design characteristics described above will minimize potential effect of glare.

Proposed Egbert Switching Station - Nighttime Lighting. The new substation will include outdoor lighting for safety and security purposes, and will be designed to avoid casting light or glare off-site. The new lighting will be operated only as needed to support security technology. The switching station is located within an urban, primarily industrial setting with existing overhead lighting adjacent to the site as well as localized lighting sources related to streetlights and commercial and industrial facilities. Currently there is some lighting located on the site. Seen within this context, new switching station lighting will represent a minor incremental change to existing nighttime lighting conditions. The impact will be less than significant. Implementation of APM AE-1 will further reduce potential night lighting effects.

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3.2 AGRICULTURAL AND FOREST RESOURCES

3.2.1 INTRODUCTION

This section describes existing conditions and potential impacts on agricultural and forest resources as a result of construction, operation, and maintenance of the project. The analysis concludes that the project will have no impact. The project's potential effects on agricultural and forest resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.2-1 and discussed in more detail in Section 3.2.4.

Table 3.2-1. CEQA Checklist for Agricultural and Forest Resources

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural land?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined by Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest uses?	☐	☐	☐	☒
e) Involve other changes in the existing environment, which, due to their location or nature, could result in the conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

3.2.2 REGULATORY BACKGROUND AND METHODOLOGY

3.2.2.1 Regulatory Background

Federal

No federal regulations related to agricultural or forest resources are applicable to the project.

State

Farmland Mapping and Monitoring Program

The California Department of Conservation (DOC), under the Division of Land Resource Protection, has established the Farmland Mapping and Monitoring Program (FMMP) to monitor the conversion of the state's farmland to and from agricultural use. The FMMP maps agriculturally viable lands and designates specific categories, including Prime, Unique, non-Prime, or Farmland of Statewide Importance.

California Public Resources Code

The California Public Resources Code (PRC) contains the following definitions:

- Forest Land: Section 12220(g) defines "forest land" as land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.

- Timberland: Section 4526 defines timberland as land—other than land owned by the federal government and land designated by the State Board of Forestry and Fire Protection as experimental forest land—that is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees.

Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the project is not subject to local discretionary regulations. This section includes a summary of local zoning in the project area for agricultural use or forest land, and is provided for informational purposes and to assist with the CEQA review process.

The project area is within the urban City and County of San Francisco, and cities of Daly City and Brisbane, which have no agricultural or forest land zoning or policies (City and County of San Francisco, 2011; City of Brisbane, 1994; City of Daly City, 2013).

San Francisco General Plan Policy 3.6 discusses the city's interest in maintaining, restoring, and expanding the urban forest. The San Francisco Planning Department and Department of Public Works have developed an Urban Forest Plan to support the General Plan policies (City and County of San Francisco, 2014). Phase 1: Street Trees has been published and provides a long-term strategy for the city's street trees. The Planning department is currently scoping future phases of the Urban Forest Plan that will address the needs of trees in parks and open spaces (Phase 2) as well as trees of private property (Phase 3).

3.2.2.2 Methodology

Various sources were consulted to complete the analysis for agricultural and forestry resources, including the DOC FMMP data and maps; general plans, zoning ordinances, and maps; environmental impact reports (EIRs) for other projects in the area; and field reconnaissance in the area.

3.2.3 ENVIRONMENTAL SETTING

The project would be constructed within the urban boundaries of the City and County of San Francisco, the City of Daly City, and the City of Brisbane. There are no agricultural lands, forest lands, or DOC mapped farmlands in the vicinity of the project. In San Mateo County, the DOC map was reviewed, and the land in the project vicinity was determined to be Urban and Built Up Land. Urban and Built Up Land is defined as being occupied by structures with a building density of at least 1 unit to 1.5 acres, or 6 structures to a 10-acre parcel (DOC, 2012).

The proposed Jefferson-Egbert line interconnects with the existing 230 kV transmission line from Jefferson Substation on Guadalupe Canyon Parkway which is bordered by San Bruno Mountain State and County Park to the west. The park is to the west of the route as it turns north onto Carter Street leaving Brisbane city limits and entering the city limits of Daly City.

With the exception of the San Bruno Mountain State and County Park, the project does not pass through or adjacent to Brisbane or Daly City parks, forested or otherwise.

The urban forest is defined in the San Francisco General Plan's Recreation and Open Space section as trees and understory plantings in city parks, public open spaces, and streets, as well as within private property. The proposed Jefferson-Egbert route passes through San Francisco's John McLaren Park underground within Hahn Street, turning northward onto Visitacion Avenue, and exiting the park after the route turns east on Mansell Street.

Although there are no agricultural lands, there is a local bee farm called San Francisco Bee-Cause (SFBC). SFBC is a nonprofit that seeks to help bees thrive in an urban environment in order to assist with environmental health, including agriculture and biodiversity. SFBC is located in San Francisco within 1 mile of the proposed Jefferson-Egbert line. This farm is not mapped as farmland, and it would not be impacted by the project (SFBC, 2017).

3.2.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for agricultural and forest resources impacts derived from Appendix G of the CEQA Guidelines and assess potential project-related construction and operational impacts. Because the project will have no impact on agricultural and forest resources, APMs have not been included for this section.

3.2.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project-related impacts on agricultural and forest resources were evaluated for each of the criteria listed in Table 3.2-1, as discussed in Section 3.2.4.3.

3.2.4.2 Applicant-Proposed Measures

The project will have no impact on agricultural and forest resources, and no APMs are proposed.

3.2.4.3 Potential Impacts

Project impacts on agriculture and forest resources were evaluated against the CEQA significance criteria, as discussed below. This section evaluates potential project impacts from both the construction phase and operation and maintenance phase.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and will extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will be supported by existing PG&E staff as part of their scheduled work in the area with routine inspections at the switching station (at least monthly) and detail inspections (at least annually) at switching station and vault locations along the lines.

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the FMMP, to non-agricultural use? *No Impact.*

The FMMP does not identify any farmlands within the cities of San Francisco, Daly City, or Brisbane; therefore, no impacts from the project during construction or operation and maintenance phases would occur.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract? *No Impact*.

There are no lands zoned for agricultural use or under Williamson Act contract in the vicinity of the project; therefore, no impact during construction or operation and maintenance phases would occur.

c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? *No Impact*.

There is no zoning for forestland or timberland in the vicinity of the project; therefore, no impact during construction or operation and maintenance phases would occur.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use? *No Impact*.

Project construction and operation and maintenance will occur on industrial-use land or within city streets, a portion of which pass through the City of San Francisco's John McLaren Park and San Bruno Mountain State and County Park. The project will not result in the loss of forest land, nor conversion of forest land to a non-forest use because construction and operation and maintenance will occur within the already disturbed street and shoulders when adjacent to park land; therefore, no impact would occur.

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

There is no farmland or forestland in the project footprint; therefore, no impact during construction or operation and maintenance phases would occur.

3.2.5 REFERENCES

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3.3 AIR QUALITY

3.3.1 INTRODUCTION

This section discusses potential air quality issues associated with the project construction, operation, and maintenance, including both regional and site-specific concerns, and concludes that impacts will be less than significant in these areas. Air quality emissions will occur within the Bay Area Air Quality Management District (BAAQMD). Emission evaluations follow CEQA guidance provided by BAAQMD for activities within its jurisdiction. Primary air emissions from the project includes construction emissions associated with fugitive dust, heavy construction equipment, construction vehicles traveling around the project site or hauling materials to/from the project site, and construction workers commuting to and from the project site. Air emissions evaluated include reactive organic gases (ROG), nitrogen oxides (NO_X), carbon monoxide (CO), sulfur oxides (SO_X), and particulate matter with an aerodynamic diameter less than 10 microns or less than 2.5 microns (PM_{10} and $PM_{2.5}$, respectively). Toxic air emissions, in the form of diesel particulate matter (DPM) and asbestos, were also qualitatively evaluated. Greenhouse gas (GHG) emissions are discussed separately in Section 3.7. The analysis concludes that impacts to air quality will be less than significant. Incorporation of the APMs described in Section 3.3.4.2 will further minimize potential less-than-significant impacts.

Emission calculations in this document were based on worst-case estimates of pollutant emissions to ensure presentation of a conservative environmental analysis. This analysis may be revised, as needed, to reflect changes to the project plans. The project's potential effects on air quality were evaluated using the criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.3-1 and discussed in more detail in Section 3.3.4.

Table 3.3-1. CEQA Checklist for Air Quality

Would the project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

3.3.2 REGULATORY BACKGROUND AND METHODOLOGY

3.3.2.1 Regulatory Background

Federal

The federal Clean Air Act (CAA) establishes the statutory framework for regulation of air quality in the United States. Pursuant to this act, the U.S. Environmental Protection Agency (USEPA) has established various regulations to achieve and maintain acceptable air quality, including the adoption of National Ambient Air Quality Standards (NAAQS), mandatory state implementation plan (SIP) or maintenance plan requirements to achieve and maintain NAAQS, and emission standards for both stationary and mobile sources of air pollution. NAAQS were established in 1970 for six pollutants: CO, ozone (O_3), PM_{10} and $PM_{2.5}$, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead (Pb). These pollutants are commonly referred to as criteria pollutants, because they are considered the most prevalent air pollutants known to be hazardous to human health. The USEPA designates a region that is meeting the air quality standard for a given pollutant as being in "attainment" for that pollutant; regions not meeting the federal standard are designated as being in "non-attainment" for that pollutant. If a region is designated as non-attainment for a NAAQS, the federal CAA requires the state to develop a SIP to demonstrate how the standard will be attained, including the establishment of specific requirements for review and approval of new or modified stationary sources of air pollution. The CAA Amendments of 1990 directed the USEPA to set standards for toxic air contaminants and required facilities to sharply reduce emissions. Table 3.3-2 summarizes state and federal ambient air quality standards. Table 3.3-3 summarizes the state and federal attainment status for the San Francisco Bay Area Air Basin (SFBAAB).

State

The California Air Resources Board (CARB) is the state agency responsible for California air quality management, including establishment of California Ambient Air Quality Standards (CAAQS), mobile source emission standards, and GHG regulations, as well as oversight of regional air quality districts and preparation of implementation plans, including regulations for stationary sources of air pollution. The CAAQS are generally more stringent, except for the 1-hour NO_2 and SO_2 standards, and include more pollutants than the NAAQS (see Table 3.3-2). California specifies four additional criteria pollutants: visibility reducing particles (VRP), sulfates, hydrogen sulfide (H_2S), and vinyl chloride. Similar to USEPA, CARB designates counties in California as being in attainment or non-attainment for the CAAQS.

The Air Toxic "Hot Spots" Information and Assessment Act, also known as AB 2588, identifies toxic air contaminant hot spots where emissions from specific stationary sources may expose individuals to an elevated risk of adverse health effects, particularly cancer or reproductive harm. Many toxic air contaminants are also classified as hazardous air pollutants (HAPs). AB 2588 requires that a business or other establishment identified as a significant stationary source of toxic emissions provide the affected population with information about health risks posed by the emissions. Although DPM is considered a toxic air contaminant under AB 2588, this project is not subject to AB 2588 because the DPM-emitting sources will only be temporarily employed during construction. Operation of the project does not require the installation of new stationary sources of DPM or emissions of other toxic air contaminants. Therefore, the project is not considered a stationary source of toxic emissions.

Airborne Toxic Control Measure for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower and Greater

In an effort to reduce DPM emissions throughout the state, CARB has established the Airborne Toxic Control Measure (ATCM) for DPM from Portable Engines Rated at 50 Horsepower (hp) and Greater (California Code of Regulations, Title 13, Section 93116 [13 CCR 93116]). This ATCM requires portable diesel-fueled engines having a maximum rating of 50 hp and greater to meet fleet-average DPM emissions standards.

Statewide Portable Equipment Registration Program

Voluntary registration under the Statewide Portable Equipment Registration Program (PERP) allows owners or operators of portable engines to operate their equipment throughout California without having to obtain individual air district permits. Diesel engines eligible for PERP registration must not be self-propelling, must be certified to Tier 4 emissions standards, and must not reside in the same location longer than 12 consecutive months. Examples of portable equipment include air compressors, generators, pumps, drills, and welders.

Regulation for In-Use Off-Road Diesel-Fueled Fleets

CARB has established the Regulation for In-Use Off-Road Diesel-Fueled Fleets to reduce NOx, DPM, and other criteria pollutant emissions from in-use off-road diesel-fueled vehicles (13 CCR 2449). This regulation applies to all self-propelled off-road diesel vehicles rated 25 hp or greater, including vehicles that are rented or leased, and requires restricted vehicle idling time, reporting of vehicle use, and compliance with fleet-average emission standards. Although this regulation does apply to rented or leased vehicles, the compliance responsibility predominantly lies with the rental or leasing company if the vehicles are rented or leased for a period of less than one year.

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 naturally occurring asbestos (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 will exist during project construction; if NOA is encountered during construction, the project will comply with the requirements of the Asbestos ATCM (Bonilla, 1998 and United States Geological Survey [USGS], 2011).

Table 3.3-2. Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS [a]	NAAQS [b]	
			Primary [c]	Secondary [d]
Ozone	1 hour 8 hours	0.09 ppm 0.070 ppm	-- 0.070 ppm	-- 0.070 ppm
CO	1 hour 8 hours	20 ppm 9.0 ppm	35 ppm 9 ppm	-- --
NO_2	1 hour Annual Arithmetic Mean	0.18 ppm 0.030 ppm	0.100 ppm [e] 0.053 ppm	-- 0.053 ppm
SO_2	1 hour 3 hours 24 hours Annual Arithmetic Mean	0.25 ppm -- 0.040 ppm --	0.075 ppm [f] -- 0.014 ppm 0.030 ppm	-- 0.5 ppm -- --
PM_{10}	24 hours Annual Arithmetic Mean	50 µg/m^3 20 µg/m^3	150 µg/m^3 --	150 µg/m^3 --
$PM_{2.5}$	24 hours Annual Arithmetic Mean	-- 12 µg/m^3	35 µg/m^3 12 µg/m^3	35 µg/m^3 15 µg/m^3
Lead [g]	30-day Average Calendar Quarter Rolling 3-month Average	1.5 µg/m^3 -- --	-- 1.5 µg/m^3 0.15 µg/m^3	-- 1.5 µg/m^3 0.15 µg/m^3
VRP [g]	8 hours	[h]	--	--
Sulfates	24 hours	25 µg/m^3	--	--
H_2S	1 hour	0.03 ppm	--	--
Vinyl chloride	24 hours	0.01 ppm	--	--

Notes:

-- = No standard has been adopted for this averaging time
µg/m^3 = microgram(s) per cubic meter
ppm = part(s) per million
[a] CAAQS for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1- and 24 hour), NO_2, and particulate matter (PM_{10}, $PM_{2.5}$, and VRP), are values that are not to be exceeded. All others are not to be equaled or exceeded.
[b] NAAQS (other than O_3, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in 1 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 one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard.
[c] Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
[d] Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
[e] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 0.100 ppm.
[f] To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 0.075 ppm.

Table 3.3-2. Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS [a]	NAAQS [b]	
			Primary [c]	Secondary [d]

[g] CARB 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.
[h] Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.
Source: CARB, 2017a

Table 3.3-3. Federal and California Air Quality Attainment Status for San Francisco Bay Area Air Basin

Pollutant	Averaging Time	Federal Status	California Status
O_3	1 hour 8 hours	-- Marginal Non-attainment	Serious Non-attainment Non-attainment
CO	1 hour 8 hours	Maintenance Maintenance	Attainment Attainment
NO_2	1 hour Annual Arithmetic Mean	Attainment Attainment	Attainment Attainment
SO_2	1 hour 3 hours 24 hours Annual Arithmetic Mean	Attainment Attainment Attainment Attainment	Attainment -- Attainment --
PM_{10}	24 hours Annual Arithmetic Mean	Attainment --	Non-attainment Non-attainment
$PM_{2.5}$	24 hours Annual Arithmetic Mean	Moderate Non-attainment Attainment	-- Non-attainment

Notes:
-- = No standard has been adopted for this averaging time
Sources: USEPA, 2017a; CARB, 2017b; BAAQMD, 2017a

Regional

The project is located within the jurisdiction of BAAQMD. BAAQMD is the local agency charged with preparing, adopting, and implementing emission control measures and standards for stationary sources of air pollution. Because the project will not involve construction of new stationary sources of criteria pollutants or toxic air contaminants, the project is not subject to BAAQMD permitting regulations. The following analysis of local plans and guidance documents is provided for informational purposes and to assist with CEQA review.

Under the California Clean Air Act, BAAQMD is required to develop an air quality plan to achieve and/or maintain compliance with federal and state non-attainment criteria pollutants within the air district. BAAQMD has taken action and developed plans to achieve and/or maintain compliance with the federal 1-hour ozone standard and the federal CO standard. Additionally, recent monitoring data indicate that $PM_{2.5}$ levels have decreased in the Bay Area since 2008. As a result, CARB submitted a "clean data finding" request to USEPA on behalf of BAAQMD on December 8, 2011. This request was approved by USEPA on January 9, 2013, and suspends key SIP requirements as long as monitoring data continue to show attainment of the standard. Despite this approval, the Bay Area will continue to be designated as non-attainment for the federal $PM_{2.5}$ standard until BAAQMD submits a redesignation request and a $PM_{2.5}$ maintenance plan (BAAQMD, 2017b; BAAQMD, 2017a, respectively).

BAAQMD adopted CEQA Guidelines in December 1999 to assist local jurisdictions and lead agencies in complying with the requirements of CEQA regarding potentially adverse impacts to air quality (BAAQMD, 1999). BAAQMD updated its CEQA Guidelines in June 2010 to reference its newly adopted thresholds of significance. These thresholds of significance were challenged in court but were ultimately upheld by the California Supreme Court. BAAQMD published a revised version of its CEQA Guidelines in May 2017 (BAAQMD, 2017c). Lead agencies may, at their discretion, use BAAQMD's current thresholds of significance to help inform environmental review for development projects in the Bay Area and the current BAAQMD CEQA Guidelines for assistance in calculating air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures (BAAQMD, 2017c; BAAQMD, 2017d).

Lastly, BAAQMD adopted the *2017 Bay Area Clean Air Plan* (CAP) on April 19, 2017. The CAP provides an integrated, multi-pollutant control strategy to reduce emissions and decrease ambient concentrations of harmful pollutants, to safeguard public health by reducing exposure to air pollutants that pose the greatest health risk (with an emphasis on protecting the communities most heavily impacted by air pollution), and to reduce GHG emissions to protect the climate (BAAQMD, 2017e).

Because the project will not involve construction and operation of new stationary combustion sources, such as emergency generators, there are no federal, state, or regional permitting regulations applicable to the project.

Local

No local (city and county) air quality regulations are applicable to this project.

3.3.2.2 Methodology

Short-term construction emissions of CO, SO_2, PM_{10}, and $PM_{2.5}$ were evaluated. Because ozone is formed through chemical reactions in the atmosphere, the ozone precursors NO_x and ROG were also calculated. Detailed construction emissions calculations including assumptions are provided separately to CPUC staff and summarized in Table 3.3-7 in Section 3.3.4.3, Potential Impacts.

Construction emissions were estimated using construction equipment emission factors from the *California Emissions Estimator Model (CalEEMod) User's Guide* (Environ International Corporation, 2016) and vehicle emission factors from EMFAC2014 (version 1.0.7). PM_{10} and $PM_{2.5}$ emissions from vehicle travel on paved roads were estimated using emission factors from

AP-42 Compilation of Air Pollutant Emission Factors (USEPA, 2011), as recommended by the CalEEMod User's Guide (Environ International Corporation, 2016). PM_{10} and $PM_{2.5}$ emissions from material movement, such as truck dumping/loading, grading, and bulldozing, were quantified using the emission factors from the CalEEMod User's Guide (Environ International Corporation, 2016). Where appropriate, control measures were identified to reduce PM_{10} and $PM_{2.5}$ emissions from material movement. These control measures include watering or the application of soil stabilizers, and their reduction efficiencies were obtained from the South Coast Air Quality Management District (SCAQMD) *CEQA Air Quality Analysis Handbook* (SCAQMD, 2007).

Operational emissions associated with inspections and ongoing maintenance activities (primarily associated with periodic maintenance vehicle travel) were not estimated because these activities are part of PG&E's ongoing, baseline operations, and are expected to be infrequent and minimal. Potential operational GHG emissions from circuit breaker leakage are addressed in Section 3.7, Greenhouse Gas Emissions.

3.3.3 ENVIRONMENTAL SETTING

3.3.3.1 Regional Setting

The project is located in San Francisco and San Mateo Counties within the SFBAAB. The SFBAAB is characterized by complex terrain consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind flow patterns. The Coast Range splits, resulting in a western coast gap (the Golden Gate) and an eastern coast gap (the Carquinez Strait), both of which allow air to flow in and out of the SFBAAB and the Central Valley (BAAQMD, 2017c).

The climate in the SFBAAB is dominated by the strength and location of a semi-permanent, subtropical high-pressure cell. During the summer, the Pacific high-pressure cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below to the surface because of the northwesterly flow produces a band of cold water off the California coast. The cool and moisture-laden air approaching the coast from the Pacific Ocean is further cooled by the presence of the cold water band, resulting in condensation and the presence of fog and stratus clouds along the Northern California coast. In the winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms. Weak inversions coupled with moderate winds result in a low air pollution potential (BAAQMD, 2017c).

The SFBAAB is characterized by moderately wet winters and dry summers. Winter rains account for about 75 percent of the average annual rainfall. The amount of annual precipitation can vary greatly from one part of the SFBAAB to another even within short distances. In general, total annual rainfall can reach 40 inches in the mountains, but is often less than 16 inches in sheltered valleys (BAAQMD, 2017c).

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, 2017c).

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-60 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 to low 40s°F on the eastern side of the peninsula and in the low 40s°F on the coast (BAAQMD, 2017c).

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, 2017c).

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 resulting from motor vehicle traffic as well as 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, 2017c).

3.3.3.2 Ambient Air Quality

The primary pollutants of concern in SFBAAB are ozone, PM_{10}, and $PM_{2.5}$ because SFBAAB is designated non-attainment for these pollutants by USEPA and/or CARB. Ozone is not directly emitted but is formed in the atmosphere by complex chemical reactions of various precursors (ROG and NO_x) in the presence of sunlight. The major sources of ozone precursor emissions are combustion processes (including motor vehicle engines); the evaporation of solvents, paints, and fuels; and biogenic sources. Most PM_{10} and $PM_{2.5}$ is caused by combustion, factories, construction, grading, demolition, agricultural activities, and motor vehicles (BAAQMD, 2017c).

CARB maintains an annual emission inventory for each county and air basin in the state. The most recent published inventory data for the SFBAAB is summarized in Table 3.3-4. In the SFBAAB, mobile source emissions account for approximately 30 percent, 80 percent, and 80 percent of the air basin's ROG, CO, and NO_x emissions, respectively. Area sources account for over 80 percent and 60 percent of the air basin's PM_{10} and $PM_{2.5}$ emissions, respectively. Stationary sources account for over 70 percent of the air basin's SO_X emissions.

BAAQMD operates a network of ambient air quality monitoring stations 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 project, the nearest monitoring stations were identified. The nearest monitoring stations are located at 10 Arkansas Street in San Francisco, California, and 1100 21st Street in Oakland, California. Table 3.3-5 presents concentrations of the criteria pollutants measured at these two monitoring stations between 2014 and 2016. Measured $PM_{2.5}$ concentrations in San Francisco have exceeded the federal 24-hour standard but not the federal or state annual standards in the past 3 years. Measured ozone, CO, NO_2, SO_2, and PM_{10} concentrations at these monitoring stations have not exceeded the federal or state standards in the past 3 years (CARB, 2017c; USEPA, 2017b).

As previously noted, serpentinite bedrock may be encountered in the local area. BAAQMD does not monitor ambient air for NOA, but does implement the State-mandated Asbestos 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.

Table 3.3-4. Estimated Annual Average Emissions for the San Francisco Bay Area Air Basin

Source Category	Emissions (tons/day)					
	ROG	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Stationary Sources						
Fuel Combustion	3.3	43.2	47.7	13.0	5.8	5.8
Waste Disposal	35.5	1.9	0.6	0.2	0.1	0.1
Cleaning and Surface Coatings	37.1	0.0	0.0	--	0.0	--
Petroleum Production and Marketing	21.8	0.3	0.7	28.3	1.1	1.0
Industrial Processes	12.0	2.1	4.4	8.7	10.4	6.2
Total Stationary Sources	109.7	47.5	53.4	50.2	17.4	13.0
Stationary Sources Percentage of Total	25.1	3.4	15.9	75.7	7.6	14.9
Areawide Sources						
Solvent Evaporation	74.7	--	--	--	--	--
Miscellaneous Processes	17.2	169.0	17.6	0.6	189.7	56.2
Total Areawide Sources	91.9	169.0	17.6	0.6	189.7	56.2
Areawide Sources Percentage of Total	21.0	12.2	5.2	0.9	82.4	64.3
Mobile Sources						
On-road Motor Vehicles	71.6	630.8	123.8	1.0	9.8	6.6
Other Mobile Sources	57.4	492.7	139.9	14.0	8.3	7.3
Total Mobile Sources	129.0	1,123.4	263.6	15.0	18.1	13.9
Mobile Sources Percentage of Total	29.5	80.9	78.4	22.6	7.8	15.9
Natural Sources						
Natural (Non-anthropogenic) Sources	106.5	49.4	1.6	0.5	5.1	4.3
Total Natural Sources	106.5	49.4	1.6	0.5	5.1	4.3

Table 3.3-4. Estimated Annual Average Emissions for the San Francisco Bay Area Air Basin

Source Category	Emissions (tons/day)					
	ROG	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Natural Sources Percentage of Total	24.4	3.5	0.5	0.8	2.2	4.9
Grand Total	437.0	1,389.3	336.3	66.3	230.3	87.4

Notes:
-- = Emissions negligible
Source: CARB, 2017d

Table 3.3-5. Summary of Maximum Ambient Air Monitoring Data Near the Project

Pollutant	Averaging Time	Units	2014	2015	2016
O_3 [a]	1 hour 8 hours	ppm	0.079 0.069	0.085 0.067	0.070 0.057
Carbon monoxide (CO) [b]	1 hour 8 hours	ppm	1.6 1.2	1.8 1.3	1.7 1.1
Nitrogen dioxide (NO_2) [a]	1 hour Annual Arithmetic Mean	ppm	0.083 0.012	0.070 0.012	0.058 0.011
Sulfur dioxide (SO_2) [c]	1 hour 3 hours 24 hours Annual Arithmetic Mean	ppm	0.016 NM 0.003 0.0005	0.022 NM 0.004 0.0008	0.026 NM 0.003 0.0009
Particulate matter less than 10 microns (PM_{10}) [a]	24 hours Annual Arithmetic Mean	$\mu g/m^3$	35.9 16.8	47.0 --	29.0 --
Particulate matter less than 2.5 microns ($PM_{2.5}$) [a]	24 hours Annual Arithmetic Mean	$\mu g/m^3$	33.2 7.7	35.4 7.9	19.6 --

[a] Data documented by CARB from the monitoring station located at 10 Arkansas Street, San Francisco, California.
[b] Data documented by USEPA from the monitoring station located at 10 Arkansas Street, San Francisco, California.
[c] Data documented by USEPA from the monitoring station located at 1100 21st Street, Oakland, California.
Sources: CARB, 2017c; USEPA, 2017b

Notes:
-- = Insufficient data available to determine the value
NM = Pollutant averaging time not monitored

3.3.4 Applicant-Proposed Measures and Potential Impacts

The following sections describe significance criteria for air quality impacts derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operational air quality impacts.

3.3.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project-related impacts on air quality were evaluated for each of the criteria listed in Table 3.3-1, as discussed in Section 3.3.4.3.

BAAQMD's CEQA Guidelines (BAAQMD, 2017c) provide quantitative thresholds of significance for evaluating a project's construction and operational criteria pollutant emissions, as shown in Table 3.3-6. Additionally, BAAQMD recommends following current best management practices (BMPs) to control fugitive dust emissions during construction (BAAQMD, 2017c). These BMPs have been included in the project as APMs and are described below.

Table 3.3-6. BAAQMD CEQA Air Quality Thresholds of Significance

Pollutant	Construction-Related	Operational-Related	
	Daily (lb/day)	Daily (lb/day)	Annual (ton/year)
ROG	54	54	10
NO_x	54	54	10
PM_{10}	82 (exhaust only)	82	15
$PM_{2.5}$	54 (exhaust only)	54	10
PM_{10} and $PM_{2.5}$ (fugitive dust)	Best Management Practices	None	None

Note:
lb/day = pound(s) per day
Source: BAAQMD, 2017c

BAAQMD's CEQA Guidelines (BAAQMD, 2017c) also provide thresholds of significance for evaluating a project's construction and operational toxic air contaminant emissions, as related to the resulting health risk impacts. The thresholds are the same for construction and operation, as follows:

- Compliance with a qualified community risk reduction plan, or
- Any of the three following criteria:
  - An increased cancer risk of greater than 10.0 in 1 million
  - An increased noncancer (chronic or acute) risk of greater than 1.0
  - An increase in ambient annual average $PM_{2.5}$ concentrations greater than 0.3 microgram per cubic meter

Additionally, BAAQMD has established toxic air contaminant "trigger levels" in its Regulation 2-5, Table 2-5-1, which suggest the level at which a project will be considered a new or modified source of toxic air contaminants. Although Table 2-5-1 provides trigger levels for DPM and asbestos, which are both toxic air contaminants expected to be emitted during project construction, Regulation 2-5 is only applicable to new or modified sources requiring an Authority to Construct or Permit to Operate. Because the project will not involve construction and operation of new stationary sources of toxic air contaminants, the project will not require an Authority to Construct or Permit to Operate from BAAQMD and, therefore, Regulation 2-5 does not apply to the project.

3.3.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

Construction

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 mph.
- 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, 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, 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:

  <u>For disturbed areas of 1 acre or less:</u>

  - Construction vehicle speed at the work site will be limited to 15 mph 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.

Operation and Maintenance

PG&E will employ standard BMPs—such as minimizing vehicle trips and keeping vehicles and equipment well maintained—during operation of the project. No significant operation and maintenance impacts will occur and no APMs are necessary.

3.3.4.3 Potential Impacts

Project impacts on air quality were evaluated against the CEQA significance criteria, as discussed below. This section evaluates potential project impacts from both the construction phase and operation and maintenance phase.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 lines.

While staging areas will be determined based on availability at the time of construction, as described in Section 2.7.1.1, potential staging areas have been preliminarily identified (Figure 2.7-1). Several staging areas totaling up to approximately 15 acres will be identified for use once a construction contractor is selected. Two potential staging areas are adjacent to the proposed Jefferson-Egbert line along Carter Street, near and at the intersection with Geneva Avenue. Another two potential staging areas are within the existing Martin Substation. Two potential staging areas in San Francisco are in the Port's Southern Waterfront area off Amador Street, a heavily industrial area. Of these potential staging areas, only one is unpaved, such that its use may result in fugitive dust emissions associated with area disturbance. These potential fugitive dust emissions have been included to facilitate a more conservative assessment of potential impacts from PM_{10} and $PM_{2.5}$ emissions associated with the project. Truck travel to and from these potential staging areas was incorporated into the trip distances for material hauling, truck trips, and other construction activities.

Detailed emissions calculations including assumptions were calculated as described in Section 3.3.2.2, Methodology, and are provided separately to CPUC staff and summarized in Table 3.3-7.

Table 3.3-7. Construction Emissions Summary

Construction Period		Average Daily Emissions (lb/day) [a, b]					
		ROG	CO	NO_x	SO_x	PM_{10} [c]	$PM_{2.5}$ [c]
Project Emissions							
Construction Year 2020		3.09~~3~~	32.08~~55~~	30~~2~~.35~~0~~	0.19~~08~~	3.45~~2~~	1.~~8~~95
Construction Year 2021		2.44~~1~~	27.34~~8~~	22~~3~~.45~~06~~	0.10~~6~~	3.~~1~~09	1.63~~1~~
Construction Year 2022		0.13	1.42~~5~~	1.54~~66~~	0.01	0.46~~7~~	0.16
Maximum Average Daily Emissions		**3.09~~3~~**	**32.08~~55~~**	**30~~2~~.35~~0~~**	**0.19~~08~~**	**3.45~~2~~**	**1.~~8~~95**
Maximum Average Daily Emissions [d]		**0.002 ton/ day**	**0.02 ton/ day**	**0.02 ton/ day**	**0.00009~~4~~ ton/ day**	**0.002 ton/ day**	**0.001 ton/ day**
Construction Activity	**Activity Duration (days)**	**Emissions by Phase (lb/phase) [e]**					
		ROG	**CO**	**NO_x**	**SO_x**	**PM_{10} [c]**	**$PM_{2.5}$ [c]**
Transmission Line Construction							
Installation							
Mobilization	4	1.41	21.67	22.46	0.08	5.69	2.03
Manholes	120	59.54	730.92	648.26	1.90	104.77	45.70
Trenching [f]	300	843.65~~847.79~~	9,337.07~~9,390.20~~	7,628.59~~7,816.62~~	17.11~~17.76~~	794.46~~811.01~~	482.19~~487.29~~
Cable Installation and Splicing	130	25.86	189.92	234.23	0.69	63.45	26.67
Inspectors	317	0.22	13.85	1.23	0.05	7.08	1.92
Truck Drivers	142~~60~~	33.66~~3.68~~	432.09~~47.22~~	1,529.35~~167.13~~	5.28~~0.58~~	134.58~~14.71~~	41.56~~4.54~~
Trenchless Installation							
Bore Pit Excavation, Stage Equipment and Bore, Pull in Casing and Duct Bundle, Grouting Space Between Casing and Ducts, and Restoration	30	87.98	698.75	893.52	2.11	46.30	35.82
Truck Drivers	~~20~~13	0.27~~0.09~~	3.50~~1.18~~	12.38~~4.18~~	0.04~~0.01~~	1.09~~0.37~~	0.34~~0.11~~
2020 Transmission Line Construction Total [g]		**566.57~~547.33~~**	**6,120.76~~5,873.82~~**	**6,207.73~~5,333.72~~**	**15.84~~12.83~~**	**625.95~~549.03~~**	**338.84~~315.09~~**
2021 Transmission Line Construction Total [g]		**486.03~~479.24~~**	**5,307.01~~5,219.88~~**	**4,762.30~~4,453.92~~**	**11.43~~10.37~~**	**531.46~~504.33~~**	**297.37~~288.99~~**
2022 Transmission Line Construction Total [g]		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table 3.3-7. Construction Emissions Summary

Switching Station Construction							
General Construction	440	3.22	173.51	24.38	0.73	89.96	24.67
Civil Site Preparation	25	11.92~~13.80~~	138.83~~163.01~~	332.71~~418.29~~	1.08~~1.38~~	42.54~~50.07~~	16.82~~19.15~~
Building Foundations, Excavation, and Install	60	20.94~~23.50~~	241.65~~274.45~~	302.17~~418.26~~	0.78~~1.18~~	31.75~~41.97~~	16.15~~19.30~~
Remaining Equipment Foundations	40	9.81~~9.75~~	114.21~~113.45~~	101.06~~98.38~~	0.20~~0.19~~	11.32~~11.09~~	7.01~~6.94~~
Ground Grid and Conduits	20	6.11~~6.05~~	56.34~~55.58~~	59.44~~56.76~~	0.10~~0.09~~	6.55~~6.31~~	4.25~~4.18~~
Building Delivery and Erection	60	39.90	283.27	466.53	0.67	31.00	21.52
Set Series and Shunt Reactors on Pads	5	2.58	13.39	30.77	0.04	1.98	1.35
Screen Walls	10	6.43	46.29	74.35	0.10	4.53	3.40
Install GIS Equipment and Wire [h]	127	29.20	542.65	327.39	1.16	85.62	33.05
Install and Test Oil Pump House, Station Service Voltage Transformers	40	1.36	14.41	15.91	0.06	5.39	1.86
Testing and Commissioning	60	2.57	74.43	40.62	0.14	5.48	2.07
Exterior Walls, Final Grading, and Paving	47	10.25	120.33	110.75	0.22	12.29	7.42
Cleaning and Landscaping	20	4.94	58.32	52.88	0.11	6.44	3.72
Truck Drivers	9~~9~~7	1.02~~1.82~~	13.05~~23.37~~	46.20~~82.73~~	0.16~~0.29~~	4.07~~7.28~~	1.26~~2.25~~
Inspectors	440	0.31	19.22	1.71	0.07	9.82	2.67
Construction Trailers	480	0.00	0.00	0.00	0.00	0.00	0.00
2020 Switching Station Construction Total [g]		**78.07~~83.20~~**	**844.23~~910.01~~**	**1,164.96~~1,397.80~~**	**3.15~~3.95~~**	**164.16~~184.65~~**	**72.79~~79.12~~**
2021 Switching Station Construction Total [g]		**72.49**	**1,065.67**	**821.91**	**2.48**	**184.59**	**74.43**
2022 Switching Station Construction Total [g]		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Substation-Remote Ends Construction							
General Construction	100	0.63	32.97	4.96	0.14	17.14	4.71
Martin Series and Shunt Reactor Removal	60	7.07	62.53	83.80	0.21	16.18	6.23

Table 3.3-7. Construction Emissions Summary

Jefferson, Martin, and Embarcadero Indoor Work	40	0.13	8.08	0.73	0.03	3.82	1.04
Inspectors	60	0.02	1.31	0.12	0.01	0.67	0.18
Truck Drivers	~~40~~8	0.08~~0.18~~	1.08~~2.36~~	3.81~~8.36~~	0.01~~0.03~~	0.34~~0.74~~	0.10~~0.23~~
Construction Trailers	480	0.00	0.00	0.00	0.00	0.00	0.00
2020 Substation-Remote Ends Construction Total [g]		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
2021 Substation-Remote Ends Construction Total [g]		**5.40~~5.45~~**	**77.56~~78.20~~**	**62.56~~64.83~~**	**0.29~~0.30~~**	**28.93~~29.13~~**	**9.13~~9.19~~**
2022 Substation-Remote Ends Construction Total [g]		**2.53~~2.58~~**	**28.41~~29.06~~**	**30.87~~33.14~~**	**0.11~~0.11~~**	**9.21~~9.41~~**	**3.13~~3.19~~**

[a] Emissions presented do not account for implementation of APMs or mitigation measures. Even absent APMs AQ-1, 2, and 3, construction emissions are still below BAAQMD's significance thresholds.

[b] To facilitate comparison to BAAQMD's significance thresholds, the 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.

[c] 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.

[d] Maximum average daily emissions are provided in units of ton/day to allow comparison against the regional emissions inventory for the SFBAAB.

[e] Emissions presented are the sum of all emissions occurring within the construction phase, regardless of whether an activity is occurring sequentially or concurrently.

[f] PM_{10} and $PM_{2.5}$ emissions estimates for trenching include fugitive dust emissions associated with grading of an unpaved staging area located on Carter Street in Daly City. Although the use of this potential staging area is only being considered, emissions associated with its area disturbance are conservatively included for completeness.

[g] Emissions were allotted to specific years based on the preliminary construction schedule.

[h] The listing for Install GIS Equipment and Wire includes emissions from the following construction activities: Install GIS Equipment and Wire, Control Room and Battery Room Equipment, 230 kV Bus Work, 230 kV Cable Installation/Tie-in, and Dress/Test/Wire Equipment.

Note:

GIS = Geographic Information System

a) Would the project conflict with or obstruct implementation of the applicable air quality plan? *No Impact.*

Construction and Operation and Maintenance

As discussed in Section 3.3.2.1, BAAQMD has developed plans to achieve and/or maintain compliance with the federal and state air quality standards. The most recent of these plans is the CAP (BAAQMD, 2017e), adopted by BAAQMD's Board of Directors in April 2017, which provides an integrated, multi-pollutant control strategy to reduce emissions of ozone precursors (NOx and ROG), particulates, air toxics, and GHGs. Specifically, the CAP contains control measures for the following sectors: stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, water, and super-GHG pollutants.

The project would be consistent with the CAP 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 toxic air contaminant emissions, through reduced idling time of off-road vehicles; and APM AQ-3 contains measures encouraging the reduction of asbestos, which is considered a toxic air contaminant. Control measures for many of the other sectors, like stationary sources, are not applicable to the project given that it will not include any new stationary sources of criteria pollutants or toxic air contaminants. Operation of the project, including the switching station, does 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 project is not expected to emit toxic air contaminants (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 hp. To demonstrate compliance, PG&E will require its contractor use engines that have been registered through PERP 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 hp. 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 will implement APM AQ-2 to reduce tailpipe emissions of criteria and toxic air contaminants 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 will be used during construction, each piece of equipment is not expected to be used for more than one 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, will lie with the rental or leasing company, not PG&E.

Therefore, the project will not conflict with or obstruct implementation of the applicable air quality plan during construction, operation, or maintenance.

b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation? ***Less-than-significant Impact.***

Construction

The project's estimated construction emissions, summarized in Table 3.3-8 below, will be temporary and will only occur during limited portions of the 22-month construction period. As shown in Table 3.3-8, average daily emissions are less than the significance thresholds without implementation of APMs. Therefore, construction emissions will have a less-than-significant impact on air quality, and will not violate any air quality standard.

Table 3.3-8. Comparison of Construction Emissions to Significance Thresholds

	Average Daily Emissions (lb/day)					
	ROG	CO	NO_x	SO_x	PM_{10} [a]	$PM_{2.5}$ [a]
Maximum Average Daily Emissions [b, c]	3.09~~3.03~~	33.42~~32.55~~	35.37~~32.30~~	0.09~~0.08~~	3.79~~3.52~~	1.98~~1.89~~
BAAQMD Significance Thresholds	54	N/A	54	N/A	82	54
Significance Threshold Exceeded?	No	N/A	No	N/A	No	No

[a] 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.

[b] Emissions presented do not account for implementation of APMs or mitigation measures. Even absent APMs AQ-1, 2, and 3, construction emissions are still below BAAQMD's significance thresholds.

[c] To facilitate comparison to BAAQMD's significance thresholds, the 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.

Note:
N/A = Not applicable (i.e., a significance threshold does not exist for this pollutant)

Construction emissions will 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 will be less than significant if BMPs, such as those proposed in PG&E's APM AQ-1, are implemented (BAAQMD, 2017c).

Operation and Maintenance

Operation and maintenance of the project will be incorporated into existing PG&E activities such that emissions from project-related operation and maintenance activities will be negligible and, therefore, far less than the thresholds of significance shown in Table 3.3-6. Accordingly, operation and maintenance emissions will have a less-than-significant impact on air quality, and will not violate any air quality standard.

c) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? *Less-than-significant Impact.*

Construction

The project is located in an area that is designated non-attainment for the state and federal ozone and $PM_{2.5}$ ambient air quality standards and state PM_{10} ambient air quality standards. Project construction will not result in a cumulatively considerable net increase in the non-attainment pollutants (PM_{10}, $PM_{2.5}$, and the ozone precursors [NO_x and ROG]) because the emissions will be temporary and the average daily emissions are less than the significance thresholds, as summarized in Table 3.3-8. Therefore, construction emissions will have a less-than-significant impact on air quality and will not result in a cumulatively considerable net increase of non-attainment pollutants. Emissions will be further reduced below the significance thresholds with the implementation of APMs AQ-1 and AQ-2.

Operation and Maintenance

As discussed, operational and maintenance emissions are expected to be negligible and have a less-than-significant impact on air quality because operation and maintenance of the project will be incorporated into existing, ongoing PG&E activities. Therefore, operational and maintenance emissions will not result in a cumulatively considerable net increase of non-attainment pollutants.

d) Would the project expose sensitive receptors to substantial pollutant concentrations? *No Impact.*

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 all examples of sensitive receptors (BAAQMD, 2017c). Land use within 1,000 feet of the project, including identification of sensitive receptors, is presented on Figure 3.10-2 and 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, 2017c).

Hospitals. There are no hospitals located within 1,000 feet of Egbert Switching Station, the existing Martin Substation, nor any of the proposed transmission lines.

Schools. The freeze pit for the proposed Martin-Egbert transmission line is adjacent to the Martin Luther King Jr Academic Middle School, and two other schools are located within 1,000 feet from the freeze pit (Edward Robeson 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 from the existing Martin Substation (Garnet J Robertson Intermediate School and Mt Vernon Christian Academy).

Residences. To the northwest of Egbert Switching Station site is the Portola Place residential community. The closest residence to the switching station within this community is about 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 will occur in both highly industrialized areas and residential areas, with the nearest residential areas being approximately 50 feet away from the work area.

Because the project's construction emissions are short -term and, absent implementation of APMs, do not exceed BAAQMD's significance threshold for any criteria air pollutant, the project will not have a significant impact on the nearby sensitive receptors during construction.

Furthermore, as described in BAAQMD's CEQA Guidelines, the generation of toxic air contaminants would be temporary as a result of the variable nature of construction activities, "especially considering the short amount of time such equipment is typically within an influential distance that would result in the exposure of sensitive receptors to substantial concentrations" (BAAQMD, 2017c).

DPM is the only toxic air contaminant expected to be emitted during construction, in this case as a constituent of construction equipment exhaust. Based on Table 2-5-1 of BAAQMD Regulation 2-5, DPM contributes to cancer and chronic, noncancer risk, but not to acute, noncancer risk. "Current models and methodologies for conducting health risk assessments are associated with longer-term exposure periods of 9, 40, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities" (BAAQMD, 2017c). As a result, cancer and noncancer (chronic and acute) risks were not estimated from project construction. Although several schools and residences are located within 1,000 feet of the project construction areas, construction in a single area is not expected to last more than a few days at a time. In addition, "concentrations of mobile-source DPM emissions are typically reduced by 70 percent at a distance of approximately 500 feet" (BAAQMD, 2017c). It is also expected that implementation of APMs AQ-1 and AQ-2 and compliance with CARB's ATCM for DPM from Portable Engines Rated at 50 hp and Greater, as applicable, will reduce DPM emissions.

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

Operation and Maintenance

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

e) Would the project create objectionable odors affecting a substantial number of people?
No Impact.

Typical odor nuisances include H_2S, ammonia, chlorine, and other sulfide-related emissions. No significant sources of these pollutants will exist during construction. 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 will exist and activities will be short term, typically lasting a few days during construction and less than a day during operation and maintenance, there will be no impacts attributable to odor during construction, operation, or maintenance.

3.3.5 REFERENCES

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3.4 BIOLOGICAL RESOURCES

3.4.1 INTRODUCTION

This section describes biological resources (vegetation, fish, wildlife, and wetlands) in the project area, identifies potential impacts on sensitive habitats and species that could result from the implementation of the project, and concludes that impacts on biological resources will be less than significant. Incorporation of the APMs described in Section 3.4.4.2 will further minimize potential less-than-significant project impacts on biological resources. The project's potential effects on biological resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.4-1 and are discussed in more detail in Section 3.4.4. The technical biological report referenced in this section will be provided separately to CPUC staff.

Table 3.4-1. CEQA Checklist for Biological Resources

Would the project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

Table 3.4-1. CEQA Checklist for Biological Resources

Would the project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

3.4.2 REGULATORY BACKGROUND AND METHODOLOGY

3.4.2.1 Regulatory Background

This section summarizes existing federal, state, and local laws, policies, and regulations that pertain to biological resources.

Federal

<u>*Endangered Species Act*</u>

The federal ***Endangered Species Act (ESA) of 1973*** (16 United States Code [U.S.C.] 1531–1544)***, as amended,*** protects plants, fish, and wildlife that are listed as endangered or threatened by the U.S. Fish and Wildlife Service (USFWS) or the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries). Section 9 of the 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" (50 Code of Federal Regulations [CFR] 17.3). For plants, this statute prohibits removing, possessing, maliciously damaging, or destroying any listed plant under federal jurisdiction and removing, cutting, digging-up, damaging, or destroying any listed plant in knowing violation of state law (16 U.S.C. 1538).

The ESA allows for issuance of incidental take permits to private parties either in conjunction with a Habitat Conservation Plan (HCP) or as part of a Section 7 consultation (which is discussed in the following paragraph). Under Section 10 of the ESA, a private party may obtain incidental take coverage by preparing an HCP to cover target species within the project area, 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 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 (jeopardy) or adversely modify critical habitat (adverse modification). As part of the biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity, provided that the action will not jeopardize the continued existence of the species or adversely modify designated critical habitat.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. Sections 703–711) protects all migratory birds, including active nests and eggs. Birds protected under the MBTA include all native waterfowl, shorebirds, hawks, eagles, owls, doves, and other common birds such as ravens, crows, sparrows, finches, swallows, and others, including their body parts (for example feathers and plumes), active nests, and eggs. A complete list of protected species can be found in 50 CFR 10.13. Enforcement of the provisions of the federal MBTA is the responsibility of USFWS.

Waters and Wetlands: Clean Water Act Sections 401 and 404

The purpose of the Clean Water Act (CWA) (33 U.S.C. Section 1251 et seq.) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Waters of the United States include rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3).

The U.S. Army Corps of Engineers (USACE) 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 USACE. USEPA also has authority over wetlands and may, under Section 404(c), veto a USACE 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 3.9, Hydrology and Water Quality.

In 2015, the USACE and USEPA issued the Clean Water Rule (2015 Rule), intended to clarify areas under the jurisdiction of the CWA. The 2015 Rule was stayed in court rulings soon afterwards. On February 17, 2017, an Executive Order was issued regarding the 2015 Rule. The Executive Order and the subsequent USEPA and USACE Proposed Rule calls for the 2015 Rule to be reviewed and rescinded or revised per the Executive Order (USEPA, 2017).

State

California Endangered Species Act

Sections 2050–2098 of the California Fish and Game Code (the California Endangered Species Act [CESA]) prohibit the take of state-listed endangered and threatened species unless specifically authorized by the California Department of Fish and Wildlife [CDFW]). The state definition of "take" is to hunt, pursue, catch, capture, or kill a member of a listed species or attempt to do so. CDFW administers CESA and authorizes take through permits or memorandums of understanding issued under Section 2081 of CESA, or through a consistency determination issued under section 2080.1. Section 2090 of CESA requires state agencies to comply with threatened and endangered species protection and recovery and to promote conservation of these species.

Fully Protected Species under the Fish and Game Code

Fish and Game Code designates certain fish and wildlife species as "fully protected" under Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish). Fully protected species may not be taken or possessed at any time, and no permits may be issued to PG&E for incidental take of these species.3

Protection for Birds: Fish and Game Code

Fish and Game Code Section 3503 et seq. state that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 makes it unlawful to take, possess, or destroy any birds in the orders of Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird.

Native Plant Protection Act of 1973

The Native Plant Protection Act of 1973 (Fish and Game Code Sections 1900–1913) includes provisions that prohibit the taking of endangered or rare native plants. CDFW administers the Native Plant Protection Act of 1973 and generally regards as rare many plant species included on California Rare Plant Rank (CRPR) 1A, 1B, 2A, and 2B of the California Native Plant Society (CNPS) Inventory of Rare and Endangered Vascular Plants of California. In addition, sometimes CRPR 3 and 4 plants are considered if the population has local significance in the area and is impacted by the project.

Section 1913(b) includes a specific provision to allow for the incidental removal of endangered or rare plant species, if not otherwise salvaged by CDFW, within an ROW to allow a public utility to fulfill its obligation to provide service to the public.

California Species of Special Concern

Species of Special Concern (SSC) is a category conferred by CDFW to fish and wildlife species that meet the state definition of threatened or endangered, but have not been formally listed (e.g., federally or state-listed species), or are considered at risk of qualifying for threatened or endangered status in the future based on known threats. SSC is an administrative classification only, but these species should be considered "special-status" for the purposes of the CEQA analysis (see the Significance Criteria section of this document).

Porter-Cologne Water Quality Control Act

The State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCB) have jurisdiction over all surface water and groundwater in California, including wetlands, headwaters, and riparian areas. The SWRCB or applicable RWQCB must issue waste discharge requirements for any activity that discharges waste that could affect the quality of waters of the state, as described in more detail in Section 3.9, Hydrology and Water Quality.

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3 While take of fully protected species may be authorized by CDFW under a Natural Communities Conservation Plan, PG&E activities are not covered by a Natural Communities Conservation Plan so this permitting option is not available.

McAteer-Petris Act of 1965 (CGC §§ 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 specifies goals, objectives, and policies for existing and proposed waterfront land use and other areas under the jurisdiction of BCDC (BCDC, 2011).

Local

This section includes a summary of local or regional plans, policies, or regulations that identify sensitive or special-status species in the project area, as well as local polices or ordinances that protect biological resources. Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary regulations related to biological resources. 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 which 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:

- 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 (Article 16 of the Public Works Code) 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 (2030 General Plan) was adopted in 2013 and contains a Resource Management Element (RME) which provides the framework for management and protection of vegetation and wildlife. The following policies are relevant to the protection of vegetation and wildlife:

- 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 of the City of Brisbane General Plan present a number of policies and programs relating to the protection of the City's natural resources. The General Plan includes policies to preserve 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 Tree Ordinance

Under Title 12, Chapter 12.12 of the City'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. Protected trees are defined by the Municipal Code in Section 12.12.020. Pursuant to Exemption 3 of Section 12.12.040 of the Municipal Code, for existing facilities, PG&E, as a public utility that is 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.

San Bruno Mountain Habitat Conservation Plan

The SBM HCP was adopted in 1983 to protect and improve habitat for several species of endangered species. 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 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 and 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.

3.4.2.2 Methodology

This section summarizes the methods used to identify and analyze potential impacts on special-status species that may occur in the project area. As described below, biologists began their research with database searches and literature reviews to determine which special-status plants, natural communities, and wildlife might have potential to occur in the project area. Using this information, the biologists conducted field surveys of the biological resources survey area, as defined below. A more detailed description of these methods is provided in the project's Biological Resources Technical Report, which will be provided separately to CPUC staff.

Species Considered to be of Special Status

Special-status species include those that are:

- Listed or candidates for listing as rare, threatened or endangered under the federal ESA or CESA
- Plants included in the online version of the CNPS Inventory of Rare and Endangered Plants of California as CRPR 1A, 1B, 2A, or 2B
- Fish or wildlife designated as an SSC or a fully protected species by the CDFW
- Migratory birds with active nests, defined as containing eggs or dependent young

Natural communities were considered to be special-status if they were identified on the most recent CDFW List of Vegetation Alliances and Associations as being highly imperiled.

Database Searches

The following biological databases were queried for records of special-status plants, natural communities, and wildlife that might have potential to occur in the project area:

- USFWS list of federally listed and proposed endangered, threatened, and candidate species and their designated critical habitat (USFWS, 2017a)
- CNPS online Inventory of Rare and Endangered Vascular Plants of California
- California Natural Diversity Database (CNDDB)

A CNDDB database search for special-status species typically includes nine USGS 7.5-minute quadrangle maps for a project located within a single quadrangle—the quadrangle that covers the project area, and the eight quadrangles that surround the project quadrangle. For this project, however, a CNDDB database search was conducted for a 5-mile radius around the project area (defined here as the areas disturbed by project activities) as this records search identified a more appropriate range of species than those identified in a ninequad search (CNDDB, 2017), given the project is within a mile of San Francisco Bay and bay-related species and habitat are not found in the project area. The USFWS database was queried using the USFWS Information Planning and Consultation (IPaC) tool for the project area (USFWS 2017b). The CNPS database was queried for the San Francisco North and San Francisco South quadrangles (CNPS, 2017).

Other information sources consulted to determine which special-status species could potentially occur in the project footprint (areas disturbed by the project including temporary work space) included:

- The Brisbane Baylands EIR (Brisbane, 2015)
- SBM HCP (1983)
- Soil maps (Natural Resources Conservation Service [NRCS], 2017)
- CDFW's List of Vegetation Alliances and Associations
- Aerial photographs

Field Surveys

The biological resources survey area is shown on detailed route maps in the Biological Resources Technical Report (provided separately to CPUC staff) and include a 300-foot-wide corridor centered on the proposed Jefferson-Egbert, Egbert-Embarcadero, and Martin-Egbert transmission lines (Figure 3.4-1). Sites located outside of the 300-foot-wide corridor including potential staging areas and temporary line immobilization pit work locations included a survey radius of at least 50 feet to allow flexibility for minor adjustments during construction. As described below, biologists conducted reconnaissance surveys of all relevant non-developed areas in the biological resources survey area.

Reconnaissance Surveys

General biological reconnaissance surveys entailed windshield surveys in developed areas and walking and meandering surveys in publicly accessible non-developed portions of the biological resources survey area (as defined previously), and surveying areas that appeared to support potential habitat for special-status species as identified in desktop-level reviews. The following tasks were conducted during the reconnaissance-level surveys:

- Plant communities and habitat types were identified in the biological resources survey area and evaluated for special-status plant suitability.
- Baseline data was reviewed for wildlife special-status species. Uplands and aquatic features in the biological resources survey area were evaluated to determine habitat suitability. Potential habitat for various special-status species was observed and recorded.

Likelihood of Presence for Special-Status Species

Using the information generated from literature reviews and field surveys, the list of special-status species with the potential to occur was further refined to reflect the species that may occur within the project area. The likelihood of special-status species occurrence was determined based on natural history parameters, including but not limited to, the species' range, habitat, foraging needs, migration routes, and reproductive requirements, using the following general categories:

- *Present* – Reconnaissance-level surveys documented the occurrence or observation of a species in the project area.
- *Seasonally present* – Individuals were observed in the project area only during certain times of the year.
- *Likely to occur (on site)* – The species has a strong likelihood to be found in the project area prior to or during construction but has not been directly observed to date during project surveys. The likelihood that a species may occur is based on the following considerations: suitable habitat that meets the life history requirements of the species is present on or near the project area; migration routes or corridors are near or within the project area; records of sighting are documented on or near the project area; and there is an absence of invasive predators (e.g., bullfrogs). The main assumption is that records of occurrence have been documented within or near the project area, the project area falls within the range of the species, suitable habitat is present, but it is undetermined whether the habitat is currently occupied.

Insert

Figure 3.4-1 Biological Survey Area

- *Potential to occur* – There is a possibility that the species can be found in the project area prior to or during construction, but has not been directly observed to date. The likelihood that a species may occur is based on the following conditions: suitable habitat that meets the life history requirements of the species is present on or near the project area; migration routes or corridors are near or within the project area; and there is an absence of invasive predators (e.g., bullfrogs). The main assumption is that the project area falls within the range of the species, suitable habitat is present, but no records of sighting are located within or near the project area and it is undetermined whether the habitat is currently occupied.

- *Unlikely to occur* – The species is not likely to occur in the project area based on the following considerations: lack of suitable habitat and features that are required to satisfy the life history requirements of the species (e.g., absence of foraging habitat; lack of reproductive areas, and lack of sheltering areas); presence of barriers to migration/dispersal; presence of predators or invasive species that inhibit survival or occupation (e.g., the presence of bullfrogs or invasive fishes); lack of hibernacula, hibernation areas, or estivation areas on-site.

- *Absent* – Suitable habitat does not exist in the project area, the species is restricted to or known to be present only within a specific area outside of the project area, or focused or protocol-level surveys did not detect the species.

Unless otherwise noted, the methodology and environmental information presented in this section are summarized the Biological Resources Technical Report (provided separately to CPUC staff).

3.4.3 ENVIRONMENTAL SETTING

The project is generally located in an urban area with industrial, commercial, and residential land uses. Portions of the proposed transmission line routes are adjacent to undeveloped areas such as urban parks, San Bruno Mountain, or roadside embankments.

3.4.3.1 Regional Setting

The proposed switching station and transmission lines are located in the generally developed northeastern portion of the San Francisco Peninsula (peninsula), extending from the north flank of San Bruno Mountain roughly three miles to the proposed Egbert Switching Station. San Francisco Bay and its associated shoreline and marshes lie to the east; the project area is located to the west of these resources in developed areas.

San Bruno Mountain, at the south end of the project area, harbors rare plants and butterflies associated with its serpentine soils. The SBM HCP controls management of the mountain area. One transmission line, the Jefferson-Egbert transmission line, would run underground in Carter Road to Guadalupe Canyon Parkway on the north base of the mountain.

Approximately one to three staging areas totaling up to approximately 15 acres will be identified for use once a construction contractor is selected. While staging areas will be determined based on availability at the time of construction as described in Section 2.7.1.1, potential staging areas have been preliminarily identified (Figure 2.7-1). Two potential staging areas are adjacent to the proposed Jefferson-Egbert line along Carter Street (potential Carter Street staging area) near 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 (Port's) Southern Waterfront off Amador Street, a heavily industrialized area.

3.4.3.2 Local Setting

The site for the proposed Egbert Switching Station is located at 1755 Egbert Avenue in San Francisco. This site is heavily disturbed and covered in gravel, and is currently occupied by a lumber staging yard. There is no native vegetation present within this site. The surrounding areas are developed with a blend of industrial, commercial, and residential land uses.

The proposed routes for the Martin-Egbert and Egbert-Embarcadero transmission lines are located entirely within developed and paved surfaces within San Francisco. The proposed Jefferson-Egbert transmission line is located in paved surfaces for the majority of the route and passes through the cities of San Francisco, Daly City, and Brisbane. A portion of this route passes through John McLaren Park and in the vicinity of San Bruno Mountain, undergrounded in paved streets and/or sidewalks. Undeveloped areas found adjacent to portions of the paved route support a mixture of non-native annual grassland, scrub/chaparral habitats, non-native woodland, and closed-cone conifer/coast live oak woodland.

Martin Substation is an existing substation located at 3150 Geneva Avenue in Daly City. This substation is developed and covered in pavement or gravel. There is no native vegetation 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.

The potential staging areas at Martin Substation are within the fenced boundary of the substation. These areas are heavily disturbed, are either covered in gravel or paved, and have multiple buildings located within these areas.

The potential Cow Palace staging area is in a paved parking lot associated with the Cow Palace. The potential Carter Street staging area was previously used as a drive-in movie theater, but this is no longer in operation. This area was covered in gravel and in use as a laydown and staging area at the time the biological reconnaissance surveys were conducted. This potential staging area is bounded by parking lots to the north and east, and a vegetated area ranging in width from 200 to 600 feet is found to the south and west. On the opposite side of this vegetated area are paved roads, residential developments, and golf courses that separate this area from the nearest native plant communities on San Bruno Mountain.

The potential Amador Street staging areas are located in the Southern Waterfront industrial area owned by the Port. 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. These piers are paved and have no natural vegetation. The northern area, the Amador Yard, is also within the Port's Southern Waterfront in an area used by PG&E and approved by the Port and CPUC for the previous Embarcadero-Potrero project. This area is heavily disturbed, has been previously used for staging Port and PG&E projects, and is covered with gravel with only sparse, ruderal vegetation present. It lies west of the BCDC 100-foot shoreline band. The San Francisco Bay and the Pier 94 wetland restoration area are found on the eastern side of the Amador Yard, and industrial uses including a concrete batch plant and materials storage surround the potential staging area on the north, west, and south.

Landcover, Vegetation, and Wildlife Habitats

No natural vegetation community types occur within the areas that will be impacted by the project. The project components are all located in city streets or highly disturbed areas within the cities of San Francisco, Daly City, and Brisbane. The project area is largely urbanized, with biological resources limited to street trees and a very few isolated, extremely disturbed patches of ruderal habitat in the vicinity of the proposed Egbert Switching Station.

The proposed routes for the Martin-Egbert and Egbert-Embarcadero transmission lines, as well as the temporary line immobilization pit work locations required to connect these lines with the existing transmission lines, are all within paved surfaces that are surrounded by highly developed areas.

The proposed route for the Jefferson-Egbert transmission line is under paved street surfaces when passing through San Bruno Mountain State and County Park (Guadalupe Canyon Parkway and Carter Street) and John McLaren Park (Visitacion Avenue). Areas in San Bruno Mountain State and County 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 woodland, and landscaped areas associated with the Gleneagles Golf Course. Portions of the area adjacent to the route have large stands of blue gum eucalyptus (*Eucalyptus globulus*), and Monterey cypress (*Cupressus macrocarpa*), as well as smaller coast live oak (*Quercus agrifolia*), and pine (*Pinus* sp.) trees. The proposed route for the Jefferson-Egbert transmission line in proximity to San Bruno Mountain passes through coastal scrub and chaparral communities that are dominated by coyote brush (*Baccharis pilularis*), California sagebrush (*Artemisia californica*), California coffeeberry (*Rhamnus californica*), and poison oak (*Toxicodendron diversilobum*). Critical habitat for Franciscan manzanita (*Arctostaphylos franciscana*) is also located within John McLaren Park in proximity to the route. These critical habitat areas are shown on Figure 3.4-2.

Vegetation along urbanized portions of the proposed Jefferson-Egbert transmission line route, the parcel immediately south of the proposed Egbert Switching Station, and the potential Cow Palace staging area are limited to ruderal vegetation, landscaping, and street trees including sycamores (*Platanus* sp.), blue gum eucalyptus, acacia (*Acacia* sp.), Chinese elm (*Ulmus parvifolia*), privet (*Lingustrum* sp.), pine (*Pinus* sp.), magnolia (*Magnolia* sp.), and myoporum (*Myoporum laetum*). These areas have a limited potential to support nesting birds seasonally.

Immediately south of the proposed Egbert Switching Station, the proposed route for the Jefferson-Egbert transmission line passes through a parcel that was previously developed, and now has two unoccupied buildings with some paved areas and is otherwise dominated by ruderal vegetation including non-native annual grasses, pampas grass (*Cortaderia selloana*), summer mustard (*Hirschfeldia incana*), and fennel (*Foeniculum vulgare*). Based on review of historic aerial imagery, a large building was removed from this site in early 2016.

Insert

Figure 3.4-2 Critical Habitats

The potential Carter Street staging area was covered in gravel at the time of the biological reconnaissance surveys. The surrounding areas are dominated by blue gum eucalyptus and a blend of invasive scrub and coastal scrub species.

The potential Martin Substation and Amador Street staging areas are covered by a combination of gravel and pavement, and have only sparse ruderal vegetation scattered throughout the sites. This vegetation includes ripgut brome (*Bromus diandrus*), telegraph weed (*Heterotheca grandiflora*), mustard (*Brassica rapa*), fennel (*Foeniculum vulgare*), dove weed (*Croton setigerus),* English plantain (*Plantago lanceolata*), and wild radish (*Raphanus raphanistrum*). Outside of the fenced boundary to the east at the potential Amador Street staging areas is coastal scrub habitat that is dominated by annual grasses, coyote brush, acacia, and California coffeeberry.

Wetlands and Aquatic Resources

There are no wetland features mapped in the USFWS National Wetlands Inventory (NWI) or USGS's National Hydrography Dataset within the project area (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 project's reconnaissance surveys. One of the riverine intermittent streambeds has two arms. The western arm 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 arm flows downslope, passes under Guadalupe Canyon Parkway in a culvert, and upon daylighting flows approximately 300 feet downslope where it connects with a concrete lined ditch. The eastern arm of this 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 Martin Substation, outside the fenced area where work would occur. The wetland feature, identified as a palustrine emergent persistent wetland, is located immediately north of this second riverine intermittent streambed, and is also outside of the fenced area where work would occur (Figure 3.4-3).

Two other NWI and National Hydrography Dataset features are within 600 feet of the project area, outside of the biological resources survey area. These are both riverine intermittent streambeds, one of which is within the Gleneagles golf course in John McLaren Park, and the other is located on the east side of John F. Shelley Drive and originates near where this road intersects with Mansell Street. This feature terminates at John McLaren Park Reservoir.

Special-Status Species

This section describes special-status species observed (present) during project reconnaissance-level field surveys and any species considered to be likely to occur, have potential to occur, or that are seasonally present. Special-status species that are unlikely to be found in the project area are not discussed in this section.

Insert

Figure 3.4-3 National Wetlands Inventory Mapping for the Project Area

The CNDDB, USFWS, and CNPS database searches identified 64 special-status species within the vicinity of the project (Section 3.4.2.2 Methodology). The mapping of CNDDB records of plants and wildlife, database results, and summary of records for special-status plant and wildlife species are provided separately for CPUC staff.

Special-Status Plant Species

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. As all impacts associated with the proposed Egbert Switching Station, proposed transmission line routes, and the potential Amador, Cow Palace, and Martin staging areas are on or under paved surfaces or in ruderal habitat in highly urban areas, there is no potential for special-status plants to occur in the project area.

The potential Carter Street staging area is a mostly graveled area with ruderal vegetation, and was not accessible during biological surveys. During the biological reconnaissance surveys, this site was covered with gravel and in use as a laydown and staging area, and was historically used as a drive-in movie theater. Although the site is highly unlikely to support any rare plants, a pre-construction survey will be conducted should this site be chosen as a work area. Any areas supporting rare plants will be avoided.

Special-Status Wildlife Species

Based on field reconnaissance surveys, the project area does not provide suitable habitat for 20 of the 25 special-status wildlife species, and another 2 of the 25 species are unlikely to occur because of the developed and urban nature of the project area. Three special-status wildlife species could potentially occur in the project area: white-tailed kite (*Elanus leucurus*), American peregrine falcon (*Falco peregrinus anatum*), and American badger (*Taxidea taxus*).

White-tailed kite

The white-tailed kite 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 area; however white-tailed kites are known to occur in the San Francisco Bay region, and may occasionally pass through the project area. 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 area.

American peregrine falcon

The habitat of the American peregrine falcon includes many terrestrial biomes which may include urban and developed areas. Most often, breeding American peregrine falcons utilize habitats containing cliffs and almost always nest near water (Wheeler, 2003; White et al., 2002). Peregrine falcons generally utilize open habitats for foraging, but are also known to forage and occur in densely populated areas. Many artificial habitats like towers, bridges and buildings are also utilized by this species (White et al., 2002). Prey mainly consists of birds ranging from small passerines to mid-sized waterfowl; juveniles primarily feed on large flying insects (Wheeler, 2003). Peregrine falcons are known to nest in San Francisco at various locations including 77 Beale Street and the former Potrero Power Plant. San Bruno Mountain may contain suitable nesting habitat, and this species may forage in the vicinity of the project area.

American badger

American badger 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. A badger will typically have a large home range and spend inactive periods in underground burrows. 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. The nearest documented record in the CNDDB is within Golden Gate Park approximately 5 miles to the northwest, but separated from the project by dense urban development. There is also 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 SBM HCP (SBM HCP, 2017). If this species occurs on San Bruno Mountain, individuals may forage in the vicinity of the project area, and may occasionally cross Carter Street and Guadalupe Canyon Parkway during foraging and dispersal movements.

Other Migratory Birds and Nesting Raptors

Non-listed migratory bird species or raptors can establish nests in suitable habitat in the project area. The nesting season for migratory birds and raptors generally occurs between February 15 and August 31. Because of the street trees, landscaping, and other nesting substrate present in the vicinity of the project area, there is potential for passerine and raptors to nest in or near the project area.

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 (Figure 3.4-4). The project is not seeking coverage under the SBM HCP.

3.4.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for impacts related to biological resources derived from Appendix G of the CEQA Guidelines, provide APMs to reduce impacts, and assess potential project-related construction and operational impacts on biological resources.

3.4.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project-related impacts on biological resources were evaluated for each of the criteria listed in Table 3.4-1, as discussed in Section 3.4.4.3.

Insert

Figure 3.4-4 Guadalupe Hills Planning Area Management Units for the San Bruno Mountain Habitat Conservation Plan

3.4.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

APM Biological Resources (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.

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.

3.4.4.3 Potential Impacts

Potential project impacts on biological resources were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and operation and maintenance phase.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and will extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? *Less-than-significant Impact.*

Temporary construction-related impacts (such as elevated noise, human activity, increased turbidity, and ground vibrations) may have a limited impact on wildlife use of the project area. No direct or indirect impacts to special-status species are anticipated, as no suitable habitat for special-status species will be impacted. There is a limited potential for white-tailed kite, American peregrine falcon, migratory birds, and American badger to be present in the project area while foraging.

Raptors and/or migratory birds, including special-status species such as white-tailed kite and American peregrine falcon, have potential to nest near the project area. Nesting birds may be adversely affected if construction activities occur near active nests during the breeding season. Direct impacts could include nest destruction or removal during vegetation trimming or removal activities to provide construction equipment access. Indirect impacts could include nest abandonment or premature fledging from construction-related activities, noise, and/or vibration (for example, from heavy equipment, vehicles, generators, and human presence). All of the project area is within paved surfaces with the exception of the ruderal habitat immediately south of the proposed Egbert Switching Station, which the proposed Jefferson-Egbert transmission line passes through. As the project area is within paved surfaces or in ruderal habitat that is surrounded by urban areas, there is a limited potential for nesting birds to occur, and the potential for impacts is low. Portions of the proposed Jefferson-Egbert route pass through San Bruno Mountain State and County Park and John McLaren Park, which have suitable habitat for foraging white-tailed kite and American peregrine falcon; construction in already disturbed roads and paved areas would not be excepted to alter foraging. Similarly, work within the Martin Substation boundary would not affect foraging birds. The indirect impact from construction-related noise and vibration will be temporary and will occur only during construction. APM BIO-1 and APM BIO-2 will further reduce the less than significant impact level on raptors and/or migratory birds including special-status species such as white-tailed kite and American peregrine falcon.

American badger has the potential to occur on San Bruno Mountain in the vicinity of the proposed Jefferson-Egbert transmission line. This species is most abundant in drier open stages of shrub, forest, and herbaceous habitats with friable soils that have an abundance of burrowing mammals to prey upon. They often spend inactive periods underground in burrows and dens. As the project area in the vicinity of San Bruno Mountain is on paved surfaces, impacts to American badger are not expected, but this species could potentially pass through the work areas while foraging or dispersing. Implementation of APM BIO-1 will further reduce the less than significant impact level.

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, as all areas that will be impacted are on or under paved surfaces or highly disturbed ruderal areas, with no suitable habitat for rare plants. 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 this staging area is used for the project, surveys will be conducted as described in APM BIO-3 and rare plants will be avoided. This will further reduce the less-than-significant impact.

No impacts to special-status species are expected during operation and maintenance activities, as these will occur within paved or highly disturbed areas with no potential for rare plants.

b) Would the project 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 Game or U.S. Fish and Wildlife Service? *No Impact.*

No riparian habitat or sensitive natural community types are present in the project area, therefore, no construction or operation and maintenance impact will occur. Neither of the arms of the drainage on San Bruno Mountain will be directly affected by the project, as it is anticipated that line will go under or above the culvert in Guadalupe Canyon Parkway, depending on the depth of cover required and the diameter of the culvert. All work activities in proximity will be underground within paved surfaces. No riparian habitat is associated with this drainage. Erosion control measures and the Stormwater Pollution Prevention Plan (SWPPP) that will be implemented (Section 3.9 Hydrology) will minimize any indirect impacts within nearby drainages. No construction or operation and maintenance impact will 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.

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? *No Impact.*

No potential wetlands or other areas defined by Section 404 of the CWA are present within the project area. No removal, filling, or other hydrologic alteration of wetlands or other aquatic resources will occur; therefore, therefore, no construction or operation and maintenance impact will occur.

d) Would the project 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? *No Impact.*

The majority of the project area is highly developed with few opportunities for wildlife movement or migration with the exception of birds. In the vicinity of San Bruno Mountain State and County Park and John McLaren Park, there is potential for limited local wildlife movement, but no migratory movements are expected because of surrounding development. In addition, all construction and operation and maintenance activities in the vicinity of both parks will be within existing paved roads that are heavily traveled. Therefore, the project will not interfere substantially with the movement of any native resident wildlife species, nor impede the use of any wildlife nursery sites. The project will not include any in-water construction and, therefore, will not interfere with the movement of migratory fish. No impact will occur during either the project's construction phase or operation and maintenance phase.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? *No Impact.*

The project's design is compatible with the goals for habitat and biological resources in the General Plans for San Francisco, Daly City, and Brisbane. The project does not conflict with the San Francisco Urban Forestry Ordinance, or City of San Bruno Tree Ordinance. No construction or operation and maintenance impact will occur.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? *No Impact.*

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 management units and no construction or operation and maintenance activities will occur off paved or disturbed surfaces, therefore, no conflicts or impact will occur.

3.4.5 REFERENCES

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3.5 CULTURAL RESOURCES

3.5.1 INTRODUCTION

This section describes existing conditions and potential impacts on cultural and paleontological resources as a result of construction, operation, and maintenance of the project. It presents the methods and results of cultural and paleontological resources studies of the project area. Known cultural resources within the project area of potential effect (APE) include two resources. The analysis concludes that impacts to cultural and paleontological resources will be less than significant with incorporation of the APMs described in Section 3.5.4.2. The project's potential effects on cultural and paleontological resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.5-1 and discussed in more detail in Section 3.5.4. The following summary concerning cultural and paleontological resources is derived from the technical reports (Conserva, 2017; Waechter, 2017) that will be provided separately to the CPUC.

Table 3.5-1. CEQA Checklist for Cultural and Paleontological Resources

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☐	☒	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

3.5.2 REGULATORY BACKGROUND AND METHODOLOGY

3.5.2.1 Regulatory Background

State

California Register of Historical Resources

Under Section 21083.2 of CEQA, an important archaeological or historical resource is an object, artifact, structure, or site that is listed on, or eligible for listing on, the California Register of Historical Resources (CRHR). Eligible resources are those that can be clearly shown to meet any 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 value; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

Automatic listings include properties that are listed on the National Register of Historic Places (NRHP). In addition, Points of Historical Interest nominated from January 1998 onward are to be jointly listed as Points of Historical Interest and in the CRHR.

Resources listed in a local historic register or deemed significant in an historical resources survey, as provided under PRC Section 5024.1(g), are presumed to be historically or culturally significant unless the preponderance of evidence demonstrates that they are not. A resource that is not listed on or determined to be ineligible for listing on the CRHR, not included in a local register of historical resources, or not deemed significant in an historical resources survey may nonetheless be historically significant, as determined by the lead agency (PRC Section 21084.1 and Section 21098.1).

Assembly Bill 52

AB 52 established that Tribal Cultural Resources (TCRs) must be considered under CEQA and also provided for additional Native American consultation requirements for the lead agency. A TCR is a site, feature, place, cultural landscape, sacred place, or object that is considered of cultural value to a California Native American Tribe. A TCR is either:

1. On the CRHR or a local historic register;
2. Eligible for the CRHR or a local historic register; or
3. Determined by the lead agency to meet the register criteria.

A project that has potential to impact a TCR 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. Consultation with the California Native American Heritage Commission (NAHC) and the local Native American community has identified no TCRs in the project APEs.

California Health and Safety Code and Public Resources Code

Broad provisions for the protection of Native American cultural resources are contained in the California Health and Safety Code, Division 7, Part 2, Chapter 5 (Sections 8010 through 8030).

Several provisions of the PRC also govern archaeological finds of human remains and associated objects. Procedures are detailed under PRC Section 5097.98 through 5097.996 for actions to be taken whenever Native American remains are discovered. Furthermore, Section 7050.5 of the California Health and Safety Code states that any person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the PRC. Any person removing human remains without authority of law or written permission of the person or persons having the right to control the remains under PRC Section 7100 has committed a public offense that is punishable by imprisonment.

PRC Chapter 1.7, Section 5097.5/5097.9 (Stats. 1965, c. 1136, p. 2792), entitled Archaeological, Paleontological, and Historical Sites, defines any unauthorized disturbance or removal of a fossil site or remains on public land as a misdemeanor and specifies that state agencies may undertake surveys, excavations, or other operations as necessary on state lands to preserve or record paleontological resources.

Local

Background research indicated that no cultural resources designated for local listing are located in the project area. Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the 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.

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. City Historic Districts are composed of thematically related significant resources. City of San Francisco 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 City Historic Districts, and 6 City 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 also provide legal compliance guidelines with respect to cultural resources (San Francisco Planning Department, 2012).

Daly City General Plan

The RME of the City of Daly City's General Plan (City of Daly City, Department of Economic and Community Development, 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) deals with cultural resources, which it defines as "historical resources, which include structures over 50 years old, and prehistoric resources, generally archeological sites." The General Plan states as follows:

> 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's policies for management of these resources are as follows:

Policy 136 Entourage [sic] 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.

3.5.2.2 Methodology

Cultural Resources

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 mile) of the project area, or study area. The following sources were consulted during the records search:

- NWIC basemaps, USGS 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 area
- California Department of Parks and Recreation's *California Inventory of Historic Resources* (CA-OHP1976a) 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-OHP1976b), and those that are listed in or determined eligible for listing in the NRHP or the CRHR

- Historical General Land Office plats and land grant maps (*diseños*) for the project area

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 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 will be 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 will 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 will involve no ground disturbance and no 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 NAHC on May 18, 2017. The Commission 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.

Paleontological Resources

The Society for Vertebrate Paleontology (SVP) is a scientific organization of professional paleontologists that has established standard guidelines (1996, 2010) for professional practices regarding paleontological resource assessments and surveys; monitoring and mitigation; data and fossil recovery; sampling procedures, specimen preparation, identification, and analysis; and museum curation. These guidelines were developed at an institutional level that is dedicated to scholarship and education rather than resource management. Nevertheless, professional paleontologists generally rely on SVP guidance when complying with federal and state regulations. PG&E assumes that professional paleontologists will follow SVP guidance where applicable; however, in the event of conflicts, the guidelines herein shall supersede SVP protocols on PG&E projects.

Existing Information Review

This analysis was performed by reviewing scientific literature and querying online databases, including the University of California at Berkeley Museum of Paleontology (UCMP, 2017), to identify previous paleontological finds in the project vicinity. In addition, geological maps, 7.5-minute USGS topographic maps, Google Earth imagery, and digital elevation data were reviewed to determine the physiographic and geologic context of the project site and vicinity.

The online and print databases were reviewed for macrofossil (i.e., plant, vertebrate, and invertebrate fossil) localities for San Francisco and San Mateo Counties (Jefferson, 1991; Paleobiology Database, 2017; UCMP, 2017).

Paleontological Significance and Sensitivity

Definitions of significance and sensitivity used are based on the Federal Land Management and Policy Act of 1976 as well as standards developed by agencies and professional societies including the Bureau of Land Management (BLM), SVP, and Caltrans (PG&E, 2014).

Definition of Significance and Significance Criteria

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.

The significance of fossils refers to scientific importance. The Federal Land Management and Policy Act of 1976 defines significant fossils as unique, rare, or particularly well preserved; an unusual assemblage of common fossils; or providing important new data concerning several key research interests in the study of evolution.

PG&E (2014) considers a fossil to be significant if it is identifiable and well preserved, and if it meets one of the following criteria:

- A type specimen (i.e., the individual from which a species or subspecies has been described)
- A member of a rare species
- A species that is part of a diverse assemblage (i.e., a site where more than one fossil has been discovered) wherein other species are also identifiable, and from which important information regarding life histories of individuals can be drawn
- An element different from, or more complete than, those now available for its species
- A complete specimen

More specifically, PG&E uses the following research criteria to determine whether a fossil is significant:

- Taxonomy: fossils that are scientifically judged to be important for representing rare or unknown taxa, such as defining a new species
- Evolution: fossils that are scientifically judged to represent important stages in evolutionary relationships, to fill gaps, or to enhance under-represented intervals in the stratigraphic record
- Biostratigraphy: fossils that are scientifically judged to be important for determining or constraining relative geologic age, or for use in regional to interregional stratigraphic correlation
- Paleoecology: fossils that are scientifically judged to be important for reconstructing ancient organism community structure and interpretation of ancient sedimentary environment
- Taphonomy: fossils that are scientifically judged to be exceptionally well or unusually or uniquely preserved, or are relatively rare in the stratigraphy

Definition of Sensitivity and Sensitivity Criteria

To address what would constitute significant impact to paleontological resources, PG&E uses the Potential Fossil Yield Classification System (PFYC) developed by BLM to assess paleontological sensitivity and level of effort required to manage potential impacts to significant resources (Table 3.5-2). 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), 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.

Table 3.5-2. Paleontological Sensitivity Ratings Employed for the Project

Categories of Paleontological Sensitivity	Definition
Class 1—Very Low	These geologic units are not likely to contain fossil remains. They include the following: • Igneous or metamorphic units • Units Precambrian in age or older • Artificial or imported fill material
Class 2—Low	These sedimentary geologic units are not likely to contain vertebrate or scientifically significant nonvertebrate 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 • Sediments that exhibit significant physical and chemical changes
Class 3—Moderate or Unknown	These are fossiliferous sedimentary geologic units where fossil content varies in significance, abundance, and occurrence; or sedimentary units of unknown fossil potential. These units are broken down into sub-classifications and exhibit the following characteristics: ***Class 3a – Moderate Potential*** • Marine in origin with sporadic occurrences of vertebrate fossils • Vertebrate and scientifically significant invertebrate or plant fossils occur intermittently, with low predictability The potential to impact a significant fossil is relatively low, although there is potential to impact common fossils. ***Class 3b – Unknown Potential*** • Exhibits features and conditions that suggest significant fossils could be present, but is poorly studied and/or poorly documented The potential to impact a significant fossil is unknown. Potential yield cannot be assigned without additional assessment.
Class 4—High	These are geologic units with a high occurrence of significant fossils. Vertebrate fossils or scientifically significant invertebrate or plant fossils are known and have been documented, but may vary in occurrence and predictability. Ground-disturbing activities have the potential to adversely affect resources if present. These units are broken down into sub-classifications and exhibit the following characteristics: ***Class 4a – High Exposed*** • Unit is exposed with little or no soil or vegetative cover • Extensive outcrop areas with exposed bedrock The potential for encountering or disturbing a significant paleontological resource is moderate to high. ***Class 4b – High Buried*** • Bedrock has high potential, but has moderating circumstances • Extensive soil or vegetation cover present; bedrock exposures are limited or not expected to be impacted

Table 3.5-2. Paleontological Sensitivity Ratings Employed for the Project

Categories of Paleontological Sensitivity	Definition
	• Areas of exposed outcrop are smaller than two contiguous acres • Outcrops forming cliffs of sufficient height and slope so that impacts are minimized by topography • Other characteristics are present that lower the vulnerability of known and unidentified paleontological resources The potential for encountering or disturbing a significant paleontological resource is moderate to high, but may be reduced by other environmental factors.
Class 5—Very High	These geologic units consistently and predictably produce vertebrate or scientifically significant invertebrate or plant fossils. Significant fossils are known and can be reasonably expected to occur within the impacted area. Ground-disturbing activities have the potential to adversely affect resources if present. These units are broken down into sub-classifications and exhibit the following characteristics: ***Class 5a – Very High Exposed*** • Unit is exposed with little or no soil or vegetative cover • Extensive outcrop areas with exposed bedrock • Frequent exposure and collection of fossils The potential for encountering or disturbing a significant paleontological resource is high. ***Class 5b – Very High Buried*** • Bedrock has very high potential, but has moderating circumstances • Extensive soil or vegetation cover present; bedrock exposures are limited or not expected to be impacted • Areas of exposed outcrop are smaller than two contiguous acres • Outcrops forming cliffs of sufficient height and slope so that impacts are minimized by topography • Other characteristics are present that lower the vulnerability of known and unidentified paleontological resources. The potential for encountering or disturbing a significant paleontological resource is high, but may be reduced by other environmental factors.

Source: Adapted from BLM's *Informational Memorandum 2008-009* (2008).

Paleontological Survey

No field survey was conducted for paleontological resources.

3.5.3 Environmental Setting

3.5.3.1 Natural Environment

The project is located on the eastern side of the San Francisco Peninsula, and crosses the boundaries of the cities of San Francisco (San Francisco County), Daly City, and Brisbane (San Mateo County). Land use in the project vicinity is mostly urbanized. The project is within industrial and commercial zones as well as residential zones. The proposed Jefferson-Egbert 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 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 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 study area and San Bruno Mountain on the southern end (Bonilla, 1998; Brabb et al., 1998). Lower-lying portions of the 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.

3.5.3.2 Prehistory

Archaeological evidence indicates that human occupation of the bay began sometime during the Early Holocene (ca. 11,700 to 8,200 years ago). Relatively few archaeological sites have been found from this period, however, 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, however, 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.

3.5.3.3 Ethnography

The project area 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, multi-family, 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.

3.5.3.4 History

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.

During the 1840s, relations between the United States and Mexico became strained, with Mexico fearing American encroachment into Mexican territories. The political situation became unstable, and war between the two nations broke out in 1846. American attempts to seize control of California quickly ensued, and within 2 months California was taken by the United States. Skirmishes between the two sides continued until California was officially annexed to the United States on February 2, 1848, only a few weeks after the discovery of gold in the Sierra Nevada foothills to the east. It was the subsequent Gold Rush that propelled Yerba Buena from a small coastal settlement into the booming metropolis of San Francisco.

History of the Project Area

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 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 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 area 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.

3.5.3.5 Record Search Results

The records searches identified a large number of previous studies within the study area (0.5-mile-wide records search buffer), most of them linear surveys or small spot-surveys. These studies identified 17 resources, only two 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 3 as unevaluated (Baker, 2017). The eligible features are within the substation footprint but are not in the potential staging area or equipment removal area. Table 3.5-3 summarizes the previous studies within the study area; Table 3.5-4 lists the known cultural resources in the study area.

Table 3.5-3. 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	Fies, Robin	2015	Records/Literature Search	No

Table 3.5-3. Previous Studies within the Project Study Area

Report Reference	Title	Author(s)	Year	Type	Intersects APE?
PM 31228153	Cultural Resources Constraints Report; Gas Main Bayview, San Francisco, San Francisco County	Turner, Angie	2016	Archaeological Survey	Yes
PM 31068895	Cultural Resources Constraints Report: Gas Main Fitzgerald, City and County of San Francisco	Hammerle, Esme	2015	Archaeological Survey	No
PM 31025229	Cultural Resources Constraints Report for Gas Main Leland, City and County of San Francisco	Hammerle, Esme	2016	Records/Literature Search	No
-	Cultural Resources Constraints Report; Gas Main Raymond, City and County of San Francisco	Hammerle, Esme	2016	Archaeological Survey	No
PM 31228154	Cultural Resources Constraints Report; Gas Main Gilman Avenue, San Francisco, San Francisco County	Turner, Angie	2017	Archaeological Survey	No
PM 31017734	Cultural Resources Constraints Report; GPRP Replacement Cast Iron Subs, City and County of San Francisco	Harper, Caprice	2014	Archaeological Survey	Yes
PM 31183624	Cultural Resources Constraints Report; GPRP Sunnydale, City and County of San Francisco;	Hammerle, Esme	2016	Archaeological Survey	Yes
T-018-12	Cultural Resources Constraints Analysis for Gas Hydrotesting at T-018-12	Far Western Anthro. Rsrch.	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	Thomas, Jennifer	2013	Archaeological Survey	No
-	Gas Lines 132 and 109 Replacement Study	-	1991	Archaeological Survey	Yes
-	Draft: Overview Proposal; Potrero Power Plant 230 kV 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

Table 3.5-3. Previous Studies within the Project Study Area

Report Reference	Title	Author(s)	Year	Type	Intersects APE?
30669061	Cultural Resources Constraints Report; R-20A Geneva Avenue Daly City, San Mateo and San Francisco Counties	Cox, Beatrice, and Darryl Dang	2013	Archaeological Survey	No
S-10469	Archaeological Field Inspection of the Castro Heights Project Area, Daly City, San Mateo County, California (letter report)	Holman, Miley Paul	1988	Archaeological Survey	No
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	Solari, Elaine-Maryse	1992	Records/Literature Search	Yes
S-21196	Preliminary Cultural Resources Literature Review/Initial Architectural Field Review, Geneva Drive-In, Daly City (letter report)	Busby, Colin I.	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	Hupman, Jan, and David Chavez	2001	Management Plan	No
S-25045	Archaeological Resources Investigations for the Bayview-Hunters Point Redevelopment Plan, San Francisco, California	Hupman, Jan M & David Chavez	2001	Archaeological Survey	Yes

Table 3.5-3. Previous Studies within the Project Study Area

Report Reference	Title	Author(s)	Year	Type	Intersects APE?
S-25225	Historic Architectural Survey Report, AT&T Wireless Services Site ID# 887, Cow Palace, 2500 Geneva, Daly City, San Mateo County, California	Windmiller, Ric	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	Carrico, Richard, Theodore Cooley, and William 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	Hupman, Jan M., and David Chavez	2004	Archaeological Survey	Yes
S-29657	Archaeological Inventory for the Caltrain Electrification Program Alternative in San Francisco, San Mateo, and Santa Clara Counties, California	Nelson, Wendy	2002	Archaeological Survey	No
S-30669	-	-	-	-	No
S-31222	-	-	-	-	No
S-32606	Third Street Light Rail Project, San Francisco, California: Historic Property Survey Report	Corbett, Michael R., Denise 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	Sikes, Nancy et al.	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	Mates, Julia	2009	Evaluation	No
S-37458	-	-	-	-	No

Table 3.5-3. Previous Studies within the Project Study Area

Report Reference	Title	Author(s)	Year	Type	Intersects APE?
S-38298	Archaeological Sensitivity Assessment for the Sunnydale-Velasco Hope, San Francisco Redevelopment Project, City of San Francisco, California	Byrd, Brian F., Rebecca Allen, and Jack Meyer	2011	Sensitivity Assessment	Yes
S-39561	Collocation Submission Packet, Cow Palace, CNU0887, 2500-2600 Geneva Avenue, Daly City	Billat, Lorna	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	Bunse, Meta	2003	Historical Survey	No
S-44996	Section 106 Federal Compliance for Land and Water Conservation Fund Project, McLaren Park Connector Trail	Moran, Toni	2013	Archaeological Survey	Yes
S-45493	-	-	-	-	No
S-45811	-	-	-	-	No
S-46177	-	-	-	-	Yes
S-47650	-	-	-	-	No
S-47839	-	-	-	-	No
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	Byrd, Brian F., Philip Kaijankoski, Matthew A. Russel, and Rebecca 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	Holman, Miley Paul	1974	Archaeological Survey	Yes
S-6160	The Prehistory of San Francisco	Rudo, Mark Ogden	1982	Thesis	Yes
-	Cultural Resources Constraints Report; X-1112 Capacity (Circuit No.: X-1112), City and County of San Francisco; PM 30982911	Hammerle, Esme	2015	Archaeological Survey	Yes

Table 3.5-3. Previous Studies within the Project Study Area

Report Reference	Title	Author(s)	Year	Type	Intersects APE?
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	Maniery, Mary L., and Cindy L. Baker	2008	Archaeological Survey	Yes
-	Addendum Cultural Resources Study for the PG&E Martin Cross-Tie Project	Thomas, Jennifer	2012	Archaeological Survey	Yes
S-38806	Cultural Resources Study for the Lomita Park, Martin, and Sullivan Regulator Stations Rebuild Project, San Mateo County, California	Thomas, Jennifer, M.A., and Cindy Baker, M.A.	2012	Archaeological Survey	Yes
S-27930	Cultural Resource Assessment of Alternative Routes for PG&E's Jefferson-Martin Transmission Line, San Mateo County, California	Brown, Kyle, 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	Pastron, Allen G.	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	Maniery, Mary L., and Cindy 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	Cox, Beatrice, and Esme Hammerle	2013	Archaeological Survey	Yes
S-39265	Cultural Resources Study for the Martin Cross- Tie Project in the Cities of Brisbane and Daly City, San Mateo County, California	Thomas, Jennifer	2012	Archaeological Survey	Yes

Table 3.5-4. Known Cultural Resources within the Project Study Area

Primary Number	Description	Reports (NWIC#)	In APE
P-38-004276	Hunters Point Power Station		No (Demolished)
P-38-004323	Industrial building	S-027717, S-030669, S-039730, S-047599, S-047956	No
P-38-004339	Religious building	-	No
P-38-004354	1- to 3-story commercial building	S-024854, S-031222, S-037458	No
P-38-004574	Single-family property	-	No
P-38-004672	Well/Cistern; Water Conveyance System	-	No
P-38-004944	Overpass/Bridge	-	No
P-38-005460	Overpass/Bridge	-	No
P-41-002059	Civic Auditorium	-	No
P-41-002163	Red brick manhole	-	No
P-41-002205	Martin Substation Transformer Handling House	S-35093	No
P-41-002206	Martin Substation Pump House	S-35093	No
-	Martin Substation structure, bus structures, and transformers	S-35093	No
P-41-002307	Warehouse and public utility building	S-038806	Yes (potential staging area)
P-41-002317	Underground utility vault and manhole	-	Yes (potential staging area)

*Source: Reports on file at NWIC

3.5.3.6 Results of Native American Coordination

As noted, the NAHC responded to the data request for the project and indicated that it had found no sites within the study area listed on the Sacred Lands Inventory. The NAHC did provide a list of local Native American representatives who may have an interest in the proposed project. Informational letters were sent to each of the tribal representatives advising them about the project and soliciting their input. These letters were followed by telephone calls to each of the identified representatives. Table 3.5-5 summarizes efforts to contact Native American representatives identified by the NAHC, and their responses.

Table 3.5-5. Details of Native American Coordination

Name/Affiliation Contact Information	Type of Contact	Date	Action/Response
California Native American Heritage Commission	Email	5/18/2017	Requested Sacred Lands Search and Contact List; received Contact List 5/24/2017.
Chairperson Valentin Lopez Amah Mutsun Tribal Band PO Box 5272 Galt, CA 95632 vlopez@amahmutsun.org (916) 743-5833	Letter	5/25/2017	Sent contact letter describing project and records search results, and requested input about spiritual places or traditional values.
	Phone	6/8/2017	Mr. Lopez stated that the project is outside of their territory; therefore, he had no comment.
Chairperson Irenne Zwierlein Amah Mutsun Tribal Band of Mission San Juan Bautista 789 Canada Road Woodside, CA 94062 amahmutsuntribal@gmail.com (650) 851-7489 cell (650) 851-7747 office (650) 332-1526 fax	Letter	5/25/2017	Sent contact letter describing project and records search results, and requested input about spiritual places or traditional values.
	Phone	6/8/2017	Chairperson Zwierlein was unavailable. Ms. Michelle Zimmer said that Andrew Galvan knows the area best, and they will support his concerns and recommendations.
Chairperson Katherine Erolinda Perez North Valley Yokuts Tribe PO Box 717 Linden, CA 95236 canutes@verizon.net (209) 887-3415	Letter	5/25/2017	Sent contact letter describing project and records search results, and requested input about spiritual places or traditional values.
	Phone	6/8/2017	No answer; no answering machine available to receive voicemail.
Chairperson Rosemary Cambra Muwekma Ohlone Indian Tribe of the San Francisco Bay Area PO Box 360791 Milpitas, CA 95036 muwekma@muwekma.org (408) 314-1898 (510) 581-5194	Letter	5/25/2017	Sent contact letter describing project and records search results, and requested input about spiritual places or traditional values.
	Phone	6/8/2017	Left voicemail with Christophe Descantes' contact information for any information or specific concerns about the project.
Mr. Andrew Galvan The Ohlone Indian Tribe PO Box 3152	Letter	5/25/2017	Sent contact letter describing project and records search results, and requested input about spiritual places or traditional values.

Table 3.5-5. Details of Native American Coordination

Name/Affiliation Contact Information	Type of Contact	Date	Action/Response
Fremont, CA 94539 chochenyo@AOL.com (510) 882-0527 cell (510) 687-9393 fax	Phone	6/8/2017	Mr. Galvan asked to be contacted by email when recommendations have been formulated, and at that time he would also like more information about the project, specifically details about ground disturbance. His request for information has been forwarded to the PG&E Cultural Resources Specialist (CRS). Mr. Galvan also inquired about the other Native American contacts listed by the NAHC, and was happy to hear that the new list (being revised with the NAHC) is being used.
Chairperson Ann Marie Sayers Indian Canyon Mutsun Band of Costanoan PO Box 28 Hollister, CA 95024 ams@indiancanyon.org (831) 637-4238	Letter	5/25/2017	Sent contact letter describing project and records search results, and requested input about spiritual places or traditional values.
	Phone	6/8/2017	Chairperson Sayers asked about the previously recorded resources in the area, and after being told that they are all historic-era, she said she had no concerns about the project.

3.5.3.7 Results of Buried-Sites Sensitivity Analysis

This analysis determined that the highest sensitivity for subsurface/buried prehistoric resources occurs in those areas with Holocene-age soils (low-lying valleys and fans) and at the nearshore lower contact of the bay deposits. The majority of the proposed project lines have a Low to Lowest potential to contain subsurface/buried cultural resources; a small portion has a moderate potential for such resources; and portions along Egbert Avenue, at the existing Martin Substation, and in the vicinity of the proposed Egbert Switching Station site are estimated to have a High to Highest potential (Tables 3.5-6 through 3.5-8). Maps showing these areas are provided separately to CPUC staff (Waechter et al., 2017).

Table 3.5-6. Estimated Buried Site Sensitivity by Project Line

Sensitivity	Meters	% of Total Meters
Proposed Egbert-Embarcadero 230 kV Line		
Lowest	19.7	0.4
High	122.4	2.0
Highest	426.3	7.1
Subtotal	**568.4**	**9.5**

Table 3.5-6. Estimated Buried Site Sensitivity by Project Line

Sensitivity	Meters	% of Total Meters
Proposed Jefferson-Egbert 230 kV Line		
Lowest	4,326.7	72.0
Low	191.7	3.2
Moderate	158.6	2.6
High	163.9	2.7
Highest	110.4	1.8
Subtotal	**4,951.3**	**82.3**
Proposed Martin-Egbert 230 kV Line		
Lowest	15.2	0.3
High	83.4	1.4
Highest	392.6	6.5
Subtotal	**491.2**	**8.2**
Total	**6,010.9**	**100.0**

Table 3.5-7. Summary of Estimated Buried Site Sensitivity for Project Lines

Sensitivity	Meters	% of Total Meters
Lowest	4,361.6	72.7
Low	191.7	3.2
Moderate	158.6	2.6
High	369.7	6.1
Highest	929.3	15.4
Total	**6,010.9**	**100.0**

Table 3.5-8. Estimated Buried Site Sensitivity for Martin Substation

Sensitivity	Acres	% Acres
Lowest	0.2	11.8
Highest	1.5	88.2
Total	**1.7**	**100.0**

3.5.3.8 Results of Field Inventory

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 USGS 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, LLP, 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, LLP, 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 will be completely avoided during project construction.

There is also an historic-era structure at 400 Paul Avenue (formerly identified as 320 Paul Avenue). The following information is from the Mitigated Negative Declaration for the 320-400 Paul Avenue Internet Services Exchange (San Francisco Planning Department, 2014):

> …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 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.

Since 2014, the rear structure ("400 Paul Avenue") has been demolished. The California Register-eligible building at "320 Paul Avenue" is still standing; however, the project will completely avoid any impacts to the building.

3.5.3.9 Paleontological Resources

Geologic Units and Paleontological Sensitivity

An inventory of geologic units by Bonilla (1998) was used to determine the underlying geology for each of the project components. The characteristics of geologic formations cited in this section are discussed in Section 3.6, Geology. The PFYC criteria presented in Section 3.5.2.2 were applied to the geologic units in the study area (within 0.25 mile of the project components). In Table 3.5-9, the geologic age of each unit is indicated in Column 1, the sensitivity rating is listed in Column 3, and the basis for the rating using the PFYC criteria is shown in Column 4. The proposed Egbert Switching Station, Egbert-Embarcadero line, and Martin-Egbert line are underlain by Pleistocene sediments. The proposed Jefferson-Egbert line is in areas of Holocene, Pleistocene and Cretaceous and Jurassic (Franciscan Complex) geologic units as described in Table 3.5-9 and as shown on Figure 3.6-1. This section focuses on geologic units with paleontological sensitivity.

Table 3.5-9. Paleontological Sensitivity of Geologic Units within the Project Study Area

Geologic Age	Geologic Region	Paleontological Sensitivity – PFYC Category	Basis for Sensitivity Rating
Holocene	Artificial Fill (Qaf and Qaf/tf)	1: Very low	Consists of artificial fill.
	Dune Sand (Qd)	2: Low	Recent aeolian deposits; less than 10,000 years old.
	Landslide Deposits (Ql)	2: Low	Fossils are rare at shallow depths; no adjacent fossiliferous units; less than 10,000 years old.
Pleistocene	Sedimentary Deposits (Qu)	3a: Moderate	Fossils are rare at shallow depths.
	Slope Debris and Ravine Fill (Qsr)	2: Low	Slope debris coming out of slopes where fossils are rare; subaerial deposition.
Cretaceous and Jurassic (Franciscan Complex)	Sandstone and shale (KJs and KJsk)	2: Low	Fossils are rare.
	Greenstone (KJg)	1: Very low	Metamorphic unit.
	Chert (KJc)	2: Low	Fossils are rare.
	Sheared Rocks (KJu)	1: Very low	Mechanically altered.
	Metamorphic Rocks (KJm)	1: Very low	Metamorphic unit.
	Serpentine (sp)	1: Very low	Metamorphic unit.

As indicated in the table, Holocene units in the study area are determined to be of very low to low sensitivity. Most Holocene sediment in the 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 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. These factors make fossil preservation in sand dunes unlikely.

The 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 3.5-9, 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 (PG&E, 2014).

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, and Twin Peaks Tunnel, as well as construction of an office building on Pacific Street and construction of the Southeast Sewage Treatment Plant. The Islais Creek channel is approximately 1.25 miles from the study area. This site yielded a sparse Rancholabrean-age fossil fauna (Radbruch and Schlocker, 1958). 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 mile northeast of the study area. Two localities in South San Francisco (UCMP localities V-6203 and V-6319) have also produced Rancholabrean faunas, including bison and elk or moose.

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 study area (Rodda and Baghai, 1993; UCMP, 2017). Fossils in undifferentiated sediment such as Qu are rarely encountered at shallow depths (less than 20 feet below ground surface [bgs]). Excavations associated with the project in Qu are expected to be at a maximum of 15 feet bgs. As discussed previously, 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.

Fossils have been found in the Franciscan Complex in the greater bay area, but they are not very common. 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.

Results of Records Searches

In terms of Holocene sediment, in San Francisco County there are 84 records for "recent" age invertebrate fossils. Location information is given only for about half of them. The only fossil locality that was determined to be near the project site is Islais Creek, approximately 1.25 miles north of the study area. In San Mateo County, there are 305 records for "recent" fossil localities. The locations of all but 13 locations of these are identified, and they are not located anywhere near the study area. Most of these Holocene-age fossils are invertebrates from the coastal Pacific side of the San Francisco Peninsula.

The UCMP has 15 records of Pleistocene epoch fossil localities in San Francisco County. Of these, 10 records were found in named formations not mapped anywhere near the study area. Of the remaining five localities, only the Islais Creek locality was found within 4 miles of the study area. This locality was also reported in Jefferson (1991) and the Paleobiology Database (2017). San Mateo County has 24 records of Pleistocene epoch fossil localities. Of these, all but four records can be ruled out as being from locations that are far away from the study area or are from named formations that do not occur near the study area. Of the remaining four records, three do not have location or formation information, and the remaining locality is labeled as being from South San Francisco, which is 2 to 3 miles from the study area.

Only one fossil locality each in San Francisco and San Mateo Counties is recorded as from the Franciscan Complex. The exact locations of these fossil localities have not been recorded, and the Franciscan Complex is widespread throughout the San Francisco Peninsula; therefore, there is no evidence that the fossils were found in or near the study area.

3.5.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for impacts related to cultural and paleontological resources derived from Appendix G of the CEQA Guidelines, provide APMs to reduce impacts, and assess potential project-related construction and operational impacts on cultural and paleontological resources.

3.5.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts to cultural and paleontological resources were evaluated for each of the criteria listed in Table 3.5-1, as discussed in Section 3.5.4.3.

3.5.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

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: 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 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 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 below 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: 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).

APM Paleontological Resources (PR)-1: Worker's Environmental 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.

3.5.4.3 Potential Impacts

Potential project impacts related to cultural and paleontological resources were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line (construction completed in 1980) will be bisected and extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Several potential staging areas for project construction have been preliminarily identified as follows: adjacent to the proposed Jefferson-Egbert line along Carter Street, at the Cow Palace, within the existing Martin Substation, and along Amador Street in the Port's Southern Waterfront heavy industrial port area. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

The work at the existing Martin Substation to remove the Jefferson-Martin line terminal equipment (line construction completed in 2006) will remove the concrete foundations to 3 feet; no soil disturbance is expected. There are two unevaluated historic-era resources in a potential staging area: a standing warehouse structure (P-41-2307) and an underground utility vault and covered manhole constructed in the early twentieth century (P-41-2317). There will be no ground disturbance during use of the potential staging area and no impacts to the two recorded resources.

Project impacts on paleontological resources were evaluated based on an assessment of the paleontological sensitivity of identified geologic formations in relation to the proposed project activities. In accordance with Appendix G of the CEQA Guidelines, project impacts on paleontological resources were considered significant if the project would directly or indirectly destroy a unique paleontological resource or site. Sensitivity ratings were employed to assess the likelihood and/or severity of project impacts. The sensitivity ratings provided in Table 3.5-2, which combine a number of relevant considerations, are considered in light of the nature of subsurface disturbance associated with the project, and the significance of impacts is determined based on that information.

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 (PRC 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.

a) Would the project cause a substantial adverse change in the significance of an historical resource as defined in Section 15064.5? *Less-than-significant Impact.*

At present there are no known historical resources (i.e., a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR; or a resource included in a local register of historical resources, as defined in Section 5020.1(k) of the PRC or identified as significant in an historical resource survey meeting the requirements in Section 5024.1(g) of the PRC; or an object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant) in the project APE. Should such a resource be identified during surveys of previously inaccessible areas, as a result of exploratory trenching/coring, or as an inadvertent discovery during construction, implementation of APM

CR-1 through CR-5 will reduce the impact to a less-than-significant level for the potential to cause a substantial adverse change in the significance of an historical resource as defined in Section 15064.5.

Project operation and maintenance will not be ground disturbing, and will occur within city streets or facilities and as such will not cause a substantial adverse change in the significance of an historical resource as defined in Section 15064.5; no impact will occur.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5? ***Less-than-significant Impact.***

Archaeological resources may be present in areas where pavement and other obstacles precluded survey. In addition, a study of known prehistoric site locations, historical shoreline maps, and historical land development has resulted in the identification of some areas of high sensitivity for buried or subsurface resources. Implementation of APMs CR-1 through CR-5 will reduce impacts to a less-than-significant level for the potential to cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5.

Project operation and maintenance will not be ground disturbing, and will occur within city streets or facilities and as such will not cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5; no impact will occur.

c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? ***Less-than-significant Impact.***

The project does not occur near or on a unique geologic feature. 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 line are within areas with Pleistocene sediments, which have a moderate paleontological sensitivity. It is possible that paleontological resources could be impacted during activities; however, the excavation depths are unlikely to impact paleontological resources given that fossils in Pleistocene sediments are rare at shallow depths. The remainder of the proposed Jefferson-Egbert line is within areas having very low to low paleontological sensitivity. Potential impacts to paleontological resources will be less than significant, and potential impacts will be further reduced with the implementation of APMs PR-1 and PR-2 during construction of the project.

The operation and maintenance phase activities of the project will occur within city streets or the proposed switching station site, and will therefore not directly or indirectly impact a unique paleontological resource or site or unique geologic feature; no impact will occur.

d) Would the project disturb any human remains, including those interred outside of formal cemeteries? ***Less-than-significant Impact.***

The proposed project will not impact any known graves during construction or operation and maintenance. However, there is the potential to encounter human remains during construction, particularly in those areas identified as having high sensitivity for buried or subsurface resources. If human remains are discovered, PG&E will implement APM CR-5. Potential impacts to human remains during construction or operation and maintenance, including those interred outside of formal cemeteries, will be less than significant with the implementation of APM CR-5.

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3.6 GEOLOGY AND SOILS

3.6.1 INTRODUCTION

This section describes the existing geological and soil conditions, and potential geologic and geotechnical hazards at the project site and surrounding areas, and concludes that any impacts will be less than significant. Potential geologic hazards along the project include fault-surface rupture, ground shaking, landsliding, liquefaction, and other ground-failure mechanisms. The implementation of APMs described in Section 3.6.4.2 will further reduce less-than-significant impacts on geology and soils. The project's potential effects on geology and soils were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.6-1 and discussed in more detail in Section 3.6.4.

Table 3.6-1. CEQA Checklist for Geology and Soils

Would the project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Section 1802.3.2 of the California Building Code (2007 or 2010) creating substantial risks to life or property?	☐	☐	☒	☐
e) 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?	☐	☐	☐	☒

3.6.2 REGULATORY BACKGROUND AND METHODOLOGY

3.6.2.1 Regulatory Background

Federal

No federal regulations related to geology, soils, and seismicity are applicable to the project.

State

Alquist-Priolo Earthquake Fault Zoning Act

California enacted the Alquist-Priolo Special Studies Zones Act in 1972, which was renamed the Alquist-Priolo Earthquake Fault Zoning Act in 1994. Also known as the Alquist-Priolo Act, it requires the establishment of "earthquake fault zones" along known active faults in California. Regulations on development within these zones are enforced to reduce the potential for damage resulting from fault displacement. Information on earthquake fault zones is provided for public information purposes (see Section 3.6.3.4, Seismicity, for further discussion).

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 addresses earthquake hazards other than fault rupture, including liquefaction and seismically induced landslides. Seismic hazard zones are to be mapped by the State Geologist to assist local governments in land use planning. The Seismic Hazards Mapping Act states that "it is necessary to identify and map seismic hazard zones in order for cities and counties to adequately prepare the safety element of their general plans and to encourage land use management policies and regulations to reduce and mitigate those hazards to protect public health and safety."

California Building Standards Code

The California Building Standards Commission is responsible for coordinating, managing, adopting, and approving building codes in California. The state of California provides minimum standards for building design through the 2010 California Building Code (CBC) (CCR, Title 24). Chapter 18 of the CBC regulates the excavation of building foundations and retaining walls, and specifies required geological reports. Appendix J of the 2010 CBC regulates grading activities, including drainage and erosion control and construction on unstable soils, such as expansive soils and areas subject to liquefaction.

Local

Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary regulations. PG&E will obtain a building permit or other required ministerial permits for construction of the Egbert Switching Station building and equipment foundations.

3.6.2.2 Methodology

Potential geologic hazards pertinent to the project site were evaluated by Langan Engineering and Environmental Services, Inc. (Langan) based on interpretation of historic aerial photographs and review of published geologic maps and reports, as well as geotechnical engineering reports for other sites in the project vicinity. The evaluation included assessment of the potential for fault rupture, seismic ground shaking from local and regional sources, liquefaction, and other seismic-related ground deformation processes. Evaluation of the project susceptibility to these hazards is based on review of mapped faults, liquefaction and landslide susceptibility zones, and earthquake shaking potential.

Information on the geology and soils was compiled from published literature, maps, and examination of aerial photographs. Geologic units and structural features were obtained from maps published by the California Geological Survey and USGS. Soil descriptions were obtained from mapping by the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS).

The geologic hazard and feasibility evaluation prepared by Langan to inform the design of the project will be provided separately to CPUC staff.

3.6.3 ENVIRONMENTAL SETTING

3.6.3.1 Regional Setting

The project area 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. The geologic setting of the San Francisco Bay region is dominated by features associated with the active San Andreas Fault system. Physiographic features of the San Francisco Bay region include open water and tidal marshes, hills and mountains, marine terraces, and alluvial lowlands and valley bottoms (Helley and Lajoie, 1979).

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 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 about 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 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 study area and San Bruno Mountain on the southern end (Bonilla, 1998; Brabb et al., 1998). Lower-lying portions of the 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, there are about 60 to 64 million years represented by no 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.

3.6.3.2 Stratigraphic Units

Stratigraphic units in the vicinity of the project, as mapped on the Preliminary Geologic Map of the San Francisco South 7.5' Quadrangle and Part of the Hunters Point 7.5' Quadrangle, San Francisco bay Area, California (Bonilla, 1998), can be divided into three age groups and are presented chronologically from youngest to oldest. A geologic map showing the project components and underlying stratigraphic units is included as Figure 3.6-1.

Holocene (10,000 years ago to Present)

Low-lying portions in the study area that are covered by the most recent sediment, including artificial fill, are included in this category. This sediment is considered to be less than 10,000 years old, which is less than the minimum age widely considered as fossil-bearing rock (PG&E, 2014), and consists of the following:

- Artificial Fill (Qaf and Qaf/tf): material imported from other areas and placed by humans. As discussed above, the eastern shoreline of the San Francisco Peninsula has been pushed eastward in many locations, including a portion of the study area, by using fill to create more land. The fill may include clay, silt, sand, rock fragments, organic matter, and human-made debris. In area marked Qaf/tf, the fill was placed on tidal flats. Areas marked Qafs designate Native American shell mounds.

- Dune Sand (Qd): mostly loose, well-sorted, fine-grained sand. The sand is mostly gray in color but is orange to reddish brown in some places. Lower depths extend into the Pleistocene.

- Landslide Deposits (Ql): sediment deposited in this location as the result of landslides. The composition and structure of the sediment depends on that of the geologic unit involved in the landslide.

Pleistocene (2.4 million to 10,000 years ago)

The majority of the project footprint lies on older sediment determined to be from the Pleistocene epoch that includes the time period from 2.4 million years ago to 10,000 years ago (Bonilla, 1998), as follows:

- Sedimentary Deposits (Qu): sediments mapped as undifferentiated sedimentary deposits of Pleistocene age (Bonilla, 1998).

Insert

Figure 3.6-1 Geologic Site Plan

- Slope Debris and Ravine Fill (Qsr): stony silty-to-sandy clay, or locally silty to clayey sand or gravel. These deposits are yellowish-orange to medium gray, and are unstratified or poorly stratified.

Jurassic and Cretaceous (200 million to 65 million years ago)

The oldest geologic units in the study area, Cretaceous and Jurassic rocks associated with the Franciscan Complex, are from 200 million to 65 million years in age. These geologic units probably originated as oceanic crust and pelagic deposits overlain by Late Jurassic to Late Cretaceous turbidites (Brabb et al., 1998). They are generally considered low-grade metamorphic rocks, and contain high-pressure, low-temperature metamorphic minerals. The Franciscan Complex in the study area consists of the following geologic units:

- Sandstone and Shale 1 (KJs): interbedded sandstone and shale that is hard where freshly exposed or intact, and is soft where weathered or sheared. These rocks are commonly medium dark gray where freshly exposed, olive gray to yellowish brown where moderately weathered, and yellowish orange to yellowish gray where highly weathered.

- Sandstone and Shale 2 (KJsk): sandstone and shale as described above for KJs but containing more than 2 percent potassium feldspar.

- Greenstone (KJg): altered volcanic rocks that are fine grained and mostly basalt. Greenstone is hard and grayish olive to olive gray in color where freshly exposed. Where weathered, it is soft and dark yellowish orange to light brown.

- Chert (KJc): 2- to 3-inch-thick chert layers that are interbedded with shale layers less than 1 inch thick, generally grayish red.

- Sheared Rocks (KJu): small to large fragments of hard rock matrix of sheared rock. Derived mostly from shale and sandstone of Franciscan Complex and serpentine that are fractured and faulted attributable to mechanical stress.

- Metamorphic Rocks (KJm): hard to firm, fine to coarse grained schistose, gneissose, or granulose.

- Serpentine (sp): hard to soft rock that is greenish gray and contains small bodies of gabbro and diabase.

3.6.3.3 Soils

The USDA NRCS compiles soil data from across the country and makes the data available through the Web Soil Survey (USDA, 1999). The project site surface soils are predominantly mapped as Urban Land or Orthent, with smaller areas of Candlestick-Kron-Buriburi complex and Pits and Dumps. Descriptions of the mapped soil units along the proposed project routes and switching station are presented below (NRCS, 2012).

Candlestick-Kron-Buriburi complex, 30 to 75 percent slopes

This unit, which is present along 0.86 mile of the proposed Jefferson-Egbert line, is 40 percent Candlestick fine sandy loam, 25 percent Kron sandy loam, and 20 percent Buriburi gravelly loam. Shrink-swell potential of this unit is low.

Orthents, cut and fill, 0 to 15 percent slopes

This unit, which is present along approximately 0.15 mile of the proposed Jefferson-Egbert line, consists of soils that have been cut and filled for recreational development, such as the construction of 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. Shrink-swell potential of the Orthents is low.

Orthents, cut and fill-Urban land complex, 0 to 5 percent slopes

This unit present along approximately 0.27 mile of the proposed Martin-Egbert line, 0.61 mile of the Jefferson-Embarcadero line, and at the proposed Egbert Switching Station. The unit is 55 percent Orthents, cut and fill, and 35 percent Urban land. The Orthents consist of soils that have been cut and filled for urban development, such as the construction of roads and buildings. These soils are poorly drained to well drained and are nearly level to gently sloping. They dominantly are deep and very deep and are 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. Shrink-swell potential of the Orthents is low shrink-swell potential of Urban land is unrated.

Orthents, cut and fill-Urban land complex, 5 to 75 percent slopes

This unit is present along approximately 0.06 miles of the proposed Jefferson-Egbert line. These very shallow to very deep, well drained soils are on uplands. The soils formed in residuum derived dominantly from sandstone. This unit consists of soils that have been cut and filled for urban development. The soils are moderately steep to very steep. They 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 commonly is exposed. The areas of fill generally have slopes of less than 30 percent. Shrink-swell potential of the Orthents is low shrink-swell potential of Urban land is unrated.

125-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 Brisbane. Sanitary landfills are in 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.

Urban land

This map unit consists of areas where more than 85 percent of the surface is covered by asphalt, concrete, buildings, and other structures. Slope generally is 0 to 5 percent, but it ranges from 0 to 30 percent.

Urban land-Orthents, cut and fill complex, 0 to 5 percent slopes

This unit is 50 percent Urban land and 45 percent Orthents, cut and fill. Urban land consists of areas that are covered by asphalt, concrete, buildings, and other structures. The material covered by these structures consists of soils that are similar to the Orthents. The Orthents consist of soils that have been cut and filled for urban development, such as the construction of roads and buildings. These soils are deep and are 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. 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 percent slopes

This unit is 50 percent Urban land and 40 percent Orthents, cut and fill. Urban land consists of areas that are covered by asphalt, concrete, buildings, and other structures. The material covered by these structures consists of soils that are similar to the Orthents. The Orthents consist of soils that have been cut and filled for homesite 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; they are used as building foundations and road bases and to control runoff. Shrink-swell potential of the Orthents is low shrink-swell potential of Urban land is unrated.

3.6.3.4 Seismicity

The Alquist-Priolo Act requires the establishment of "earthquake fault zones" along known active faults in California. Primary faults zoned under the Alquist-Priolo Act through 2007 located within approximately 30 miles (48 kilometers [km]) of the project include the Green Valley and Concord, Calaveras, Hayward, Rodgers Creek-Healdsburg, San Andreas, and San Gregorio faults (Bryant and Hart, 2007). A regional fault map showing faults in the San Francisco Bay Area and the project vicinity is included as Figure 3.6-2. The project area does not fall within an Alquist-Priolo designated fault zone thus there is no fault rupture hazard for the project.

The magnitude, or size, of an earthquake is measured by a number of methods. Several of these (including the Richter [ML], surface wave [Ms], and body wave [Mb]) methods, evaluate the magnitude of an earthquake by measuring the amplitude of seismic waves as recorded by a seismograph. Because of the instrumental properties of seismographs, these methods provide inconsistent results above or below a certain range of magnitudes. A more robust measure of magnitude is moment magnitude (Mw). Evaluation of Mw is based on the seismic moment of an earthquake, which can be described as the leverage of forces across the area of fault slip. Because it is directly related to the area of the fault ruptured during an earthquake, Mw is a consistent measurement of size from the smallest to the largest events.

Insert

Figure 3.6-2 Fault Map

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 km) 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 Mw of 7.9, a 1957 offshore quake (Mw 5.7), and the 1989 Loma Prieta earthquake (Mw 6.9).

The USGS evaluated the Bay Area seismicity through a study by the Working Group on California Earthquake Probabilities (WGCEP) using the Uniform California Earthquake Rupture Forecast (UCERF3) model (WGCEP, 2015). WGCEP estimated a 6.4 percent chance of one or more earthquakes of Mw 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 percent chance that a Mw 6.7 or greater earthquake will occur on the Hayward Fault, located approximately 12.5 miles (20 km) east of the project, within the same time period. The 30-year probability of a 6.7 Mw earthquake occurring in the San Francisco region was modeled at 72 percent.

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 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 (Langan, 2017).

The seismicity of active and potentially active regional faults presented by Langan (2017) are summarized in Table 3.6-2 for the proposed Egbert Switching Station site.

Table 3.6-2. Regional Faults and Seismicity

Regional Faults and Seismicity Fault Segment	Approximate Distance from the proposed Egbert Switching Station (miles [km])	Direction from the proposed Egbert Switching Station	Mean Characteristic Moment Magnitude [a]
N. San Andreas – Peninsula	5.5 (9)	West	7.23
N. San Andreas (1906 rupture)	5.5 (9)	West	8.05
San Gregorio Connected	10.5 (17)	West	7.50
N. San Andreas – North Coast	10.5 (17)	West	7.51
Total Hayward	12.5 (20)	Northeast	7.00
Total Hayward-Rodgers Creek	12.5 (20)	Northeast	7.33
Monte Vista-Shannon	22 (35)	Southeast	6.50
Total Calaveras	22.5 (36)	East	7.03
Mount Diablo Thrust	22.5 (36)	East	6.70
Rodgers Creek	25 (40)	North	7.07
Green Valley Connected	25.5 (41)	East	6.80
Point Reyes	28 (45)	West	6.90

[a] This magnitude represents the average theoretical Mw for future earthquakes on the given segment or combination of segments.

3.6.3.5 Landslides

The project is located within an area of known seismic activity. Earthquake-induced landslides can be a source of earthquake-related damage. Landslides occur where the internal shear strength of a material is compromised. This can be caused by the presence of water in pore spaces, earthquake shaking, or other factors including human activities such as grading or the removal of vegetation. A debris flow is a form of mass wasting characterized by the mobilization of shallow-seated solid material that acts like a fluid when sufficiently mobilized and generally follows preexisting channels. Debris flows are relatively short-lived, but have the potential to be destructive because of their high speed and density. Approximately 0.27 mile of the proposed Jefferson-Egbert line crosses a mapped potential debris flow source area near the intersection of Carter Street and Guadalupe Canyon Road (Figure 3.6-3). However, at least some portion of this area has been subject to human modification associated with urban development of adjacent commercial and residential properties.

Insert

Figure 3.6-3 Seismic Hazards

3.6.3.6 Erosion

Erosion is the process by which rock and soil are transported from one location to another, typically by gravity or water. Erosion can be controlled by slope, vegetation, wind and rain, human activity, organic matter, and vegetation cover. Soft or loose soils, or areas of increased slope, can be increasingly susceptible to erosion.

A soil's susceptibility to erosion varies and is a function of its characteristics, such as soil texture, soil structure, topography, amount of vegetative cover, and climate. Erosion from water mainly occurs in loose soils on moderate to steep slopes, particularly during high-intensity storm events. Preexisting urbanization and paving limits the susceptibility of underlying soil to erosion. Because the proposed project is predominantly in urbanized and paved areas, erosion potential is low.

3.6.3.7 Liquefaction

Liquefaction occurs when sufficiently saturated sandy soil is subject to disturbance such as seismic shaking, which causes pore water to move vertically through the soil, resulting in a sudden loss of shear strength. 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. Sediment cohesion is another controlling factor of liquefaction in that non-cohesive soils are more susceptible to liquefaction (California Division of Mines and Geology, 2001). Potential staging areas along Amador Street in the Port's Southern Waterfront heavy industrial port area are within a mapped liquefaction hazard zone (Figure 3.6-3). The proposed Jefferson-Egbert line is adjacent to a mapped liquefaction hazard zone along Geneva Avenue and then crosses the mapped liquefaction hazard zone at Velasco and Geneva Avenues (Figure 3.6-3). Langan (2017) estimates that approximately 1 to 4 inches of liquefaction-induced settlement may occur in this portion of the alignment. Settlement attributable to liquefaction can be erratic, and differential settlement could likely occur; additional review is recommended (Langan, 2017).

Langan concludes that the area of the proposed Egbert Switching Station, the proposed Martin-Egbert and Egbert-Embarcadero lines and approximately 0.20 mile of the proposed Jefferson-Egbert line south of the switching station site is underlain by potentially liquefiable material, and settlement of several inches could occur during a major seismic event. Boring identified layers of loose to medium dense sand and silty sand as shallow as approximately 4 feet below the ground surface to a depth of approximately 50 feet in the vicinity of the proposed switching station site. Langan recommends that at-grade structures be supported on mat foundations constructed over improved soil or deep foundation that extends to competent material below the potentially liquefiable soil layers. During final design, PG&E may use deep foundations for structures and equipment that do not tolerate differential settlement or design system components to accommodate settlements.

3.6.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for impacts related to geology and soils derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operational geologic impacts.

3.6.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts related to geology and soils were evaluated for each of the criteria listed in Table 3.6-1, as discussed in Section 3.6.4.3.

3.6.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs (see Section 3.9, Hydrology and Water Quality, for APMs related to erosion control):

APM Geology and Soils (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
- Overexcavating 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

3.6.4.3 Potential Impacts

Potential project impacts related to geology and soils were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

The 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

project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Several potential staging areas for project construction have been preliminarily identified as follows: adjacent to the proposed Jefferson-Egbert line along Carter Street, at the Cow Palace, within the existing Martin Substation, and along Amador Street in the Port's Southern Waterfront heavy industrial port area. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

a) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault as 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, strong seismic ground shaking, seismic-related ground failure, including liquefaction, or landslides?

i) Rupture of a known earthquake? *No Impact.*

No known sufficiently active faults underlie the project; therefore, the project would not expose people or structures to potential substantial adverse effects from rupture of a known fault during either construction or operation and maintenance.

ii) Strong seismic ground shaking? *Less-than-significant Impact.*

As the area of the proposed project is within a seismically active region, it is likely that the project will be exposed to an earthquake that produces moderately strong to strong seismic ground shaking. PG&E will implement APM GS-1 and GS-2 to address potential impacts of seismic-related ground shaking resulting in a less than significant impact for exposing people or structures to potential substantial adverse effects from strong seismic ground shaking during construction or operation and maintenance.

iii) Seismic-related ground failure, including liquefaction? *Less-than-significant Impact.*

The potential staging areas along Amador Street are within a mapped liquefaction hazards zone but will not include structures as they would be used for equipment and material staging. These level, existing staging areas not susceptible to damage from this type of liquefaction and would therefore not expose people or structures to potential substantial adverse effects. Where the proposed Jefferson-Egbert line crosses a mapped zone of potential liquefaction, PG&E will implement APM GS-1 and APM-GS-2 to perform design studies and select design measures that will reduce potential impacts from seismic-related ground failure, including liquefaction to a less-than-significant level during construction and operation and maintenance phases.

iv) Landslides? *Less-than-significant Impact.*

Where the proposed Jefferson-Egbert line crosses a mapped debris flow source area, PG&E will implement APM GS-1, to perform design studies and select design measures that will reduce potential impacts from landslides to a less-than-significant level during construction and operation and maintenance phases.

b) Would the project result in substantial soil erosion or the loss of topsoil? *Less-than-significant Impact.*

The potential for increased erosion exists with surface-disturbing activities during construction activities. Erosion will be limited because the proposed switching station site is relatively flat and because the transmission lines will be mostly installed in existing streets beneath pavement and the potential staging areas are paved or graveled. APMs WQ-1 and WQ-2 will be implemented during construction activities to develop and implement an SWPPP that will further reduce the less than significant impact of substantial soil erosion or loss of topsoil. Operation and maintenance activities are not expected to include ground-disturbing activities; therefore, no impact will occur during this phase.

c) 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? *Less-than-significant Impact.*

The potential staging areas along Amador Street are within a mapped liquefaction hazards zone but will not expose people or structures to potential substantial adverse effects as previously discussed. Langan (2017) found that the proposed Egbert Switching Station, the proposed Martin-Egbert, Egbert-Embarcadero lines and approximately 0.20 mile of the proposed Jefferson-Egbert line south of the switching station site is underlain by potentially liquefiable material, which could cause several inches of settlement. Where the project is within a mapped area of potential liquefaction, PG&E will implement APM GS-1 and GS-2 to perform design studies and select design measures to reduce liquefaction impacts to less than significant.

d) Would the project be located on expansive soil, as defined in Section 1802.3.2 of the California Building Code (2007 or 2010) creating substantial risks to life or property? *Less-than-significant Impact.*

Expansive soils are those that contain significant amounts of clays that expand when wet and can cause damage to foundations if moisture collects beneath structures. According to NRCS data, soils within the project site generally do not contain significant amounts of clay and, where rated, have low shrink-swell potential; however, at the proposed Egbert Switching Station, PG&E will implement APM GS-2, to perform design studies and select design measures that will further reduce potential impacts during construction or operation and maintenance.

e) 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? *No Impact.*

The project type does not include a waste disposal system; therefore, no impact will occur during construction or operation and maintenance.

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3.7 GREENHOUSE GAS EMISSIONS

3.7.1 INTRODUCTION

This section discusses potential GHG emissions associated with the project construction, operation, and maintenance, and concludes that impacts will be less than significant. GHG emissions were calculated and reported in carbon dioxide (CO_2) equivalents (CO_2e) for CO_2, nitrous oxide (N_2O), and methane (CH_4) emissions from on-road and off-road construction equipment and vehicles. Additionally, operational emissions of sulfur hexafluoride (SF_6) associated with potential leakage from gas-insulated switchgear at the switching station are also estimated. The implementation of the APMs described in Section 3.7.4.2, as well as those described in Section 3.3, Air Quality, will further reduce less-than-significant impacts.

The project's potential effects on GHG emissions were evaluated using the criteria set forth in Appendix G of the CEQA Guidelines (Office of Planning and Research, 2012). The conclusions are summarized in Table 3.7-1 and discussed in more detail in Section 3.7.4.

Table 3.7-1. CEQA Checklist for Greenhouse Gas Emissions

Would the project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

3.7.2 REGULATORY BACKGROUND AND METHODOLOGY

3.7.2.1 Regulatory Background

Federal

The Supreme Court decision in Massachusetts et al. v. U.S. Environmental Protection Agency et al. (Supreme Court Case 05-1120) found that USEPA has the authority to list GHGs as pollutants and to regulate emissions of GHGs under the federal CAA. On April 17, 2009, USEPA found that CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6 may contribute to air pollution and may endanger public health and welfare (USEPA, 2017a). USEPA has established reporting regulations that require specific facilities and industries to report their GHG emissions annually (USEPA, 2017b).

40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule. This rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tons of CO_2e emissions per year (USEPA, 2013).

40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule. Historically, the USEPA has mandated that Prevention of Significant Deterioration (PSD) and Title V requirements apply to facilities whose stationary source CO_2e emissions exceed 100,000 tons per year (USEPA, 2014). However, the Supreme Court decision in Utility Air Regulatory Group v. USEPA et al. (Supreme Court Case 12-1146) found that the USEPA does not have the authority to require PSD and Title V permitting for facilities based solely on GHG emissions. Additionally, the Supreme Court found that the USEPA can regulate GHG emissions from sources which are already subject to PSD and Title V requirements due to emissions of other pollutants.

This project is not impacted by these regulations. Additionally, because the project will not involve construction and operation of new stationary combustion sources, such as emergency generators, there are no permitting regulations relevant to the project.

State

In 2006, the California State Legislature signed the Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32), which provides the framework for regulating GHG emissions in California. This law requires the CARB to design and implement emission limits, regulations, and other measures such that statewide GHG emissions are reduced in a technologically feasible and cost-effective manner to 1990 levels by 2020. The statewide 2020 emissions limit is 427 million metric tons CO_2e (CARB, 2007).

State Executive Order S-3-05 established GHG reductions targets for the state of California. The targets called for a reduction of GHG emissions to 2000 levels by 2010; a reduction of GHG emissions to 1990 levels by 2020; and a reduction of GHG emissions to 80 percent below 1990 levels by 2050 (Office of the Governor, 2005). The California Environmental Protection Agency (Cal/EPA) secretary is required to coordinate development and implementation of strategies to achieve the GHG reduction targets.

Part of CARB's direction under AB 32 was to develop a scoping plan that contains the main strategies California will use to reduce GHG emissions that cause climate change. The scoping plan includes a range of GHG reduction actions, which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 cost of implementation fee regulation to fund the program (CARB, 2008a and CARB, 2017b). The CARB is currently in the process of updating the scoping plan to address the near-term 2030 target established by Senate Bill 32, which is to reduce statewide GHG emissions by 40 percent below 1990 levels by 2030.

CARB's Regulation for the Mandatory Reporting of Greenhouse Gas Emissions came into effect in January 2009 (CARB, 2017c). However, this project is not impacted by these regulations and does not require mandatory reporting.

CARB published a Preliminary Draft Staff Proposal titled Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act in October 2008 that included a proposal that non-transportation-related sources with

GHG emissions less than 7,000 metric tons of CO_2e per year should be presumed to have a less than significant impact (CARB, 2008b).

On December 30, 2009, the California Natural Resources Agency adopted amendments to the CEQA guidelines to include analysis of GHG emissions in CEQA documents, deferring significance thresholds to the lead agency. The amendments became effective on March 18, 2010 (California Natural Resources Agency, 2009).

A Regulation for Reducing SF_6 Emissions from Gas Insulated Switchgear was implemented as part of AB 32, mandating utility-wide reduction of SF_6 emissions to a 1 percent leak rate by 2020 (CARB, 2017d).

In an effort to best support reduction of GHG emissions consistent with AB 32, CARB has released the Short-Lived Climate Pollutant Reduction Strategy. This plan, required by Senate Bill 605, establishes targets for statewide reductions in Short-Lived Climate Pollutant emissions of 40 percent below 2013 levels by 2030 for CH_4 and hydrofluorocarbons and 50 percent below 2013 levels by 2030 for anthropogenic black carbon. It is expected that this strategy will be integrated into the next version of the scoping plan (CARB, 2017a).

Regional

The California Air Pollution Control Officer's Association has established the Greenhouse Gas Reduction Exchange for GHG emission credits in California. Credits listed on the Greenhouse Gas Reduction Exchange come from voluntary emission reduction projects and can be purchased to offset GHG emissions.

Local air districts act under state law and their discretionary requirements apply to PG&E utility projects.

As discussed in Section 3.3.2.1, the project is located within the jurisdiction of the BAAQMD. The BAAQMD is the local agency charged with preparing, adopting, and implementing emission control measures and standards for stationary sources of air pollution. Because the project will not involve construction of new stationary sources, there are no permitting regulations relevant to the project. Additionally, because CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary GHG regulations. The local plans and guidance documents referenced in Section 3.3.2.1 (i.e., the *California Environmental Quality Act Air Quality Guidelines* [BAAQMD, 2017a] and the *2017 Bay Area Clean Air Plan* [BAAQMD, 2017b]) are also relevant to analyses used to evaluate the project's GHG emissions.

Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the project is not subject to local (i.e., city and county) discretionary regulations.

3.7.2.2 Methodology

Short-term construction emissions of CO_2e were evaluated using detailed construction emissions calculations. Construction emissions were estimated using construction equipment emission factors from the *California Emissions Estimator Model (CalEEMod) User's Guide* (Environ International Corporation, 2016) and vehicle emission factors from EMFAC2014 (version 1.0.7).

Long-term operational emissions of CO_2e were also evaluated. These emissions are a result of leakage from SF_6-insulated circuit breakers. Operational emissions associated with inspections and ongoing maintenance activities (primarily associated with periodic maintenance vehicle travel) were not estimated because these activities are part of PG&E's ongoing operations and are expected to be infrequent and minimal.

GHG emission calculations in this document were based on worst-case estimates of emissions to ensure presentation of a conservative environmental analysis. This analysis may be revised as needed to reflect changes to the project plans.

3.7.3 ENVIRONMENTAL SETTING

3.7.3.1 Regional

GHGs are global concerns, unlike criteria air pollutants or toxic air contaminants that are of regional and/or local concern. Scientific research indicates that observed climate change is most likely a result of increased GHG emissions associated with human activity (Intergovernmental Panel on Climate Change, 2007). Global climate change describes a collection of phenomena, such as increasing temperatures and rising sea levels, occurring across the globe due to increasing anthropogenic emissions of GHGs (USEPA, 2009). GHGs contribute to climate change by allowing ultraviolet radiation to enter the atmosphere and warm the Earth's surface, but also prevent some infrared radiation from the earth from escaping back into space. The largest anthropogenic source of GHGs is the combustion of fossil fuels, which result primarily in CO_2 emissions.

As defined in AB 32, "greenhouse gas" or "greenhouse gases" include, but are not limited to, CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6. California is a substantial contributor to global GHG emissions. It is the second largest contributor in the United States and the 16th largest in the world (California Energy Commission [CEC], 2006).

3.7.3.2 Local

The BAAQMD assesses a GHG emissions fee for permitted facilities under BAAQMD Regulation 3, Schedule T, but currently has no other GHG emissions regulations. The BAAQMD did, however, establish a climate protection program in 2005 to explicitly acknowledge the link between climate change and air quality. The BAAQMD regularly prepares inventories of criteria and air toxic pollutants to support planning, regulatory, and other programs. Similarly, the BAAQMD has prepared a GHG emissions inventory, based on the standards for criteria pollutant inventories, to support the BAAQMD's climate protection activities. Table 3.7-2 presents the 2011 GHG emissions inventory for the Bay Area, which is the most recently available inventory (BAAQMD, 2015).

This GHG emissions inventory includes direct and indirect GHG emissions attributable to human activities. The emissions are estimated for industrial, commercial, transportation, residential, forestry, and agricultural activities in the SFBAAB. Both direct GHG emissions from locally generated electricity in the Bay Area and indirect emissions from out-of-region generated electricity for consumption in the region are reported. As shown in Table 3.7-2, fossil fuel consumption in the transportation sector was the single largest source of the SFBAAB's GHG emissions in 2011 (BAAQMD, 2015).

CO_2 emissions in the Bay Area represented about 90.3 percent 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 percent 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 percent 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 global warming potential gases such as hydrofluorocarbons, perfluorocarbons, and SF_6 made up about 4.9 percent 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 3.7-2. Bay Area 2011 GHG 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**

Notes:
MMT/year = million metric ton(s) per year
Source: BAAQMD, 2015

3.7.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for GHG emission impacts derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operational air quality impacts.

3.7.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area

affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. CEQA allows for significance criteria established by the applicable air pollution control district(s) to be used to assess the impact of a project related to GHG emissions, at the discretion of the CEQA Lead Agency.

Some California air districts (such as BAAQMD, Monterey Bay Unified, San Luis Obispo County, Ventura County, South Coast, and San Diego County) have adopted, or have recommended for adoption, a significance threshold of 10,000 metric tons CO_2e per year for stationary source projects (Monterey Bay Unified Air Pollution Control District, 2013). This threshold was derived from emissions data from the four largest air districts in California and is based on the Executive Order S-3-05 GHG emissions reductions goal of 80 percent below 1990 levels by 2050, which is roughly equivalent to 90 percent below current levels by 2050. This emissions reduction goal goes beyond the AB 32 emissions reduction goal established for 2020. The emissions data suggests that approximately 1 percent of all stationary sources emit greater than 10,000 metric tons CO_2e per year and are responsible for 90 percent of GHG emissions. This significance threshold represents a capture rate of 90 percent of all new and modified stationary source-related projects. A 90 percent emissions capture rate means that 90 percent of the total emissions from all new or modified stationary source projects would be subject to analysis in an EIR prepared pursuant to CEQA, including analysis of feasible alternatives and imposition of feasible mitigation measures (SCAQMD, 2008).

As noted, this GHG significance threshold is intended for long-term operational GHG emissions associated with stationary sources; none of the air districts mentioned have adopted or have recommended GHG significance thresholds for construction emissions. Therefore, in recent CEQA documents, the CPUC has elected to use an approach to the determination of significance of GHG construction emissions based on guidance developed by the SCAQMD. For construction-related GHGs, SCAQMD recommends that total emissions from construction be amortized over 30 years and added to operational emissions and then be compared to the operation-based significance threshold of 10,000 metric tons CO_2e per year (SCAQMD, 2008).

Per Appendix G of the CEQA Guidelines, the potential significance of the project's GHG emissions was evaluated for each of the criteria listed in Table 3.7-1, as discussed in Section 3.7.4.3.

3.7.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

Construction

APM Greenhouse Gas (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.

Operation and Maintenance

Operation and maintenance of the project will have less than significant GHG-related impacts. PG&E will employ standard BMPs—such as minimizing vehicle trips and keeping vehicles and equipment well maintained—during operations, and will comply with CARB Early Action Measures (CARB, 2017e) as these policies become effective. PG&E will also implement the following APM that is specifically related to avoidance and minimizing potential SF_6 emissions.

APM GHG-2: Minimize SF_6 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 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 USEPA'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.

3.7.4.3 Potential Impacts

Potential project impacts related to GHG emissions were evaluated against the CEQA significance criteria and are discussed in further detail in the following paragraphs. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase. Similar to the SCAQMD's recommended approach for construction emissions, this analysis amortizes the construction emissions over a 30-year project lifetime then compares those emissions to the significance threshold of 10,000 metric tons CO_2e per year.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 lines.

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? *Less-than-significant Impact.*

GHG emissions directly generated during construction will result in a less-than-significant, short-term impact to climate change. GHG construction emissions will be further reduced with implementation of APM GHG-1. As shown in Table 3.7-3, the GHG emissions from construction of the project, even without APM GHG-1, will be well below SCAQMD's recommended threshold of 10,000 metric tons of CO_2e per year.

Table 3.7-3. GHG Emissions from Project Construction

Construction Year	CO_2e Emissions without APM GHG-1 (metric tons/year) [e]	CO_2e Emissions with APM GHG-1 (metric tons/year) [e]
Construction Year 2020 [a]	903.56~~811.82~~	742.80~~634.58~~
Construction Year 2021 [b]	661.56~~615.50~~	525.25~~460.32~~
Construction Year 2022 [c]	5.62~~5.52~~	5.14~~5.04~~
30-Year Amortized Construction Emissions with Operation Emissions [d]	174	100
SCAQMD Significance Threshold	10,000	

Notes:

[a] As presented in Table 5 of supporting emissions calculation spreadsheets provided separately to CPUC staff , 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] As presented in Table 5 of supporting emissions calculation spreadsheets provided separately to CPUC staff , 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 GIS Equipment and Wire; Control Room and Battery Room Equipment; 230 kV Bus Work; 230 kV Cable Installation/Tie-in; Dress/Test/Wire Equipment; Install and Test Oil Pump House, Station Service Voltage Transformers; Testing and Commissioning; Exterior Walls, Final Grading, and Paving; Cleaning and Landscaping;

Table 3.7-3. GHG Emissions from Project Construction

Construction Year	CO_2e Emissions without APM GHG-1 (metric tons/year) [e]	CO_2e Emissions with APM GHG-1 (metric tons/year) [e]

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] As presented in Table 5 of supporting emissions calculation spreadsheets provided separately to CPUC staff, 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] To facilitate comparison to the SCAQMD's significance threshold, the project's total construction emissions were divided by 30 years and added to the project's stationary source GHG emissions, which are presented in Table 3.7-4.

[e] Emissions values rounded to whole numbers.

As noted, operational emissions associated with inspections and ongoing maintenance activities (primarily associated with periodic maintenance vehicle travel) will 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 percent, and are presented in Table 3.7-4. With implementation of APM GHG-2, these less-than-significant potential SF_6 emissions will be further reduced. As shown in Table 3.7-4, the GHG emissions from the operation phase of the project, even without APM GHG-2, will be well below BAAQMD's recommended threshold of 10,000 metric tons of CO_2e per year.

Table 3.7-4. Stationary Source GHG Emissions

Applicable APM	Number of Circuit Breakers	Leakage Rate	SF_6 Emissions (metric tons/year) [a]	CO_2e Emissions (metric tons/year) [b]
Without APM GHG-2	7	1%	0.0056	126.69
With APM GHG-2		0.5%	0.0028	63.34
BAAQMD Significance Threshold				10,000

Notes:

[a] Assumed each circuit breaker would contain 175 lb of SF_6.

[b] A global warming potential of 22,800 was used to estimate CO_2e emissions per 40 CFR 98, Subpart A.

The impact during operation and maintenance will be less than significant.

b) Would the project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases? *No Impact.*

The project will not conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions. The minimal short-term construction GHG emissions will not interfere with the long-term goal of AB 32 to reduce GHG emissions to 1990 levels by 2020. Operation and maintenance of the project is 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 this project. While Egbert Switching Station circuit breakers may emit a minor amount of SF_6 attributable to leakage during project operations, these emissions will be tracked annually per CARB's Regulation for Reducing SF_6 Emissions from Gas Insulated Switchgear, and will generate a minor and insignificant amount of CO_2e emissions. Therefore, the project will not conflict with plans, policies, or regulations intended to reduce GHGs; no impact will occur during construction, operations, or maintenance.

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3.8 HAZARDS AND HAZARDOUS MATERIALS

3.8.1 INTRODUCTION

This section describes existing conditions and potential impacts related to hazards and hazardous materials associated with construction, operation, and maintenance of the project. The analysis concludes that impacts related to hazards and hazardous materials will be less than significant with the incorporation of the APMs. The project's potential effects associated with hazards and hazardous materials were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.8-1 and discussed in more detail in Section 3.8.4.

Table 3.8-1. CEQA Checklist for Hazards and Hazardous Materials

Would the project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

3.8.2 REGULATORY BACKGROUND AND METHODOLOGY

3.8.2.1 Regulatory Background

The following paragraphs contain an overview of regulations related to the use of hazardous materials and the disposal of hazardous wastes.

Federal

Resource Conservation and Recovery Act

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 (HWCL), in 1992.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA; 42 U.S.C. Chapter 103) and associated Superfund Amendments provide the USEPA with the authority to identify hazardous sites, to require site remediation, and to recover the costs of site remediation from polluters. CERCLA also enabled the revision of the National Oil and Hazardous Substances Pollution Contingency Plan, also known as the National Contingency Plan, which provides the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants.

U.S. Department of Transportation Hazardous Materials Regulations

The U.S. Department of Transportation Hazardous Materials Regulations (Title 49 CFR Parts 100–185) cover all aspects of hazardous materials packaging, handling, and transportation.

State

Hazardous Waste Control Law

The HWCL (California Health and Safety Code Chapter 6.5 Section 25100 et seq.) authorizes Cal/EPA and the California Department of Toxic Substances Control (DTSC), a department within Cal/EPA, to regulate the generation, transportation, treatment, storage, and disposal of hazardous wastes. DTSC can also delegate enforcement responsibilities to local jurisdictions that enter into agreements with DTSC for the generation, transport, and disposal of hazardous materials under the authority of HWCL.

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 CERCLA. 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 responding to hazardous materials transportation emergencies, are the California Highway Patrol and Caltrans, respectively.

Occupational Health and Safety

The California Division of Occupational Safety and Health assumes primary responsibility for developing and enforcing workplace safety regulations within the state (Title 8 of the CCR). California Division of Occupational Safety and Health standards are more stringent than federal Occupational Safety and Health Administration regulations and take precedence.

Hazardous Materials Management

The California Office of Emergency Services is the state office responsible for establishing emergency response and spill notification plans related to hazardous materials accidents. Title 26 of the CCR is a compilation of the chapters or titles of the CCR that are applicable to hazardous materials management.

Porter-Cologne Water Quality Control Act

As discussed in more detail in Section 3.9, Hydrology and Water Quality, the Porter-Cologne Water Quality Control Act (California Water Code, Division 7) is the provision of the California Water Code that regulates water quality in California and authorizes SWRCB and nine RWQCBs to implement and enforce the regulations. The RWQCBs regulate discharges under Porter-Cologne primarily through the issuance of waste discharge requirements. Anyone discharging or proposing to discharge materials that could affect water quality must file a report of waste discharge. The SWRCB and the RWQCBs can make their own investigations or may require dischargers to carry out water quality investigations and report on water quality issues. Porter-Cologne provides several means of enforcement, including cease and desist orders, cleanup and abatement orders, administrative civil liability orders, civil court actions, and criminal prosecution. The project area is under the jurisdiction of the San Francisco Bay RWQCB.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

The Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program) (CCR Title 27) was mandated by the State of California in 1993. The Unified Program was created to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities for six hazardous materials programs. The program has six elements, including:

Hazardous Waste Generators and Hazardous Waste On-site Treatment

- Underground Storage Tanks
- Aboveground Petroleum Storage Act
- Hazardous Materials Release Response Plans and Inventories
- California Accidental Release Prevention
- Uniform Fire Code Hazardous Materials Management Plans and Hazardous Materials Inventory Statements

At the local level, this is accomplished by identifying a Certified Unified Program Agency that coordinates all of these activities to streamline the process for local businesses. The San Francisco County Department of Public Health (SFDPH) Environmental Health Section and San Mateo County Environmental Health Department are approved by Cal/EPA as the Certified Unified Program Agencies for the city and county of San Francisco and the county of San Mateo, respectively.

Rules for Overhead Electric Line Construction

Under Section 35 of General Order 95, the CPUC regulates all aspects of design, construction, operation, and maintenance of electrical power lines and fire safety hazards for utilities subject to their jurisdiction.

Fire Prevention Standards for Electric Utilities

The Fire Prevention Standards for Electric Utilities (CCR Title 14, Sections 1250-1258) provide definitions, maps, specifications, and clearance standards for projects under the jurisdiction of PRC Sections 4292 and 4293 in State Responsibility Areas (SRAs).

California Fire Code

The California Fire Code 2010 (CCR Title 24, Part 9) is based on the International Fire Code from the International Code Council and contains consensus standards related to establishing good practices to safeguard the public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new or existing buildings, structures, and premises.

Local

Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the 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

A two-tier Airport Influence Area (AIA) has been established for airport land use compatibility planning near the San Francisco International Airport (City/County Association of Governments of San Mateo County [C/CAG], 2012). Area A, the larger of the two areas and encompassing all of San Mateo County, 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 Community Noise Equivalent Level (CNEL) 65 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 area in San Mateo County is located within Area A, but no portions of the project are located within Area B.

Adopted Emergency Response Plans/Evacuation Plans

Emergency plans in effect in the project area are as follows:

The City and County of San Francisco (CCSF) Emergency Management Program is part of a jurisdiction-wide system that provides emergency management guidance related to prevention, preparedness, response, and recovery. The CCSF's Emergency Response Plan utilizes an all-hazards approach to emergency planning and, therefore, encompasses all hazards that are applicable to the city and county, both natural and man-made, ranging from planned events to large-scale disasters (CCSF, 2010). The plan describes the coordination, roles, and responsibilities of responding agencies and how the CCSF 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 (SFPD) in collaboration with the San Francisco Department of Public Works, San Francisco Municipal Transportation Authority, Caltrans, and California Highway Patrol (CCSF, 2010).

The County of San Mateo Emergency Operations Plan (EOP) is the base plan that governs the roles and responsibilities of San Mateo County 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 emergency management structure regarding how and when the Emergency Operations Center staff is 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). The Maher Area encompasses the area of San Francisco bayward of a historic, pre-1906 earthquake high tide line (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 (cy) of soil are to be disturbed and the project is on fill or is at a location designated for investigation by the SFDPH, then applicants for building permits must, among other things, analyze the site's soil for hazardous materials.

3.8.2.2 Methodology

The methodology for analyzing impacts from hazards and hazardous materials includes identifying general types of hazardous materials and activities used during project construction, operation, and maintenance. Potential impacts on the environment and public health from hazards and hazardous materials were further evaluated using information on the existing uses of the project site and adjacent properties, historical uses, and known contamination to determine the likelihood of encountering hazardous materials.

A regulatory agency database report was obtained from Environmental Data Resources Inc. (EDR) (EDR, 2017) and was reviewed to screen for hazardous waste sites in the proposed project area. The EDR report, provided separately to CPUC staff, includes (1) information on sites identified in federal, state, and local databases related to hazardous materials and wastes that are located within 0.25 mile of the proposed Egbert-Embarcadero, Martin-Egbert, and Jefferson-Egbert 230 kV lines and the proposed switching station; and (2) a map showing the locations of these sites (Figure 3.8-1). The database search process reviews multiple lists for properties with active or historic documented hazardous materials releases and businesses that use, generate, or dispose of hazardous materials or petroleum products in their operation. In addition, the EDR search reviews lists of active contaminated sites that are currently undergoing monitoring and remediation.

As specified by CEQA significance criterion (Table 3.8-1), the EDR report was used to identify sites along the project routes that are included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 ("Cortese List"). Because the Cortese List is no longer specifically updated by the State, those requesting a copy of the Cortese "list" are now referred directly to the appropriate information resources contained on the Internet websites of the boards or departments that are referenced in the Cortese List statute. Therefore, review of the Cortese List sites contained in the EDR report was supplemented by reviewing the following:

- Sites listed on DTSC's EnviroStor database (DTSC, 2017)
- Sites listed on the SWRCB's GeoTracker database (SWRCB, 2017)
- SWRCB lists of sites (1) with reported waste constituents above hazardous waste levels outside the waste management unit; (2) with active Cease and Desist Orders and Cleanup and Abatement Orders for hazardous wastes; or (3) identified by DTSC as subject to corrective action pursuant to Section 25187.4 of the California Health and Safety Code

The EDR report was also used to screen for nearby hazardous waste sites that could potentially affect the project based on the significance criteria summarized in Table 3.8-1.

The potential for project activities that could pose fire hazards was evaluated through review of state fire hazard maps (California Department of Forestry and Fire Protection [CAL FIRE], 2007a, 2007b, 2008).

3.8.3 ENVIRONMENTAL SETTING

The project area is located in urbanized areas of San Francisco, Daly City, and Brisbane consisting of a mix of residential, commercial, public, industrial, and open space uses. The proposed Egbert Switching Station site will be constructed on approximately 1.7 acres, and approximately 3.7 miles of new underground transmission lines are proposed to be installed as

Insert

Figure 3.8-1 Potential Hazardous Material Sites

extensions to two existing transmission lines to connect to the new switching station. The proposed Egbert-Embarcadero and Martin-Egbert 230 kV lines will extend from points along an existing Martin-Embarcadero 230 kV line southeast to the proposed Egbert Switching Station. The proposed Jefferson-Egbert 230 kV line will extend north, northeast from the existing Jefferson-Martin 230 kV line to the proposed Egbert Switching Station. Land uses along the proposed Egbert-Embarcadero and Martin-Egbert 230 kV lines consist of residential, public, and light industrial (San Francisco Planning Department, 2017). Planned land use at the proposed Egbert Switching Station site is light industrial; and the property is currently occupied by DLD Lumber. Land uses along the southern portion of the proposed Jefferson-Egbert 230 kV line in the cities of Brisbane and Daly City consist of low density residential, retail and office commercial, planned development, and open space preservation (City of Brisbane, 2003; City of Daly City, 2015). Land uses along the central and northern portions of the proposed Jefferson-Egbert 230 kV line in the city and county of San Francisco consist of residential; light industrial; public; and neighborhood commercial cluster and shopping center (San Francisco Planning Department, 2017).

Six potential project staging areas have been identified (Figures 3.8-1 and 3.10-2h). Two potential staging areas within the fenced boundary of Martin Substation are located in public facilities and manufacturing district land use areas (City of Brisbane, 2003; City of Daly City, 2015). Two potential staging areas in San Francisco are in the Port's Southern Waterfront off Amador Street, a heavily industrialized area (San Francisco Planning Department, 2017). A potential staging area within a paved parking lot at the Cow Palace has a public facilities land use, and a potential staging area in a graveled area off Carter Street has a retail and office land use but is currently being used for construction staging (City of Daly City, 2015).

The site of the proposed Egbert Switching Station, portions of the proposed Egbert-Embarcadero and Martin-Egbert 230 kV lines, and portions of the northeastern section of the proposed Jefferson-Egbert 230 kV line are within the mapped boundary of areas in the city of San Francisco subject to the city's Maher Ordinance (San Francisco Public Works Code, Article 22A) (San Francisco Planning Department, 2015). The Maher Ordinance covers areas of the city where there is an assumed potential to encounter hazardous materials in the subsurface based on the land use history of a site or the surrounding area, such as 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 in close proximity to freeways. Historic bay fill is a heterogeneous combination of man-made debris, sand, silt, and clay. In some cases, the fill material contains contaminants, including predominantly petroleum-based chemicals and heavy metals.

One section of the proposed Jefferson-Egbert 230 kV line approximately 300 feet in length along Visitacion Avenue directly west of Campbell Avenue will cross an area mapped as serpentine bedrock. Serpentine rock can be a source of NOA (Figure 3.6-1).

3.8.3.1 Airports

No public airports or private airstrips are located within 2 miles of the project site (Google Maps, 2017).

3.8.3.2 Schools

There are 13 schools within 0.25 mile of the project (Table 3.14-3), 10 schools in San Francisco and 3 schools in Daly City. There are no Brisbane schools within 0.25 mile of the project. In addition, there are 11 preschools and daycare centers within 0.25 mile of the project in San Francisco. There are no preschools or daycare centers within 0.25 mile of the project in Brisbane or Daly City.

3.8.3.3 Existing Hazardous Materials Sites

The EDR report for the project (EDR, 2017) identified numerous sites located along or within 0.25 mile of the proposed project routes. As previously indicated, these sites are listed in regulatory agency databases based on past or current hazardous materials use, hazardous waste generation, spills of hazardous chemicals, or the presence of petroleum hydrocarbon tanks, including both current and former tanks, aboveground and underground tanks, and tanks with and without reported releases into the environment. For RWQCB and DTSC sites listed in the EDR report, further review was performed of information contained in the GeoTracker and EnviroStor databases, respectively. In addition, the EnviroStor and GeoTracker databases were reviewed to identify listed sites within 0.25 mile of the proposed staging areas and the Jefferson-Martin line termination equipment within Martin Substation, which were not included in the EDR report.

The GeoTracker database identified one active contamination site located within 0.25 mile of the project area. In addition, 24 Leaking Underground Storage Tank (LUST) Cleanup Sites were identified within this area that have undergone regulatory closure under the RWQCB and local agencies, 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 area that are active or certified with operation and maintenance of remedial measures, as well as two sites that have undergone regulatory closure.

Cortese List Sites

PG&E's Martin Service Center (731 Schwerin Street, Daly City; see Figure 3.8-1) is a 49-acre EnviroStor-listed State Response Site (EnviroStor IDs 41360100, 41360093, and 41360101) that is certified with land use controls and ongoing operation and maintenance of remedial measures. It is located to the west and south of Martin Substation, where terminal equipment for the Jefferson-Martin 230 kV line will be removed as part of the proposed project. Martin Service Center is also the location of two potential staging areas for project construction. A manufactured gas plant (MGP) 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. Former MGP wastes consisted of tars and lampblack (a powdered carbon), with associated polynuclear aromatic hydrocarbons, phenol, volatile organic compounds, 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 MGP 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 Levinson North Parcel have also been identified as a potential project staging area. 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 site 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 at OU-1 and storage of material, equipment, and records; parking; and wetlands preservation at OU-2. 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.

Other Sites under DTSC or RWQCB Oversight

The 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 (GeoTracker ID L10008948177; see site 16 on Figure 3.8-1). 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 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 3.8-1), 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 conditions4 and being included in the SWRCB's GeoTracker or DTSC's EnviroStor databases are shown on Figure 3.8-1 and described below:

- <u>Metten and Gebhard, 1775 Egbert Avenue, San Francisco</u> (site 1 on Figure 3.8-1). The site is listed in the EnviroStor database as a State Response site under the oversight of the DTSC (EnviroStor ID 38310001). Chromium was identified as a chemical of concern and the site was remediated by removal of soils and sediments and steam cleaning the concrete sub-floor. The site was certified in 1984 as closed and recommended again for no further action in

4 A historical recognized environmental condition is a past release of any hazardous substances or petroleum products that has occurred in connection with a property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls) (American Society for Testing and Materials, 2013).

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, Geneva Avenue, and Santos Street, Daly City (site 2 on Figure 3.8-1). 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 (EnviroStor ID 41070008). 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 potential Cow Palace and Carter Street staging areas.

- Cow Palace, Geneva Avenue, Daly City (site 3 on Figure 3.8-1). 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 Local Oversight Program (LOP) (GeoTracker ID T0608100352). 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 potential Cow Palace and Carter Street staging areas.

- Hillside Village (also known as Schindel Property), Carter Street at Martin Street, San Francisco (site 4 on Figure 3.8-1). 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 (GeoTracker ID T0608130089). 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.

- S.F. Public Housing Authority, 1815 Egbert Avenue, San Francisco (site 5 on Figure 3.8-1). 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 (GeoTracker ID T0607500262). 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, 400 Mansell Street, San Francisco (site 6 on Figure 3.8-1). 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 (GeoTracker ID T0607500578). 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.

The EDR report also identified one spill incident of note (spill location, site 7, on Figure 3.8-1) at 607 Carter Street, San Francisco, which 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 [polychlorinated biphenyl] 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.

In addition to these known historic conditions adjacent to the proposed routes and switching station, the EDR report identified six potential historic gas station/filling station/service station sites and two historical dry cleaner or laundry facilities adjacent to the proposed project. There are no documented records of releases of hazardous materials or investigations at these sites. However, historic auto service stations are commonly associated with leaks from fuel or waste oil USTs, and historic 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 summarized in Table 3.8-2 and shown on Figure 3.8-1. Besides these sites located adjacent to the proposed routes and switching station, the EDR report identified 53 additional historic auto service sites and 44 additional current or historic dry cleaner sites located within 0.25 mile of the project alignment.

No Superfund sites are located within 0.25 mile of the project routes or switching station.

Table 3.8-2. Historic Auto Service and Dry Cleaner Sites Adjacent to the Proposed Routes and Switching Station

Site ID (Owner)	Address	Historic Use (Date)
Site 8 (Frank Arata)	1290 Bayshore Boulevard, San Francisco	Gasoline and oil service station (1935)
Site 9 (C&M Associated Service)	1295 Bayshore Boulevard, San Francisco	Gasoline station (1958)
Site 10 (F. A. Arata)	1298 Bayshore Boulevard, San Francisco	Gasoline and oil service station (1940)
Site 11 (Charlie S. Richfield Service)	2145 Geneva Avenue, San Francisco	Gasoline station (1958 to 1971)

Table 3.8-2. Historic Auto Service and Dry Cleaner Sites Adjacent to the Proposed Routes and Switching Station

Site ID (Owner)	Address	Historic Use (Date)
Site 12 (Cow Palace Chevron Service)	2201 Geneva Avenue, San Francisco	Gasoline station (1958 to 1971)
Site 13 (620 Carter Street)	620 Carter Street, San Francisco	Automotive and repair shop (1999 to 2012)
Site 14 (JAS Bozios)	75 Crane Street, San Francisco	Clothes presser and cleaner (1930)
Site 15 (Sunny Cleaners)	1436 Sunnydale Avenue, San Francisco	Cleaner and dyer (1949 to 1982)

3.8.3.4 Wildland Fire Hazards

As defined by CAL FIRE, the portion of the project area within San Francisco County is located within a Local Responsibility Area (LRA). Within the LRA, the project area is located in fire hazard severity zones with the following designations (CAL FIRE, 2007a):

- Unzoned: All of the proposed Egbert-Embarcadero and Martin-Egbert 230 kV lines, the proposed Egbert Switching Station, and the portion of the proposed Jefferson-Egbert 230 kV line north of Geneva Avenue.

- High Fire Hazard Severity Zone: An approximately 750-foot section of the proposed Jefferson-Egbert 230 kV line along Geneva Avenue and Carter Street within San Francisco County.

The portion of the project area within San Mateo County is divided between an LRA and a SRA with the following designations:

- LRA: Most of the proposed Jefferson-Egbert 230 kV line within San Mateo County along Carter Street is located within an LRA designated as a Non-Very High Fire Hazard Severity Zone (CAL FIRE, 2008).

- SRA: The southernmost approximately 700-foot section of the proposed Jefferson-Egbert 230 kV line within San Mateo County along Carter Street is located within an SRA designated as a High Fire Hazard Severity Zone (CAL FIRE, 2007b). The approximately 350-foot section of the line along Guadalupe Canyon Parkway is directly adjacent to the SRA.

Fire protection services and equipment near the project alignment are discussed in detail in Section 3.14, Public Services.

3.8.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for impacts related to hazards and hazardous materials derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operational impacts related to hazards and hazardous materials.

3.8.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts related to hazards and hazardous materials were evaluated for each of the criteria listed in Table 3.8-1, as discussed in Section 3.8.4.3.

3.8.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

APM Hazardous Materials (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 SWPPP (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 (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 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 (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.

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 (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.

3.8.4.3 Potential Impacts

Project impacts related to hazards and hazardous materials were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero- lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

a) Will the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? *Less-than-significant Impact.*

Construction

Other than substances associated with construction vehicles and equipment, use of lubricants for cable pulling, management of dielectric fluid during construction splicing activities of the proposed Egbert-Embarcadero and Martin-Egbert 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, no hazardous materials are associated with the routine activities of project construction. 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 will be less than significant with implementation of APMs HM-1, HM-2, and HM-3.

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 will be used for inspection of the new facilities, no hazardous materials are associated with maintenance and operation of the project. As described under APM HM-1, existing PG&E operation and maintenance policies addressing hazardous materials use will be updated prior to completion of project construction. These operation and maintenance policies will minimize the possibility of significant hazard to the public or the environment through routine activities; therefore, any impact will be less than significant. As discussed in Section 3.9, Hydrology and Water Quality, a new site-specific SPCC Plan will be prepared for the proposed Egbert Switching Station.

b) Will the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? *Less-than-significant Impact.*

Construction

Project construction will require the use of vehicles and motorized equipment. During construction activities, there is a potential for an accidental release of fluids from a vehicle or motorized piece of equipment. Any impacts associated with such an accidental release will be reduced to a less than significant level by implementation of APMs HM-1 and HM-2. If underground tanks, contaminated soil, or contaminated groundwater are encountered during project construction, any impacts will be less than significant with implementation of APM HM-1.

Operation and Maintenance

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 will be updated as needed prior to completion of project construction. Any impacts associated with such an accidental release will be less than significant with implementation of APMs HM-1 and HM-2.

c) Will 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? *Less-than-significant Impact.*

Thirteen schools are located within 0.25 mile of the project routes (Section 3.14, Public Services). No acutely hazardous materials or waste would be used or would be generated by the project. Construction impacts would be associated with the use of equipment with hydraulic fluids and fuels that could create a hazard in the event of a spill. However, implementation of APMs HM-1 and HM-2 would reduce that potential impact to less than significant. During operation and maintenance, the project will not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one quarter mile of an existing or proposed school; no impact will occur.

d) Will 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? ***No Impact.***

The proposed transmission lines, switching station, and work within Martin Substation are not located in sites listed pursuant to Section 65962.5, as described in Section 3.8.3.3. However, potential staging area within Martin Substation may be located on a listed site. No impact will occur because project construction will not occur on listed properties, and no disturbance of the subsurface will occur in staging areas. Potential staging areas are paved, graveled, and/or covered by pavement caps. Implementation of APM HM-3 will further ensure that human health and the environment are protected. The operation and maintenance associated with the project is not expected to include disturbance of subsurface materials and no impact will occur during this phase.

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

The southern portion of the project area in San Mateo County is located within a real estate disclosure area, AIA Area A, of the airport land use compatibility plan for the San Francisco International Airport (C/CAG, 2012). However, no portions of the project are located within the area subject to land use policy action reviews, AIA Area B. No new structures associated with the project will require FAA notification. Therefore, the project would not result in a safety hazard for people residing or working in the project area during either the construction or the operation and maintenance phases and no impact will occur.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? ***No Impact.***

The project area is not in the vicinity of a private airstrip; therefore, the project would not result in a safety hazard for people residing or working in the project area during either the construction or the operation and maintenance phases and no impact will occur.

g) Will the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? ***Less-than-significant Impact.***

Work will occur in roadways during construction and operation and maintenance. Road closures, if necessary, will occur in accordance with regulations and will not result in a significant impact to emergency response or emergency evacuation. The project will not impair the implementation of or physically interfere with an adopted emergency response or emergency evacuation plan; therefore, the impact is less than significant during construction; during operation and maintenance no impact will occur.

h) Will the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? ***Less-than-significant Impact.***

The project has limited areas (about 1,800 feet total) within or adjacent to wildlands. Sections of the proposed Jefferson-Egbert 230 kV line for approximately 1,500 feet along Carter and Geneva Streets are within a high fire hazard severity zone, and a section of the line along Guadalupe Canyon Parkway (approximately 300 feet) is adjacent to a high fire hazard severity zone.

Construction and operation and maintenance activities will occur within the roadway or paved shoulder. Once the project is constructed, underground transmission line infrastructure will be present in these areas. The project will not expose people or structures to a significant risk involving wildland fires. The impact is less than significant during construction and operation and maintenance.

3.8.5 REFERENCES

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3.9 HYDROLOGY AND WATER QUALITY

3.9.1 INTRODUCTION

This section describes existing conditions and potential impacts to hydrological resources, water quality, and flood control as a result of construction, operation, and maintenance of the project. The analysis concludes that impacts will be less than significant in these areas; the implementation of APMs described in Section 3.9.4 will further reduce less-than-significant impacts. The project's potential effects on hydrology, water quality, and flood control were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.9-1 and discussed in more detail in Section 3.9.4.

Table 3.9-1. CEQA Checklist for Hydrology and Water Quality

Would the project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☒
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate of amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☐	☒
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☐	☒
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒

Table 3.9-1. CEQA Checklist for Hydrology and Water Quality

Would the project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐

3.9.2 REGULATORY BACKGROUND AND METHODOLOGY

3.9.2.1 Regulatory Background

Federal

National Flood Insurance Program

The Federal Emergency Management Agency (FEMA) is responsible for determining flood elevations and floodplain boundaries based on USACE studies. FEMA is also responsible for distributing the Flood Insurance Rate Maps used in the National Flood Insurance Program (NFIP) (42 U.S.C. Ch. 50, Section 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." Federal regulations governing development in a floodplain are set forth in CFR Title 44, Part 60, enabling the FEMA to require municipalities that participate in the NFIP to adopt certain flood hazard reduction standards for construction and development in 100-year floodplains.

Section 10 of the Rivers and Harbors Appropriation Act of 1899

This federal law (33 U.S.C. Section 401, et seq.) makes it unlawful to obstruct or alter a navigable river or other navigable water of the U.S. Construction, excavation, or deposition of materials in, over, or under such waters, or any work that would affect the course, location, condition, or capacity of those waters requires a Section 10 permit and approval from the USACE.

Clean Water Act Section 303(d)

CWA Section 303(d) (33 U.S.C. Section 1313) requires states, territories, and authorized Tribes to develop a list of waters within its boundaries that do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law further requires that these jurisdictions establish priority rankings for water on the lists and develop action plans, called Total Maximum Daily Loads, to improve water quality (San Francisco Bay RWQCB, 2017a). The RWQCBs and SWRCB implement this federal regulation in California.

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 (total aggregate capacity of aboveground oil storage containers is greater than 1,320 gallons or completely buried storage tanks is greater than 42,000). 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 SPCC Plans and establishes procedures, methods, and equipment requirements.

State

Clean Water Act Section 401

CWA Section 401 (33 U.S.C. Section 1251 et seq.) requires states to certify whether projects subject to federal permits meet state water quality standards. In California, the RWQCBs and SWRCB issue such certifications. The project is under the jurisdiction of the San Francisco Bay RWQCB. If the project requires a USACE permit, a Water Quality Certification will be required.

Clean Water Act Section 402

Under CWA Section 402 (33 U.S.C. Section 1251 et seq.), the National Pollutant Discharge Elimination System (NPDES) controls water pollution by regulating point sources of pollution to waters of the U.S. The SWRCB administers the NPDES permit program in California. Projects that disturb 1 or more acres of soil are required to obtain coverage under the state NPDES General Permit for Discharges of Storm Water Associated with Construction Activity. A SWPPP must be developed and implemented for each project covered by the general permit. The SWPPP must include BMPs that are designed to reduce potential impacts to surface water quality during project construction and operation.

Porter-Cologne Water Quality Control Act (California Water Code, Division 7)

Under this state law, the SWRCB has authority over state waters and water quality. "Waters of the state" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code Section 13050[e]). Examples include, but are not limited to rivers, streams, lakes, bays, marshes, mudflats, unvegetated and seasonally ponded areas, drainage swales, sloughs, wet meadows, natural ponds, vernal pools, diked baylands, seasonal wetlands, and riparian woodlands. The RWQCBs have local and regional authority. The San Francisco Bay RWQCB has authority in the project area. The RWQCBs prepare and periodically update Basin Plans (water quality control plans), which establish:

- beneficial uses of water designated for each protected water body;
- water quality standards for both surface water and groundwater; and
- actions necessary to maintain these water quality standards.

Projects that will discharge waste to waters of the state must file a report of waste discharge with the appropriate RWQCB, if the discharge could affect the quality of waters of the state (Article 4, Section 13260). The RWQCB will issue waste discharge requirements or a waiver of the waste discharge requirements for the project. The requirements will implement any relevant water quality control plans that have been adopted, and must take into consideration the beneficial uses to be protected and the water quality objectives reasonably required for that purpose (Article 4, Section 13263).

Fish and Game Code Section 1602

This section of California law protects the natural flow, bed, channel, and bank of any river, stream, or lake under the jurisdiction of the CDFW. Project plans must be submitted to CDFW that are sufficient to indicate the nature of a project for construction if the project would:

- substantially divert, or obstruct the natural flow of a jurisdictional river, stream, or lake;
- substantially change or use material from the bed, channel, or bank; or
- result in the disposal or deposition of debris, waste, or other material containing crumbed, flaked, or ground pavement where it can flow into a river, stream, or lake.

For projects substantially impacting the bed, bank, or flow of a water under CDFW jurisdiction, applicants must submit a Notification of Lake or Streambed Alteration to the CDFW so that the department may issue an agreement if staff determines that the activity may substantially adversely affect fish and wildlife resources.

Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the project is not subject to local discretionary regulations. PG&E will secure ministerial permits, as required.

The City and County of San Francisco Department of Building Inspection requires and enforces standards contained in the CBC related to grading and construction, including those that may directly or indirectly affect surface water quality by contributing to erosion or siltation or alter 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.

3.9.2.2 Methodology

Information on surface water and groundwater in the project area was obtained from available maps and published reports completed by and for state, county, and local water agencies. Additional information from city, county, regional, and state water agencies was obtained as necessary. Site-specific surveys were not conducted by specialists to determine the water quality for the project area because existing available information was sufficient to address potential project impacts.

Areas of existing soil and water quality degradation were identified by searching federal and state regulatory-agency databases that track sites with known, suspected, or potential hazardous-substance contamination (e.g., USTs or landfills). The results of the database search are provided in Section 3.8, Hazards and Hazardous Materials.

3.9.3 ENVIRONMENTAL SETTING

3.9.3.1 Regional Setting

The project is located within the San Francisco Bay Hydrologic Basin of California. The project is located in urbanized areas in the cities of San Francisco, Daly City, and Brisbane. Urban development in some areas has included construction of underground drains to replace creeks; filling areas of tidal marshes, lakes, and the bay; and construction of artificial lakes and reservoirs. San Francisco is subdivided into several historic watersheds, each of which drains to a common part of the Pacific Ocean or Bay during wet weather. The proposed Egbert Switching Station, Egbert-Embarcadero and Martin-Egbert lines, and northern portion of the proposed Jefferson-Egbert line (i.e., along Mansell Street and to the north) are located in the Yosemite Creek Watershed (Figure 3.9-1), which drains toward the historic tidal marshes of Yosemite Creek into South Basin. The potential Amador Street staging areas are located along the bayside periphery of the Islais Creek watershed near India Basin. The central portions of the proposed Jefferson-Egbert 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 (Figure 3.9-1), which is pumped northward into the San Francisco combined sanitary/stormwater sewers. Most of the southernmost portion of the proposed Jefferson-Egbert 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 (Figure 3.9-1), which drains by gravity to San Francisco Bay via Brisbane. A limited section of the proposed Jefferson-Egbert line along the southernmost 150 feet of Carter Street and along Guadalupe Canyon Parkway is located in the Guadalupe Valley Watershed (Figure 3.9-1), which drains toward the historic tidal marshes of Guadalupe Valley Creek and into San Francisco Bay.

Most of the time, San Francisco's present-day drainage system in the project area collects municipal sewage and stormwater runoff from the eastern side of the peninsula together in a combined storm drain system, and routes flow through large transport/storage structures extending along the shoreline to the Southeast Treatment Plant, located on the southern side of Islais Creek Channel near 3rd and Evans Streets (Section 3-17, Utilities). The project area located within Daly City drains to San Francisco Bay via the city's stormwater drainage system. A storm drain was observed on-site near the entrance of the proposed Egbert Switching Station. The existing Martin Substation and the proposed project transmission line routes are mostly covered by impervious surfaces, whereas most of the proposed Egbert Switching Station site is currently unpaved.

The surface topography of the northern project area (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 area (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 area (i.e., generally south of Sunnydale Avenue)

Insert

Figure 3.9-1 Watersheds in the Project Area

slopes from south to north and from west to east. The site of the proposed Egbert Switching Station slopes gently from approximately an elevation of 35 feet above mean sea level along the southern boundary to 30 feet at the northern boundary.

3.9.3.2 Climate

The project area 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 (CAL FIRE, 2000). Surface water flows in the region are highly seasonal, with more than 90 percent of the annual runoff occurring during the winter rainy season between October and April. Many streams go dry during the middle or late summer (RWQCB, 2017b).

3.9.3.3 Surface Water

Regional development has increased the amount of impervious surface and the rates of runoff. Local creeks in the urbanized project area (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 (Figure 3.9-1). The nearest surface water bodies to the project are McNab Lake (located in John McLaren Park about 1,300 feet northwest of the proposed Jefferson-Egbert 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 line at Raymond Avenue) (Figure 3.9-1). Yosemite Slough is located about 2,900 feet east of the proposed Egbert Switching Station (Figure 3.9-1).

3.9.3.4 Groundwater

The project area is located over three groundwater basins within the San Francisco Bay Hydrologic Region. The proposed Egbert-Embarcadero and Martin-Egbert lines, proposed Egbert Switching Station, and northern portion of the proposed Jefferson-Egbert Line (i.e., from approximately Mansell Street north) are located in the South San Francisco Groundwater Basin (Figure 3.9-2). 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. San Francisco Bay forms the basin boundary along its entire eastern extent. Geologically, the basin can be broadly classified as unconsolidated sediment and bedrock (USGS, 1993, as cited in California Department of Water Resources [DWR], 2004a). The primary water-bearing strata are unconsolidated sediments, including dune sand, the Colma Formation, bay mud and clay, and artificial fill (USGS, 1993, as cited in DWR, 2004a).

The central and southern portions of the proposed Jefferson-Egbert Line (i.e., south of Mansell Street), the existing Martin Substation, and the potential Cow Palace, Carter Street and Martin Substation staging areas are located in the Visitacion Valley Groundwater Basin (Figure 3.9-2). The Visitacion Valley Groundwater Basin is a roughly triangular-shaped basin bounded by the San Bruno Mountains on the southwest, Islais Valley Groundwater Basin to the northwest, and South San Francisco Groundwater Basin to the northeast. It is separated from the adjacent groundwater basins by bedrock topographic highs. San Francisco Bay forms the basin boundary along its eastern extent (Phillips et al., 1993, as cited in DWR, 2004b). Geologically, the basin

Insert

Figure 3.9-2 Groundwater Basins in the Project Area

can be broadly classified as unconsolidated sediment and bedrock (Phillips et al., 1993, as cited in DWR, 2004b). The primary water-bearing strata are unconsolidated sediments, including dune sand, the Colma Formation, bay mud and clay, and artificial fill (Phillips et al., 1993, as cited in DWR, 2004b).

The potential Amador Street staging areas are located in the Islais Valley Groundwater Basin (Figure 3.9-2). The Islais Valley Groundwater Basin is separated from the Downtown San Francisco Groundwater Basin to the north and the Visitacion Valley and South San Francisco Groundwater Basins to the south by bedrock topographic highs. As with the other groundwater basins, San Francisco Bay forms the basin boundary along its entire eastern extent. Geologically, the basin is broadly classified as bedrock and unconsolidated sediment (USGS, 1993, as cited in DWR, 2004c). The primary water-bearing strata is unconsolidated material consisting of dune sand, the Colma Formation, bay mud and clay, and artificial fill (USGS, 1993, as cited in DWR, 2004c).

Shallow groundwater is present in the project area. Groundwater depths reported in the Environmental Data Resources Inc. (EDR) Well Search Report (EDR, 2017) for three USGS wells within 0.25 mile of the project alignment ranged from 3.7 to 54 feet bgs from 1988 to 1993. The California Statewide Groundwater Elevation Monitoring Online System maintains groundwater depth data for one well in the project area, which had water levels ranging from 0.3 to 3.4 feet bgs from 2011 to 2016 (DWR, 2017). Groundwater depths reported for 10 LUST cleanup sites identified on the SWRCB GeoTracker website (SWRCB, 2017) located within 0.25 mile of the project alignment ranged from 4 to 37 feet bgs.

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 is planned (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 area 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 3.8, Hazards and Hazardous Materials).

3.9.3.5 Flood Potential

NFIP, which is managed by FEMA, provides flood insurance at affordable rates. To support NFIP, FEMA publishes Flood Insurance Rate Maps, which show Special Flood Hazard Areas, defined as areas subject to inundation during a flood having a 1 percent 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 FIRM for San Mateo County indicate that the proposed Egbert Switching Station, Egbert-Embarcadero line, Martin-Egbert line, Jefferson-Egbert 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 of San Francisco, 2015; County of San Mateo, 2012). However, two sets of potential staging areas are within flood zones: (1) some portions of the southern potential Amador Street staging area are in Special Flood Hazard Areas with 1 percent and 0.2 percent annual chances of flood hazard, according to Preliminary FEMA Flood Zone maps (City of San Francisco, 2015) (Figure 3.9-3); 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-percent-annual-chance flood event determined using approximate methodologies) (County of San Mateo, 2012; FEMA, 2017) (Figure 3.9-3).

The San Francisco Water Department owns aboveground reservoirs and tanks within 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 area 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 3.9-3). 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 [BSE]-2 level). The University Mound Reservoir is under the jurisdiction of DWR, Division of Safety of Dams (DSOD) and is not currently subject to any DSOD restrictions. The portion of the project area in San Mateo County 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 area and potential staging areas are not located within a tsunami inundation zone as currently delineated by the California Emergency Management Agency (California Emergency Management Agency, California Geological Survey, and University of Southern California, 2009a, 2009b). However, some portions of the southern potential Amador Street staging area are in a tsunami inundation zone (California Emergency Management Agency, California Geological Survey, and University of Southern California, 2009a) (Figure 3.9-3).

A seiche is the resonant oscillation of water generated in an enclosed body of water, such as 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 four inches high. The Bay Area has not been adversely affected by seiches during its history within this seismically active region of California (USACE San Francisco District, Port of Oakland, 2000).

Insert

Figure 3.9-3 Potential Flood Zones, Inundation Areas Due to Reservoir Failure, and Tsunami Areas

3.9.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for hydrology and water quality impacts derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operational hydrology and water quality impacts.

3.9.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts related to hydrology and water quality were evaluated for each of the criteria listed in Table 3.9-1, as discussed in Section 3.9.4.3.

3.9.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

APM Water Quality (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 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.

3.9.4.3 Potential Impacts

Project impacts related to hydrology and water quality were evaluated against the CEQA significance criteria, as discussed below. This section evaluates potential project impacts from the construction phase and the operation and maintenance phase.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Several potential staging areas for project construction have been preliminarily identified as follows: adjacent to the proposed Jefferson-Egbert line along Carter Street, at the Cow Palace, within the existing Martin Substation, and along Amador Street in the Port's Southern Waterfront heavy industrial port area. Operation and maintenance activities will 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 lines.

a) Would the project violate any water quality standards or waste discharge requirements? ***Less-than-significant Impact.***

Construction

The following construction activities have the potential to degrade water quality, including the potential for violating water quality standards or waste discharge requirements.

Known or potential contaminated sites are located along or near the proposed project alignment (Section 3.8, Hazards and Hazardous Materials). In addition, unknown sites of contaminated soil or groundwater could be present. Water quality could be affected if pre-existing contaminated groundwater is exposed and comes in contact with uncontaminated soil and/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 spoils).

Implementation of the soil, groundwater, underground tank, and wastewater characterization procedures described in APM HM-4, as well as the worker environmental awareness program described in APM WQ-2, will reduce the likelihood of cross-contamination and restrict contaminant mobility, and further reduce this less-than-significant impact.

Potential impacts to surface water quality could result from increased erosion and contaminated runoff as a result of construction activities. However, potential impacts would be temporary and limited by the scale of construction activities, and any less-than-significant impact would be further reduced with implementation of the SWPPP as outlined in APM WQ-1, the worker environmental awareness program as described in APM WQ-2, and the site restoration activities in APM WQ-3.

Operation and Maintenance

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. Activities along the transmission lines are not expected to impact water quality. With implementation of the SPCC plan described in

APM WQ-4, an accidental release during operation and/or maintenance of the project is unlikely to occur; therefore, impacts would be less than significant.

b) Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? *No Impact.*

Where localized shallow groundwater is encountered, active and/or passive dewatering systems may be installed in trenches and excavations as appropriate to allow construction under dry conditions. Dewatering activities during construction, and possibly vault dewatering during operation and maintenance, may have temporary and very localized effects on groundwater levels. There would be no impact on the groundwater table level beyond this very localized and minor effect.

If the installation of grounding rods or foundations deeper than currently planned are required, it will have no potential to substantially deplete groundwater supplies or interfere with groundwater recharge.

The underground portions of the project will 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.

Operation and maintenance activities will not be ground-disturbing. Project construction and operation and maintenance activities will not result in a net deficit in aquifer volume or a lowering of the local groundwater table level; no impact will occur.

c) 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, in a manner which would result in substantial erosion or siltation on- or off-site? *No Impact.*

During both construction and operation and maintenance phases of the project, no alteration to existing drainage patterns or stream or rivers will occur that will result in substantial erosion or siltation on- or off-site. Therefore, no impact will occur during construction or operation and maintenance.

d) 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 substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? *No Impact.*

During both construction and operation and maintenance phases of the project, no alteration to existing drainage patterns or stream or rivers will occur that will result in on- or off-site flooding. Therefore, no impact will occur during construction or operation and maintenance.

e) Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? *Less-than-significant Impact.*

Construction

Grading and/or excavation activities will be required for the new transmission lines and the proposed Egbert Switching Station. In addition, staging areas may require improvement that includes blading the surface of the area, compacting soil, and/or applying gravel. Scraping and grading during preparation of the switching station site and staging areas may disturb the soil surface, which will result in a temporary reduction in the infiltration and absorption capacity of the localized affected area. Localized compaction of soil from construction activities, including the use of heavy equipment, could also diminish the stormwater infiltration capacity at the proposed Egbert Switching Station site. However, this impact is considered less than significant because the site is already compacted from its current use as a lumber storage yard, and effects will be minor and localized during construction.

Stormwater runoff in the project area is currently directed to San Francisco's combined stormwater and sanitary sewer collection and treatment system and to the Daly City stormwater drainage system, which have sufficient capacity to accept stormwater from the project area. Project construction will not create or contribute runoff water that would exceed capacity of existing or planned stormwater drainage systems; therefore, the impact will be less than significant.

Construction activities 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. Project activities will have a less-than-significant impact to existing or planned stormwater drainage systems including the potential for providing substantial additional sources of polluted runoff given the activities are temporary and limited by the scale of construction activities. Potential impacts would be further reduced with implementation of the SWPPP as outlined in APM WQ-1, the worker environmental awareness program as described 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.

Operation and Maintenance

Operation and maintenance activities will not create or contribute runoff water that will exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. During operation (APM WQ-5) a Stormwater Control Plan will be implemented to manage stormwater 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. No impact will occur during operation and maintenance.

f) Would the project otherwise substantially degrade water quality? *No Impact.*

No additional impacts to water quality beyond those previously described are anticipated. Therefore, the project will not substantially degrade water quality, and no impact will occur during construction or operation and maintenance phases.

g) Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? *No Impact.*

The project will not involve housing construction; therefore, no impact will occur during construction or operation and maintenance phases.

h) Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows? *No Impact.*

Most of the project area and potential staging areas are not located within 100-year flood hazard areas. Two sets of potential staging areas are located within flood zones: (1) portions of the potential Amador Street staging area are in Special Flood Hazard Areas with 1 and 0.2 percent annual chances of flood hazard, and (2) some portions of the potential Martin Substation staging areas are in FEMA Flood Zone A (i.e., areas subject to inundation by the 1-percent-annual-chance flood event determined using approximate methodologies) (City of San Francisco, 2015; County of San Mateo, 2012; FEMA, 2017) (Figure 3.9-3). Staging of equipment in temporary work areas would not result in impediments or redirections of floodwaters. Therefore, no impact will occur during construction or operation and maintenance phases.

i) Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? *Less-than-significant Impact.*

Water reservoirs and tanks represent a potential flooding hazard attributable to failure caused by ground shaking during earthquakes. Two portions of the project area are located within potential inundation areas identified by the San Francisco Water Department (San Francisco Planning Department, 2012): (1) areas east of the University Mound Reservoir (potentially including Egbert Switching Station and the proposed Egbert-Embarcadero and Martin-Egbert lines) and (2) areas southeast of the McLaren Park tanks (potentially including a section of the proposed Jefferson-Egbert line) (Figure 3.9-3). Seismic upgrades of the McLaren Park tanks and University Mound Reservoir North Basin have occurred within the past 10 years, and DSOD has no restrictions in place on the University Mound Reservoir at the time of this writing. No underground transmission line segments within San Mateo County are located within a reservoir or dam failure inundation area (County of San Mateo, 2005).

No aboveground structures will 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 will obtain a building permit from the City of San Francisco that will address local building standards for flood potential. Construction and operation and maintenance personnel presence at the switching station and transmission lines within the potential inundations areas would be temporary during construction and limited and infrequent during operation and maintenance but could expose people to a risk of injury or death involving flooding attributable to failure of the reservoir. The impact is less than significant during construction and operation and maintenance to expose people or structure to a significant risk of loss, injury of death involving flooding, including flooding as a result of the failure of a levee or dam.

j) Would the project result in inundation by seiche, tsunami, or mudflow? *Less-than-significant Impact.*

Most of the project area 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 (California Emergency Management Agency, California Geological Survey, and University of Southern California, 2009a) (Figure 3.9-3). However, devastating tsunamis have not occurred in historic times in the San Francisco Bay Area, and the likelihood of such an event occurring is considered remote. Therefore, this impact is less than significant for the construction and operation and maintenance phases.

The largest seiche wave ever measured in the San Francisco Bay, following the 1906 earthquake, was four inches high. The Bay Area has not been adversely affected by seiches during its history within this seismically active region of California (USACE San Francisco District, Port of Oakland, 2000). Moreover, the project is not located within a tsunami inundation zone. The project will not result in inundation by a seiche; no impact will occur during construction or operation and maintenance phases.

Approximately 0.27 mile of the proposed Jefferson-Egbert line crosses a mapped potential debris flow source area, at least some of which has been subject to human modification associated with urban development (Section 3.6.3.5). Where the project route crosses a mapped debris flow source area, PG&E will implement appropriate soil stability design measures in APM GS-1, which will further reduce potential landslide and mudflow less-than-significant impact. The potential for inundation by mudflow from project during construction and operation and maintenance will be less than significant.

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3.10 LAND USE AND PLANNING

3.10.1 INTRODUCTION

This section describes existing land use in the vicinity of the project and assesses potential project-related impacts on land use and planning, including an analysis of project compatibility with land use and/or habitat plans. The analysis concludes that no impacts related to land use and planning will occur as a result of construction, operation, and maintenance of the project and no APMs are needed to address impacts. To further reduce short-term disturbance to the surrounding neighborhoods during construction, PG&E will implement the APMs described in Section 3.10.4.2. The project's potential effects on land use and planning were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.10-1 and discussed in more detail in Section 3.10.4.

Table 3.10-1. CEQA Checklist for Land Use and Planning

Would the project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

3.10.2 REGULATORY BACKGROUND AND METHODOLOGY

3.10.2.1 Regulatory Background

Federal

San Bruno Mountain Habitat Conservation Plan

Section 10 of the federal ESA allows for the creation of HCPs to protect listed and candidate species in connection with the issuance of an Incidental Take Permit for federally-listed species. USFWS provides oversight of the San Mateo County Parks Department's HCP for San Bruno Mountain, located within San Bruno Mountain State and County Park. The proposed Jefferson-Egbert line interconnects with the existing Jefferson-Martin 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 (north side) with the Dairy & Wax Myrtle Ravines Management Unit (south side). The 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 (Figure 3.4-3). As the proposed Jefferson-Egbert 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 Daly City.

No other federal regulations related to land use and planning are applicable to the project.

State

California Public Utilities Commission

The CPUC has exclusive jurisdiction over the design, siting, installation, operation, maintenance, and repair of electric transmission facilities, pursuant to Article XII, Section 8 of the California Constitution. The CPUC is the Lead Agency for CEQA review for this project and has authority over the discretionary project approval.

California Department of Parks and Recreation

San Bruno Mountain State and County Park is located off Guadalupe Canyon Parkway in Brisbane. The park is an estimated 2,063 acres and is composed of State- and County-owned lands. The park borders several cities, including Daly City, South San Francisco, Colma, and 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 line begins on Guadalupe Canyon Parkway inside the park, but since the line would be in the road, does 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 Division 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 line on Guadalupe Canyon Parkway in Brisbane.

McAteer-Petris Act of 1965 (CGC §§ 66650-66661)

The McAteer-Petris Act created the 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 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.

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

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the 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 CEQA review.

As shown on Figure 2.3-1, the project area 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. The General Plans contain certain policies that, consistent with CPUC jurisdiction over the project, PG&E will consider with respect to the project.

Although PG&E is not subject to local discretionary permitting, ministerial permits will be secured, as required. Section 2.11: Required Approvals (in Chapter 2.0, Project Description) lists the authorizations that may be required for project construction.

3.10.2.2 Methodology

Analysis of land use and planning documents included a review of the following plans and policies:

- SBM HCP
- San Bruno Mountain State and County Park Plan
- San Francisco General Plan
- San Francisco Special Use District (SUD) Maps and associated City Planning Code
- Brisbane General Plan
- 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 staging of the project with local government departments of planning and public works, and agency officials and other stakeholders including landowners; Cities of San Francisco, Daly City, and Brisbane; Caltrain; California High-Speed Rail Authority; and Universal Paragon (Brisbane Baylands developer).

3.10.3 ENVIRONMENTAL SETTING

3.10.3.1 Regional Setting

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 line located in San Mateo County within the cities of Brisbane and Daly City. The proposed Egbert Switching Station will 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 and County 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. 101 corridor, and a mix of residential with light industrial development in the area surrounding the proposed switching station (Figures 3.10-1, 3.10-2a-h, and 3.10-3). Approximately one to three staging areas totaling up to approximately 15 acres will be identified for use once a construction contractor is selected. Two potential staging areas in San Francisco are in the Southern Waterfront industrial area owned by the Port. The portion of the proposed Jefferson-Egbert 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 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 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 percent) is located within San Bruno Mountain State and County 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.

3.10.3.2 Local Land Use Setting (Existing Land Use)

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 lines; the proposed Jefferson-Egbert line, from the interconnection with the existing Jefferson-Martin 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 mile of the project are illustrated on Figure 3.10-1 and Figure 3.10-2a-h.

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 3.10-1, and parcels immediately

Insert

Figure 3.10-1 Egbert Switching Station Existing Land Use (a-g)

Insert

Figure 3.10-2 Existing Land Use

3.10-2a

Insert

Figure 3.10-2b Existing Land Use

Insert

Figure 3.10-2c Existing Land Use

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Figure 3.10-2dExisting Land Use

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Figure 3.10-2e Existing Land Use

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Figure 3.10-2f Existing Land Use

Insert

Figure 3.10-2gExisting Land Use

Insert

Figure 3.10-2h Existing Land Use

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. UPRR 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 UPRR tracks, the main tracks to San Francisco, separate the switching station from 3rd Street, which is to the east of the project area. Interspersed with the light industrial and residential uses along 3rd Street include 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 Lines

Existing land uses surrounding the proposed Egbert-Embarcadero and Martin-Egbert lines are shown on Figure 3.10-2a and summarized below.

The proposed Martin-Egbert and Egbert-Embarcadero 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 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.

Crossing west under U.S. 101, Egbert Avenue changes to Bacon Street and crosses San Bruno Avenue, which is a commercial corridor. Many of the buildings along San Bruno Avenue are mixed uses, with commercial on the ground floor and residences above. As the line continues along Bacon Street west and past San Bruno Avenue, residential uses are found on both sides of the street. At the proposed temporary freeze pit work location for the HZ-1 line, the western-most work area for this line, residences are found on the south side of Bacon Street, with the teachers' parking lot associated with Dr. Martin Luther King Jr. Academic Middle School on the north side. The main entrance to the school is located at 350 Girard Street and the entire south side of the school along Bacon Street is fenced, with the exception of access to the teachers' parking lot.

Proposed Jefferson-Egbert Line

The proposed Jefferson-Egbert line connects the existing Jefferson-Martin line in Brisbane on Guadalupe Parkway terminating at the proposed Egbert Switching Station, heading north through Daly City into San Francisco (Figures 3.10-2a, b, c, e, and g). The line begins at an interconnection point at an existing Jefferson-Martin line vault in Guadalupe Canyon in San Bruno Mountain State and County Park (Figure 3.10-2g). Just outside of the park boundaries is a Brisbane residential area called The Ridge, which does not have direct access to Guadalupe Canyon Parkway.

The line leaves Brisbane and enters the city limits of Daly City within 0.1 mile 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 mile, 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 3-10.2e). 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 southwest 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 line follows Santos Street through residential areas until it turns east on Sunnydale Avenue, where it continues through residential neighborhoods and passes the Girls and Boys Club of San Francisco – Sunnydale Clubhouse (entrance at 1654 Sunnydale Avenue). The line turns north onto Hahn Street with residences to either side with a grocery store at the northeast corner of Sunnydale Avenue and Hahn Street. Shortly after the route enters Hahn Street, it passes by John McLaren Park to the west, with residential areas to the east (Figure 3.10-2c). The line enters 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 line continues east along Mansell Street through residential areas to San Bruno Avenue (Figure 3.10-2b). 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 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 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 3.10-2a and b). 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. Multi-story 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 and multi-story residences.

The 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 3.10-2d, f). 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 Elementary School and one block further west is the Mt. Vernon Christian Academy. One block south of the substation on Martin Street is the Robertson Intermediate School (Figure 3.10-2f). 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 line on Carter Street. 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 will be determined based on availability at the time of construction as described in Section 2.7.1.1, potential staging areas have been preliminarily identified (Figure 2.7-1). Approximately one to three staging areas totaling up to approximately 15 acres will 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 line or within the existing Martin Substation (Figure 3.10-2d, e, and f). 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 (Figure 3.10-2h). 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 (SFPD 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.

Zoning and General Plan Land Use Designations

The project is located within the cities of San Francisco, Daly City, and Brisbane. Figures 3.10-3 and 3.10-4 illustrate the zoning in the project area. Public utility facilities regulated by the 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 I-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* (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 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 3.10-3 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 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 area are listed in Table 3.10-2, Zoning and Existing Land Use Adjacent to Proposed Facilities.

Insert

Figure 3.10-3 City of San Francisco Zoning

Insert

Figure 3.10-4 Cities of Daly City and Brisbane Zoning

Table 3.10-2. 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 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 line/ Railroad tracks	M-1	• Active railroad corridor
San Francisco: Proposed Jefferson-Egbert line/ Crane Street	RH-1 P RM-1	• Residential, Mixed (Houses and Apartments)
San Francisco: Proposed Jefferson-Egbert line/ next to Bayshore Boulevard	RM-1	• Residential, Mixed (Houses and Apartments) • Commercial
San Francisco: Proposed Jefferson-Egbert line/ Mansell Street	RH-1	• Residential houses
San Francisco: Proposed Jefferson-Egbert 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 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 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 line on Carter Street along San Bruno Mountain State and County Park	P	• Public (San Bruno Mountain State and County Park) • Residential
Daly/City Brisbane: Martin Substation (including Potential Staging Area)	M (Daly City) M-1 (Brisbane)	• Existing PG&E Substation
Brisbane: Proposed Jefferson-Egbert line/ Guadalupe Canyon Parkway	TC-1	• Residential

3.10.3.3 Local Plans and Policies

As previously stated, the project is not subject to local agency regulations. However, PG&E has considered the following local plans and policies in its design of the proposed project, see Table 3.10-3, Area Plans and Planned Improvements.

San Bruno Mountain Master Plan

San Bruno Mountain State and County Park is surrounded by the surrounding 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 Habitat Conservation Plan

The SBM HCP was reviewed for land use policies that would assist with the environmental review. A portion of the proposed Jefferson-Egbert 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 habitat conservation requirements of the HCP. 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 (Figure 3.4-4). The Guadalupe Hills portion of the HCP supports endangered butterflies, as well as rare and endemic plants.

San Francisco General Plan

The San Francisco General Plan was reviewed for land use and zoning maps, in addition to policies that would assist with the environmental review of the project (Figures 3.10-3 and 3.10-4). The proposed Egbert Switching Station site and portions of the project's transmission lines are located within one 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 City of Daly City General Plan was adopted in 2013 and contains specific policies and guidelines for 13 planning areas within Daly City. The proposed Jefferson-Egbert transmission line is routed within the Bayshore Planning Area (No. 13). While Daly City is predominantly residential, the Bayshore Planning Area contains the Geneva Avenue commercial corridor, as well as the Cow Palace. The City's only industrial area is primarily located in the Bayshore neighborhood, north of Mac Donald Avenue.

Redevelopment of the Cow Palace is noted in the General Plan to be one of the major opportunities in this planning area. Daly City has sought to acquire the Cow Palace from the State of California for purposes of redevelopment; however, no bill providing for the sale has been signed into law. City officials stated in 2008 that the Cow Palace space could serve the Bayshore neighborhood, which "needs a grocery store, bank, pharmacy, post office, and K-8 school" (Mercury News, 2008). Adjacent to the Cow Palace is Geneva Avenue, which is also a focus of the 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'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 City of Brisbane General Plan was adopted in 1994 and contains specific policies and guidelines for 13 subareas within Brisbane. The proposed Jefferson-Egbert line is routed between the Northeast Ridge and Northwest Bayshore subareas.

The City has been in the process of a General Plan Update, with completion to occur following an EIR and decisions on the potential build-out of the Baylands Subarea, which is unrelated to the project. The Baylands Subarea is located directly across Bayshore Boulevard from Martin Substation. The Brisbane Planning Department approved Resolution No. GP-1-06/GP-02/10/SP-01-06, which recommends to the Brisbane City Council that the Baylands Subarea be subdivided into specific zoning areas. The resolution proposes a re-zoning of retail within the Roundhouse Area to the east of Martin Substation; a transit-oriented development area to the north east (across Geneva Avenue and Bayshore from Martin Substation), to include a research and development/tech campus; and light industrial to the southeast. At the time of this writing, the Brisbane City Council has not made a determination regarding the re-zoning proposal.

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 generally bounded by 25th Street on the north, Illinois Street on the west, and Cargo Way on the south. The strategy plan discusses both 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 3.10-3. 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 of San Francisco	Special Use Districts	**Design and Development SUD:** Promote design activities, including architectural, graphic, interior, product, and industrial design.
City of San Francisco	Green Connections	**Green Path Routes No. 10 (Yosemite Creek along Paul Avenue), No. 12 (Lake Merced to Candlestick), and No. 23 (Crosstown Trail along Visitacion Ave through McLaren Park):[a]** Increase access to parks, open spaces, and waterfront within the City of San Francisco.
Port of San Francisco	Piers 80-96 Maritime Eco-Industrial Strategy	**Maritime Eco-Industrial Center:** Co-location of 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 the constraints identified in the General Plan to improve the Bayshore neighborhood and achieve the 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 Parks Department	Habitat Conservation Plan	**San Bruno Mountain State and County Park:** Preserve and enhance habitat for endangered species.

[a] Section 3.15.3.2, Recreation – Local Setting, discusses the Green Connection Routes in relation to the project.

3.10.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for land use impacts derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operational land use impacts. ~~Because the project will have no impact on land use, APMs have not been included for this section.~~

3.10.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area

affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on land use and planning were evaluated for each of the criteria listed in Table 3.10-1, as discussed in Section 3.10.4.3.

3.10.4.2 Applicant-Proposed Measures

The project will have no impact on land use and planning; however, to further reduce short-term disturbance to the surrounding neighborhoods during construction, PG&E is proposing the following APMs.

APM Land Use (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.

3.10.4.3 Potential Impacts

Project impacts related to land use were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase. An analysis of impacts to adjacent land uses during construction and operation of the project is included in other sections of the PEA, including Aesthetics, Air Quality, Hazards and Hazardous Materials, Noise, Recreation, and Transportation and Traffic.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and will extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

a) Would the project physically divide an established community? *No Impact.*

Implementation of the proposed underground transmission lines and new switching station project will not physically divide an established community. No impact will occur.

b) Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? *No Impact.*

As explained above, local agencies do not have jurisdiction over the project, and no state or federal land use plans, policies, or regulations are applicable. Nonetheless, an evaluation was performed, and the impact analysis demonstrates that the project is compatible with the General Plans adopted by the surrounding cities. Installation of the new lines will occur primarily within PG&E's franchise area in city streets and will not have an impact on plans or policies. The new Egbert Switching Station site will be located on PDR-2 zoned land, which specifically permits utility and infrastructure uses. 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 only be used as a staging area 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 project and no impact to resources within BCDC's jurisdiction would occur.

Therefore, there will be no impact to land use and the project will not conflict with any applicable land use plans or regulation of an agency with jurisdiction over the project.

Operation and maintenance personnel will visit the project periodically for routine inspection and maintenance procedures. This infrequent activity will have no impact on land use. Any minor impacts to traffic associated with working in the vaults would be addressed through PG&E's existing processes to coordinate work in streets.

c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan? *No Impact.*

The SBM HCP extends along the southern portion of the proposed Jefferson-Egbert line. Construction and operation and maintenance of the project will be confined entirely underground within franchise along Carter Street and Guadalupe Canyon Parkway, and therefore, there is no conflict with the HCP.

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3.11 MINERAL RESOURCES

3.11.1 INTRODUCTION

This section describes existing conditions and potential impacts on mineral resources as a result of construction, operation, and maintenance of the project. The analysis concludes that the project will have no impact. The project's potential effects on mineral resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.11-1 and discussed in more detail in Section 3.11.4.

Table 3.11-1. CEQA Checklist for Mineral Resources

Would the project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource classified MRZ-2 by the State Geologist that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

3.11.2 REGULATORY BACKGROUND AND METHODOLOGY

3.11.2.1 Regulatory Background

Federal

No federal regulations related to mineral resources are applicable to the project.

State

The California Surface Mining and Reclamation Act of 1975 requires that the State Geologist classify land into mineral resource zones (MRZ) according to the known or inferred mineral potential of the land (PRC Sections 2710-2796). MRZ are defined as the following (Stinson et al., 1987):

MRZ-1: Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.

MRZ-2: Areas where adequate information indicates that significant deposits are present, or where it is judged that a high likelihood for their presence exists. The guidelines set forth two requirements to be used to determine if land should be classified MRZ-2:

- The deposit must be composed of material that is suitable as a marketable commodity. The deposit must meet threshold value.

- The projected value (gross selling price) of the deposit, based on the value of the first marketable product, must be at least $5 million (1978 dollars).

- Although not specified in the guidelines, the following criteria were applied to each deposit to test its suitability for inclusion in an MRZ-2 zone:

  - The presence of an operating quarry within the deposit is considered proof that Condition 1 has been met.

  - An average value of $2.00 per ton (all aggregate types) and a conversion factor of 2,500 tons per acre-foot of material (0.065 ton per cubic foot with 10 percent waste) require a minimum amount of 1,000 acre-feet of material within the deposit, exclusive of overburden and fill material, to meet suggested threshold value.

  - A deposit of aggregate material must have an overburden-to-ore ratio of less than 1 to 1 in order for mining to become economic at the present time.

MRZ-3: Contain mineral deposits, but their significance cannot be evaluated from available data.

MRZ-4: Areas where available information is inadequate for assignment to any other MRZ category.

SZ: Areas containing unique or rare occurrence of rocks, minerals, or fossils that are of outstanding scientific significance shall be classified in this zone.

Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the project is not subject to local discretionary regulations. This section includes a brief summary of information on locally important mineral resources from the Brisbane, Daly City, and San Francisco General Plans and supporting documents for informational purposes and to assist with the CEQA review process.

The Brisbane General Plan (City of Brisbane, 1994) does not include a section on mineral resources. However, the plan designates a subarea titled "The Quarry" as Planned Development (PD)-Trade Commercial. The Quarry is located approximately 4,000 feet south of the southern terminus of the proposed Jefferson-Egbert line. The plan outlines a number of mixed uses for development of The Quarry subarea, including open space, health care and educational facilities, commercial recreation, trade commercial, and research and development, while specifically precluding single-family housing.

The Daly City General Plan (City of Daly City, Department of Economic and Community Development, 2013) does not include a section on mineral resources in its list of resource management policies, goals, or tasks.

The San Francisco General Plan states that mineral resources are not found in San Francisco to an appreciable extent (City and County of San Francisco Planning Department, 1995 and 2004), and are omitted from the General Plan.

3.11.2.2 Methodology

This analysis included the review and evaluation of available maps and publications presenting information on mineral resources in or near the project area. Impacts to mineral resources that could result from the project were evaluated qualitatively based on site conditions; expected construction practices; materials, locations, and duration of project construction; and operational and maintenance activities.

3.11.3 ENVIRONMENTAL SETTING

The project is generally located in areas underlain by marine and nonmarine mud, sand, and gravel or in Franciscan Complex bedrock (Bailey and Harden, 1975). The project is variously located within three distinct areas designated as MRZ-1, MRZ-2(a), and MRZ-4 on the Mineral Land Classification Map of San Mateo and San Francisco Counties as shown on Figure 3.11-1 (Stinson, et.al., 1982).

Approximately 0.2 mile of the proposed Jefferson-Egbert line falls within MRZ-2(a) when routed within Guadalupe Canyon Parkway and Carter Street in Brisbane and Daly City to approximately the intersection of Carter Street at Alexis Circle. Residential developments are adjacent to most sections of these roads where the line is proposed in this area. Existing urbanization is stated to preclude the development of a quarry and the extraction of aggregate or other minerals in MRZ-2(a) areas (Stinson et al., 1987).

As the line continues to the proposed Egbert Switching Station, it is located within MRZ-1 for approximately 1.4 miles until just before Visitacion Valley Middle School along Visitacion Avenue. From this area, the line falls within MRZ-4 for approximately 0.3 mile to the intersection of Mansell Avenue with Colby Street. The line is again within MRZ-1 for the remaining 1.4 miles as it continues to the proposed switching station. The proposed Egbert Switching Station site is located within MRZ-1. The entirety of the proposed Egbert-Embarcadero and Martin-Egbert lines, as well as the potential staging areas, fall within MRZ-1.

The nearest active mineral resource, the Guadalupe Valley Quarry (also known as Evans Brothers, Incorporated), produces crushed aggregate for construction (Kohler-Antablin, 1996). The quarry is located approximately 0.75 mile due south of the proposed Jefferson-Egbert construction work area near the intersection of Guadalupe Canyon Parkway and Carter Street.

3.11.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for impacts on mineral resources derived from Appendix G of the CEQA Guidelines and assess potential project-related construction and operational impacts. Because the project will have no impact on mineral resources, APMs have not been included for this section.

Insert

Figure 3.11-1 Mineral Resource Zone Map

3.11.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on mineral resources were evaluated for each of the criteria listed in Table 3.11-1, as discussed in Section 3.11.4.3.

3.11.4.2 Applicant-Proposed Measures

The project will have no impact on mineral resources, and no APMs are proposed.

3.11.4.3 Potential Impacts

Project impacts related to mineral resources were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and residents of the state? *No Impact.*

The segment of the proposed Jefferson-Egbert line within a MRZ-2(a) designation area will be in an urbanized area (existing roadways with adjacent existing residential use), which precludes the development of new mineral resource extraction. All other portions of the project will be constructed in MRZ-1. Therefore, loss of availability of a known mineral resource of value to the region and state will not occur; no construction or operation and maintenance impacts will occur.

b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan? *No Impact.*

The project would not result in the loss of availability of a locally important mineral resource recovery site; therefore, no construction or operation and maintenance impact will occur.

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3.12 NOISE

3.12.1 INTRODUCTION

This section describes noise sensitive receptors and identifies potential noise impacts associated with construction, operation, and maintenance of the project, and concludes that with incorporation of the APMs, impacts related to temporary construction noise will be less than significant, and noise and groundborne vibration associated with project operations will be less than significant. The project's potential noise-related effects were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.12-1 and discussed in more detail in Section 3.12.4.

Table 3.12-1. CEQA Checklist for Noise

Would the project result in:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

3.12.1.1 Fundamentals of Noise

Noise is generally defined as unwanted sound. Airborne sound is the fluctuation of air pressure above and below atmospheric pressure. Several ways exist to measure sound, depending on the source, receiver, and reason for the measurement.

Community sound levels are generally presented in terms of A-weighted decibels (dBA). The A-weighting network measures sound in a similar fashion to how a person perceives or hears sound, thus achieving a strong correlation with how people perceive acceptable and unacceptable sound levels. Table 3.12-2, Typical Sound Levels Measured in the Environment and Industry, presents A-weighted sound levels and the general subjective responses associated with common sources of noise in the physical environment.

A-weighted sound levels are typically measured or presented as the equivalent sound pressure level (L_{eq}), which is defined as the average noise level on an equal-energy basis for a stated period of time and commonly is used to measure steady-state sound that is usually dominant. Statistical methods are used to capture the dynamics of a changing acoustical environment. Statistical measurements are typically denoted by L_n, where "n" represents the percentile of time that the sound level is exceeded. Therefore, L90 represents the noise level that is exceeded during 90 percent of the measurement period, which typically represents a continuous noise source. Similarly, L10 represents the noise level exceeded for 10 percent of the measurement period.

Another metric used in determining the impact of environmental noise is the differences in response that people have to daytime and nighttime noise levels. During the evening and at night, exterior background noises generally are lower than daytime levels. However, most household noise also decreases at night, and exterior noise becomes more noticeable. Furthermore, most people sleep at night and are sensitive to intrusive noises. To account for human sensitivity to evening and nighttime noise levels, the day-night sound level (L_{dn}) (also referred to as DNL) and the CNEL were developed. The L_{dn} is a noise metric that accounts for the greater annoyance of noise during the nighttime hours (10 p.m. to 7 a.m.). The CNEL is a noise index that accounts for the greater annoyance of noise during both the evening hours (7 p.m. to 10 p.m.) and nighttime hours.

Table 3.12-2. 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 foot)	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

Table 3.12-2. Typical Sound Levels Measured in the Environment and Industry

Noise Source at a Given Distance	Sound Level in A-weighted Decibels (dBA)	Qualitative Description
Living room Bedroom	40	
Library Soft whisper (5 feet)	30	Very quiet
Broadcasting/Recording studio	20	
	10	Just audible

Source:
Adapted from Table E, "Assessing and Mitigating Noise Impacts" (New York Department of Environmental Conservation, 2001).

L_{dn} values are calculated by averaging hourly L_{eq} sound levels for a continuous 24-hour period on an energy basis, applying a weighting factor of 10 decibels to the nighttime values. CNEL values are calculated similarly, except that a 5-dB weighting factor also is added to evening L_{eq} values. The applicable adjustments, which reflect the increased sensitivity to noise during evening and nighttime hours, are applied to each hourly L_{eq} sound level for the calculation of L_{dn} and CNEL. For the purposes of assessing noise, the 24-hour day is divided into three time periods, with the following adjustments:

- Daytime hours: 7 a.m. to 7 p.m. (12 hours)—adjustment of 0 dBA
- Evening hours (for CNEL only): 7 p.m. to 10 p.m. (3 hours)—adjustment of +5 dBA
- Nighttime hours (for both CNEL and L_{dn}): 10 p.m. to 7 a.m. (9 hours)—adjustment of +10 dBA

The hourly adjusted time-period noise levels are then averaged (on an energy basis) to compute the overall L_{dn} or CNEL value. For a continuous noise source, the L_{dn} value can be computed by adding 6.4 dBA to the overall 24-hour noise level (L_{eq}). For example, if the expected continuous noise level from a noise source is 60.0 dBA, the resulting L_{dn} from the source will be 66.4 dBA. Similarly, the CNEL for a continuous noise source is computed by adding 6.7 dBA to the overall 24-hour L_{eq}.

The general human response to changes in noise levels that are similar in frequency content (such as comparing increases in continuous (L_{eq}) traffic noise levels) are summarized as follows:

- A 3-dB change in sound level is considered to be a barely noticeable difference
- A 5-dB change in sound level typically is noticeable
- A 10-dB increase is considered to be a doubling in loudness

Corona Noise

Corona generates audible noise during operation of high-voltage transmission lines. Under certain conditions, the localized electric field near an energized conductor can be sufficiently concentrated to produce a tiny electric discharge that can ionize air close to the conductors. This partial discharge of electrical energy is called corona discharge, or corona. Several factors, including conductor voltage, shape and diameter, and surface irregularities such as scratches, nicks, dust, or water drops, can affect a conductor's electrical surface gradient and its corona performance. Corona is the physical manifestation of energy loss, and can transform discharge energy into very small amounts of sound, radio noise, heat, and chemical reactions of the air components.

Transmission lines can generate a small amount of sound energy during corona activity. This audible noise from the line can barely be heard in fair weather conditions on higher voltage lines. During wet weather conditions (such as rain or fog), water drops collect on the conductor and increase corona activity so that a crackling or humming sound may be heard near the line. This noise is caused by small electrical discharges from the water drops. However, during heavy rain, the ambient noise generated by the falling raindrops will typically be greater than the noise generated by corona. Corona noise is generally more noticeable on high-voltage lines, and is usually not a design issue for power lines rated at 230 kV and lower nor when located underground.

Vibration

Generally speaking, vibration is energy transmitted in waves through the ground. Because energy is lost during the transfer of energy from one particle to another, vibratory energy is reduced with increasing distance from the source. Vibration attenuates at a rate of approximately 50 percent for each doubling of distance from the source. This approach only takes into consideration the attenuation from geometric spreading. Because additional factors reduce vibration over distance (e.g., damping from soil condition), this approach tends to provide for a conservative assessment of vibration level at the receiver. Vibration concerns for transmission line projects are generally limited to certain construction activities such as impact pile driving in particular.

3.12.2 Regulatory Background and Methodology

3.12.2.1 Regulatory Background

Federal

No federal regulations that limit overall environmental noise levels are applicable to the project.

State

No state regulations limit environmental noise impacts.

Local

Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary noise requirements. This section includes a summary of local noise standards or ordinances in the project area for informational purposes and to assist with CEQA review. Airport Land Use Compatibility Plans are discussed in

Section 3.10, Land Use and Planning, and safety concerns around airports are discussed in Section 3.8, Hazards and Hazardous Materials.

City of Brisbane Code of Ordinances

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, 2017). The city establishes operational noise limits based on limiting the increase over existing ambient levels in single-family and multi-family 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 operational and construction noise regulations from Chapter 8.28 of the CBCO are copied below for completeness.

Section 8.28.020 of the CBCO (City of Brisbane, 2017) 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, 2017) 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, 2017) 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, 2017) 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.*

Daly City Code of Ordinances

Section 9.22.030 of the Daly City Code of Ordinances (Daly City, 2017) establishes the following provision to limit noise disturbances beyond the confines of the 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 (Daly City, 2013) describes temporary noise generated form construction activities. Construction noise is regulated in 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:

> *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 of San Francisco Police Code

The City of San Francisco's Police Code, Article 29, establishes the regulatory framework for addressing operational and construction-related noise, and it was amended effective in April 2017 (City of San Francisco, 2013). 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 (8:00 p.m. to 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 operational and construction noise regulations from Article 29 are copied below for completeness.

Section 2901 of Article 29: Regulation of Noise in the San Francisco City Ordinance Code (City of San Francisco, 2017) 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 of San Francisco, 2017) 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 of San Francisco, 2017) 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 of San Francisco, 2017) 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.*

3.12.3 METHODOLOGY

Evaluation of potential noise impacts from the project included reviewing county and city noise standards that would assist with the environmental review, characterizing the existing noise environment, and predicting noise levels and related impacts during both construction and operations.

Typical noise levels generated by the construction equipment listed in the project description have been calculated previously and published in various reference documents. The expected equipment noise levels listed in the *FHWA Roadway Construction Noise Model User's Guide* (User's Guide) (FHWA, 2006) were used for this evaluation. The User's Guide provides the most recent comprehensive assessment of noise levels from construction equipment. Table 3.12-3 provides typical noise levels and usage factors for general construction equipment and activities consistent with the FHWA Roadway Construction Noise Model. The acoustical usage factor does not equate to the percentage of time the equipment is in use, but rather the percentage of time that it is operated at its maximum sound emission level. For example, a backhoe may be used and energized during the entire shift, but on average it is expected to operate at its maximum sound level 40 percent of the time.

Table 3.12-3. 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
Excavator	40	85	81	170
Flat Bed 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

Table 3.12-3. 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
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
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.
L_{max} = maximum level

Noise at any specific receptor is dominated by the closest and loudest equipment. The types and numbers of construction equipment near any specific receptor location will vary over time. The following assumptions were used for modeling construction noise:

- One piece of equipment generating a reference noise level of 85 dBA (at 50 feet distance with a 40 percent usage factor) located on the transmission line route
- Two pieces of equipment generating reference 85-dBA noise levels located 50 feet farther away on the transmission line route (100 feet distance with a 40 percent usage factor)
- Two additional pieces of equipment generating reference 85-dBA noise levels located 100 feet farther away on the transmission line route (200 feet distance with a 40 percent usage factor)
- Table 3.12-4 presents construction equipment noise levels at various distances based on this scenario. This scenario is anticipated to be conservative given the reductions afforded by intervening buildings or terrain that have not been considered.

Table 3.12-4. 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

3.12.4 Environmental Setting

The project is located in San Mateo County within the limits of the city of Brisbane and Daly City, and within the city and county of San Francisco. The project is located in a densely populated urban setting intermixed with commercial, industrial, and open space areas. Land uses surrounding the project are described in Section 3.10.3.2 (Local Land Use Setting [Existing Land Use]), and are summarized below to include the presence of noise-sensitive receptors within 0.25 mile of the project.

The 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

PG&E's existing Martin Substation is located in both the cities of Brisbane and Daly City (Figure 2.4-2). Properties north of and adjacent to the existing Martin Substation are a mix of residential and commercial uses. The area east of Bayshore Boulevard is predominantly vacant industrial land, and a mixture of commercial and industrial uses are located southeast of the site along Bayshore Boulevard. Residential use and open space at the toe 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. An overview of land uses, specifically residences, within 0.25 mile of the existing Martin Substation is shown on Figures 3.10-2d through 3.10-2f. The project work within Martin Substation will occur at the location of the existing Jefferson-Martin line connection within the substation as shown on Figure 2.4-2. The southern extent of this work area is approximately 375 feet from the property line in Brisbane.

Proposed Jefferson-Egbert Line

The proposed Jefferson-Egbert line connects the existing Jefferson-Martin line to the proposed Egbert Switching Station (Figure 2.5-1). The proposed Jefferson-Egbert line begins at a connection point with the existing Jefferson-Martin line in the city of Brisbane on Guadalupe Canyon Parkway. The proposed line continues for approximately 300 feet and then enters the city limits of Daly City on Carter Street. The proposed line continues 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 line in Brisbane is approximately 250 feet from the edge of Guadalupe Canyon Parkway. Along Carter Street in Daly City and several streets in San Francisco, residences are located directly adjacent to the roadway.

In San Francisco, the proposed Jefferson-Egbert line turns east along Geneva Avenue and north onto Santos Street. The portion of Geneva Avenue crossed by the proposed Jefferson-Egbert 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 line bends east to Sunnydale Avenue and then north onto Hahn Street. On Hahn Street, the line passes John McLaren Park to the west and enters the park before connecting to Visitacion Avenue. On Visitacion Avenue, the line crosses directly in front of an entrance point and parking lot to the Visitacion Valley Middle School, which is bound to the west by Visitacion Avenue. Once the line crosses John McLaren Park, it connects to Mansell Street and turns east approaching U.S. 101. The proposed Jefferson-Egbert Line will cross U.S. 101 using a trenchless auger bore method.

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. 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 will run underneath U.S. 101 for approximately 420 feet. The proposed auger bore work areas are shown on Figure 2.5-1e.

The proposed line continues north through a residential area in Crane Street and crosses Paul Avenue, continuing north through a private industrial parcel until connecting to the southern side of the proposed Egbert Switching Station site. An overview of land uses, specifically residential uses, within 0.25 mile of the proposed Jefferson-Egbert line is shown on Figures 3.10-2a through 3.10-2h.

Existing sound levels were measured approximately 400 feet from U.S. 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 Leq during the long term (24-hour) measurement varied from approximately 53 dBA to 68 dBA. Measurements closer to an area highway (I-280) were collected during the evaluation of a housing project in 2015 (Charles M. Salter Associates, Inc., 2015). The calculated 24-hour average DNL or L_{dn} at locations approximately 80 feet from the highway were 82 dBA. These measures are consistent with the typical sound levels described in Table 3.12-2.

Proposed Egbert-Embarcadero and Martin-Egbert Lines

The proposed Martin-Egbert and Egbert-Embarcadero lines will be installed between the existing HZ-1 line near the intersection of Bayshore Boulevard and Bacon Street and the proposed Egbert Switching Station (Figure 2.5-1f). From Bayshore Boulevard, the proposed lines head east in Egbert Avenue to the proposed Egbert Switching Station Site. Figure 3.10-1 shows that residences are located directly adjacent to the proposed Martin-Egbert and Egbert-Embarcadero lines near the intersection of Bayshore Boulevard and Bacon Street, and on the northern side of Egbert Avenue near the proposed Egbert Switching Station.

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 a mix of transportation corridors, industrial and warehouse facilities, and utility structures (including numerous overhead power lines) interspersed with semi-detached and multi-unit residential buildings. Bordering the site's eastern perimeter is a UPRR ROW 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 Chapter 2.0, Project Description, the project includes installation of a new 230 kV switching station on a previously disturbed site 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 will 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 will be located outdoors. A 12-foot-high perimeter fence will surround the site. Along the Egbert Avenue frontage, the wall will be set back 5 to 10 feet from the property line to allow an area for new sidewalk and new landscaping, and will 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. Average (L_{eq}) daytime levels were reported to vary between 56 to 67 dBA during the daytime and 50 to 68 dBA 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. Residual 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 DNL or L_{dn} was 67 dBA. 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 UPRR centerline, and 12 feet above grade. Residual background sound levels (L_{90}) ranged from 52 to 64 dBA during the daytime and from 49 to 59 dBA during the nighttime. These measures are consistent with the typical sound levels described in Table 3.12-2.

3.12.4.1 Sensitive Receptors

Noise-sensitive receptors generally are defined as locations where people reside or where the presence of unwanted sound may adversely affect the existing land use. Typically, noise-sensitive land uses include residences, hospitals, places of worship, libraries, and schools, as well as nature and wildlife preserves and parks. Sensitive receptors within 0.25 mile of the project alignment were analyzed for potential impacts as a result of project construction and operation. Figures 3.10-2a through 3.10-2h depict the locations of nearby residential areas and noise-sensitive receptors in relation to the project.

The nearest noise-sensitive receptors to the existing Martin Substation and Service Center are the multi-family 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 schools to the existing Martin Substation and Service Center are the Bayshore Elementary school, currently under construction, and located approximately 65 feet west of the site boundary on Oriente Street, and the Robertson Intermediate School located approximately 275 feet south of the site boundary. Additional noise-sensitive receptors within 0.25 mile of the existing Martin Substation and Service Center are shown on Figures 3.10-2e and 3.10-2f.

Single- and multi-family residences are the most prominent noise-sensitive receptors along the proposed Jefferson-Egbert, Martin-Egbert, and Egbert-Embarcadero 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 lines will be constructed. Residences and other noise-sensitive receptors within 0.25 mile of the proposed Jefferson-Egbert, Martin-Egbert, and Egbert-Embarcadero lines are shown on Figures 3.10-2a through 3.10-2h. 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. Multi-family residences are also located approximately 140 feet from the site boundary across the UPRR tracks to the east. The Bay View Playground is the nearest recreational area, and the Southeast Health Center Clinic is the nearest health center; both are located approximately 0.15 mile east of the proposed site boundary. Cornerstone Missionary

Baptist is the nearest place of worship, located approximately 0.16 mile from the proposed site boundary. Additional noise-sensitive receptors within 0.25 mile of the proposed Egbert Switching Station site are shown on Figure 3.10-1.

3.12.5 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for noise-related impacts derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operational noise impacts.

3.12.5.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts related to noise were evaluated for each of the criteria listed in Table 3.12-1, as discussed in Section 3.12.4.3.

3.12.5.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

APM Noise (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 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.

3.12.5.3 Potential Impacts

Project impacts related to noise were evaluated against the CEQA significance criteria and are discussed below. This section evaluates potential project impacts during the construction phase and the operation and maintenance phase.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

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 this project will be installed underground. Audible noise from buried lines is not anticipated, and operation of the lines will not result in noise generation.

Construction Noise Levels

Review of the typical construction equipment noise levels in Table 3.12-3 indicates that the loudest equipment generally emits noise in the range of 80 to 90 dBA at 50 feet with usage factors of 40 percent to 50 percent.

The switchgear building at the proposed Egbert Switching Station is expected to be supported by a thickened mat slab foundation. If building piers are required, 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 will be installed using a drill method, and vibratory or impact pile driving is not anticipated.

Transmission line vault excavations (approximately at 1,800- to 2,000-foot intervals along a line) and auger bore pits will 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, will be determined by soil and groundwater conditions. Soil borings obtained during final design work will 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 will generate temporary noise and may result in perceptible vibrations that would be local to the excavation activity where the shoring type is required. A vault is typically completely installed in 7 workdays. A bore pit excavation is expected to occur over approximately 5 workdays. The pile driving activity would be temporary and limited in duration, occurring during daytime construction hours when piles are driven within the excavation activity period. Similarly, if required along the trench, pile driving at any given location would be limited in duration to a few days.

Auger bore operations are expected to last for approximately 6 weeks. Excavation of the auger bore pits will 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 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 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 is listed in Table 2.7-1 and 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
- Semitruck
- Hydraulic breaker for excavator
- Sheet driver for excavator

The estimated sound pressure level from the operation of auger bore equipment operating at the entry is assumed to be similar to the FHWA 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 (CH2M HILL, 2012) without barriers. Table 3.12-5 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 is located in a pit 13 to 15 feet below grade (unlike horizontal directional drilling as used in the Embarcadero-Potrero Project).

Geometric divergence is the primary mechanism of noise reduction close to a noise source. At greater distances, additional reductions (e.g., ground effects and atmospheric attenuation) can be significant. This excess attenuation is not accounted for in the model, nor is the potential shielding afforded by intervening structures. Therefore, the model output should be considered conservatively high.

Table 3.12-5. 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

Table 3.12-5. 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)
1,000	63	58
1,500	60	55
2,000	57	52
4,000	51	46

Notes:
See text narrative preceding this table for the parameters of this noise modeling scenario.

APM NO-5 should reasonably achieve more than a 5 dBA reduction. The results with and without a 5 dBA reduction are incorporated into Table 3.12-5. 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.

The effectiveness of a noise barrier is quantified by its field insertion loss. Field insertion loss is simply the difference in the noise levels at the same location before and after the barrier is constructed. The barrier should be tall enough to block the line-of-sight to the noise-generating portion of the project area; for most diesel-powered equipment, the wall would have to be tall enough to block the line-of-sight to the exhaust. A well-constructed barrier wall constructed of 0.75-inch plywood that minimizes the open space (air gaps between plywood panels) may achieve a 5 to 10 dBA reduction, while a practical limit of barrier effectiveness is typically 20 dBA.

As APM NO-5 notes, current plans anticipate performing most auger bore activities during daytime hours, as well as monitoring noise levels during any required nighttime auger bore activities. Auger bore equipment for nighttime work consists of the bore equipment, which will be in a 13- to 15-foot pit, the side of which could be lined with noise barriers to provide additional noise reduction, and some above-ground support equipment. This data will be used to update the analysis to reflect actual auger bore noise emissions from project-specific equipment. Given the conservative nature of the present analysis, it is expected that measured noise levels will be less than or similar to those predicted in Table 3.12-5.

Construction Vibration

Pile driving is the activity that has the greatest likelihood of creating perceptible off-site vibrations. CEC staff in their analysis typically reference the Federal Transit Administration

(FTA) guidance manual criteria for damage (FTA, 2006). In addition to the FTA guidance manual, the Federal Railroad Administration (2005, 2012) provides thresholds for various land uses. Both the FTA and Federal Railroad Administration provide a methodology for the assessment for 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 CEC staff's proposed criteria of a Peak Particle Velocity (PPV) of 0.2 inch per second (in/sec) is indicated in the Caltrans guidance to be "annoying" but not "unpleasant"; and a level of 0.1 in/sec 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." 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 as PPV and approximate Vibration velocity level (L_v) (Table 3.12-6).

Table 3.12-6. Construction Vibration Damage Criteria

Building Category	PPV (in/sec)	Approximate L_v[a]
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.
[a] Root Mean Squared vibration velocity level (L_v) in decibels relative to 1 micro-in/sec.

The vibration from various construction equipment established by the FTA is provided in Table 3.12-7.

Table 3.12-7. Vibration Source Levels for Construction Equipment[a]

Equipment		PPV at 25 ft (in/sec)	Approximate L_v at 25 ft
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

Table 3.12-7. Vibration Source Levels for Construction Equipment[a]

Equipment	PPV at 25 ft (in/sec)	Approximate L_v at 25 ft
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

[a] Root Mean Squared velocity in decibels relative to 1 micro-in/sec

L_v = vibration velocity level

Source: FTA Manual, Table 12-2, 2006.

Table 3.12-8 shows that the typical sonic pile driver operated at a distance of 25 feet results in a PPV that does not exceed the 0.2 in/sec damage criteria for non-engineered timber or masonry structures. Using the above upper range for an impact pile driver and typical values for a sonic pile driver, the PPV and L_v at various distances has been tabulated (Table 3.12-8).

Table 3.12-8. Predicted Vibrations from Pile Driving Equipment at Various Distances

Distance (ft)	PPV (Upper Range, Impact)	PPV (Typical Sonic)	L_v (Upper Range, Impact)	L_v (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

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 is not expected within 150 feet of residential structures.

Operation and Maintenance

Potential sources of operational noise associated with this 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 will be infrequent (monthly). The infrequent noise from operation and maintenance vehicles will not substantially change noise resulting from the environment surrounding the proposed Egbert Switching Station, which is predominantly commercial and industrial in nature. The series and shunt reactors will be located outside of the enclosed 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 anticipated shunt reactor sound level is similar (less than 75 dBA at 2 meters [6.6 feet]). The building ventilation system will likely consist of an exhaust fan on the GIS 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 feet. Noise associated with these components will decay with distance, and preliminary estimates indicate that a sound level of 60 dBA would be achieved 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 will be incorporated into the design during detailed engineering to minimize sound levels, such as specifying lower noise equipment, directing exhausts in less sensitive direction, addition of exhaust vent silencers, installation of sound barrier walls, or incorporating acoustically absorptive materials to reflective surfaces.

a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? *Less-than-significant Impact*.

Construction

Noisy construction activities will be short term, temporary, and 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 2.7.2.2, 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. 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.

Sound levels decrease with increasing distance, and typical construction sound levels at various distances are presented in Table 3.12-4. PG&E will consult with Brisbane, Daly City, and San Francisco regarding opportunities to reduce noise impacts, and will obtain and comply with all necessary ministerial permits.

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 Brisbane of the proposed Jefferson-Egbert line is limited to approximately 300 feet within Guadalupe Canyon Parkway. The closest residence to the project in 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 construction activities in Brisbane along Guadalupe Canyon Parkway is also very limited, approximately 8 working days. Given the limited duration of these activities, that they are conducted during the daytime hours, and that the predicted levels at the closest residences (250 feet away) are less than the levels identified in the city of Brisbane's Section 8.28.060, construction in Brisbane is anticipated to result in a less-than-significant impact under this criterion.

Daly City

As described in Section 3.12.2.1, Daly City does not provide specific construction-related noise limits, but acknowledges various temporary noise sources generated from construction activities. Construction noise is regulated in 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 is prohibited on weekends and holidays.

San Francisco

While not calculated to exceed the city of San Francisco's requirements of 80 dBA at 100 feet, these levels are approached (79 dBA at 100 feet per Table 3.12-4, and 78 dBA per Table 3.12-5). These predictions are representative of long-term averages; instantaneous levels could be higher or lower, depending on the specific activity. Table 3.12-5 shows that noise associated with the auger bore entry location may reach 78 dBA at 100 feet when minimization measures achieve the minimum 5 dBA reduction. As described above and shown on Figure 2.5-1e, 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.

The proposed Egbert Switching Station perimeter fence and equipment enclosures are expected to require approximately 60 piers installed to a depth of 15 feet. These piers will be drilled, and will not require vibratory or impact pile driving methods.

Pile driving may occur during 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, and will be determined by soil and groundwater conditions. As listed in Table 3.12-3, impact and vibratory pile drivers could have a noise level of 101 dBA at 50 feet, which could result in 95 dBA at 100 feet. Pile driving activities may therefore exceed the city of San Francisco's requirement of 80 dBA at 100 feet.

Implementation of APMs NO-1 through NO-7 will reduce noise impacts from construction. Additionally, APM TR-1 will further minimize noise impacts during construction by discussing haul routes and developing circulation and detour plans for local streets. While it may not be feasible in all cases to reduce noise to a level that is consistent with applicable noise standards (San Francisco's criteria of 80 dBA at 100 feet), given the very short duration of construction activity at any one location (e.g., pile driving to install shoring for 2 to 3 days), impacts under this criterion will be less than significant with the implementation of APMs NO-1 through NO-7.

Where shoring is required to ensure safety of workers and the public, these activities will be conducted during the daytime hours and would be of limited duration; therefore, the noise generated from project construction is anticipated to be a less-than-significant impact under this criterion.

Operation and Maintenance

Corona noise associated with the new transmission lines is not anticipated to be audible given that the proposed lines will be buried. No increases in noise from the existing Martin Substation are expected from the proposed modifications because the modifications will remove the existing Jefferson-Martin line terminal equipment and will 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 will be minimized by enclosure of the switchgear equipment within a building. In addition, equipment specifications and construction details will 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) will incorporate measures to comply with the noise standards at the existing residential uses.

Maintenance activities for the new switching station and transmission lines will typically occur over short timeframes and generate minimal noise. As with existing maintenance activities involving noise-generating equipment or vehicles, noise reduction measures will be employed to reduce temporary noise impacts as described in APMs NO-1 through 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 will have a less-than-significant impact.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? *Less-than-significant Impact*.

Construction

Construction activities (e.g., ground-disturbing activities, including grading and movement of heavy construction equipment) may generate localized groundborne vibration and noise. Earthmoving equipment that may result in groundborne vibration or noise will occur during daytime hours, and will be of short-term duration. 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, which will also occur during daytime hours and will be of short-term duration. Depending on soil and groundwater conditions, impact or vibratory pile driving may occur during 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 activities may result in groundborne vibration perceptible at nearby residences, but it is anticipated that the piling required for shoring can be accomplished with vibratory methods. Implementation of APM NO-7 would consider site-specific factors and appropriate driving technologies for use to reduce the potential effects of off-site vibration. Therefore, exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels during construction of the project will be less than significant.

Operation and Maintenance

Equipment associated with normal operation and maintenance of the proposed project will not produce any groundborne noise or vibration; therefore, operation and maintenance of the project will result in no impact.

c) Would the project result in substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? ***Less-than-significant Impact.***

Construction

Project construction will be temporary, and therefore will not result in a substantial permanent increase in ambient noise levels; no significant impact will occur during construction.

Operation and Maintenance

Corona is typically not a design concern for transmission lines at 230 kV and lower, and the proposed lines will be underground, eliminating any potential audible noise. Equipment will be removed from the existing Martin Substation, and therefore will not result in any permanent increase to ambient noise levels. The proposed Egbert Switching Station will be designed to operate within local noise standards or ordinances. Noise from Egbert Switching Station will be minimized by enclosure of the switchgear equipment within a building. In addition, equipment specifications and construction details will be incorporated during detailed engineering to minimize operational sound levels, such as specifying lower noise equipment, directing exhaust vents in less sensitive direction, adding exhaust vent silencers, installing 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) will incorporate measures to limit the increase to no more than 8 dBA at the existing residential uses.

Maintenance activities will be temporary, and are addressed under the next criterion. Therefore, operation of the project will have a less-than-significant impact, and will not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

d) Would the project result in substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? ***Less-than-significant Impact.***

Construction

Construction noise associated with the project will have a short-term impact on ambient levels. As noted in response to a), work will typically be occurring 5 days per week, during daytime hours, progressing from one area to another along the transmission line routes. Noise levels attributed to typical construction equipment are listed in Table 3.12-3, and the construction equipment noise levels are provided in Table 3.12-4.

One of the longer duration construction activities occurring in a single area is the auger bore, trenchless crossing work. As described in previous sections and as shown on Figure 2.5-1e, 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 2.5-1e, these residences are also near a portion of U.S. 101 where there are no highway noise barriers. Table 3.12-5 shows that noise associated with the auger bore entry location may reach 78 dBA at 100 feet. Implementation of APM NO-5 would reduce noise levels below 78 dBA. 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. The duration of the auger bore is expected to occur for up to approximately 10 days. Should soil conditions determine that nighttime (continuous) use of the auger bore machine is required, such use would be limited in duration. If nighttime operation of the equipment is required, the use will be limited to the auger-boring machine (located in a pit 13 to 15 feet below grade) and supporting equipment required for operation of the auger-bore machine (e.g., generator and work area lights). Any pile driving, saw cutting, and use of a hydraulic breaking hammer are not anticipated to occur during the nighttime hours.

Construction activities in close proximity to this densely populated urban area will be noticeable at times and result in temporary increases in ambient sound levels, but these increases are limited in both duration and primarily to daytime hours. Implementation of APMs NO-1 through NO-7 would help minimize potential noise disturbance from construction activities. Therefore, noise generated during project construction will be of a short duration at any given location, and results in a less-than-significant impact under this criterion.

Operation and Maintenance

Operation of the project will not result in substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. Periodic inspection and maintenance activities will be performed at the proposed Egbert Switching Station and new transmission lines. Maintenance activities will typically occur once a month, typically during daytime hours, and generate minimal noise. Therefore, the impacts from operation and maintenance activities resulting from implementation of the proposed project will be less than significant under this criterion.

e) 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 expose people residing or working in the project area to excessive noise levels? *No Impact.*

Construction, operation, and maintenance of the project will occur at a distance greater than 2 miles from a public airport; therefore, the project will result in no impact under this criterion.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? *No Impact.*

No private airstrips are located within 2 miles of the project; therefore, the project will result in no impact under this criterion during construction and operation and maintenance phases.

3.12.6 References

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3.13 POPULATION AND HOUSING

3.13.1 INTRODUCTION

This section describes existing conditions and potential impacts on population and housing as a result of construction, operation, and maintenance of the project. The analysis concludes that the project will have no impact. The project's potential effects on population and housing were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.13-1 and discussed in more detail in Section 3.13.4.

Table 3.13-1. CEQA Checklist for Population and Housing

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

3.13.2 REGULATORY BACKGROUND AND METHODOLOGY

3.13.2.1 Regulatory Background

No federal, state, or local regulations related to population and housing are applicable to the project.

3.13.2.2 Methodology

To evaluate potential effects on population and housing resources, the Housing Element of the San Francisco General Plan, the Daly City General Plan, the Housing Element of the Brisbane General Plan, and U.S. Census Bureau data were reviewed; also, field reconnaissance was conducted in the area as part of the evaluation.

3.13.3 ENVIRONMENTAL SETTING

3.13.3.1 Regional

The Association of Bay Area Governments (ABAG) forecasts the total population for the San Francisco Bay Area Region to reach 9,522,300 in 2040, a growth of 25.1 percent from 2015 (ABAG, 2016) where total population was estimated at 7,609,000.

The project is located in the counties of San Francisco and San Mateo, including the cities of San Francisco, Brisbane, and Daly City. San Mateo County ranked twelfth out of California counties (58 total in the state) for percentage of population increase, while San Francisco County ranked third. Between 2014 and 2015, San Mateo County's population grew by approximately 1 percent to an estimated 765,135. Comparatively, San Francisco County's population has grown by approximately 1.28 percent to reach an estimated 864,816 in 2015 (Silicon Valley Institute for Regional Studies, 2015). By 2040, the population of San Francisco County is expected to reach 951,714, and San Mateo County is expected to reach 850,127 residents (Caltrans, 2015).

3.13.3.2 Local

The City of San Francisco has a land area of 46.87 square miles (U.S. Census Bureau, 2016). In 2010, there were 376,942 housing units and the population was estimated to be 805,235. The vacancy rate for San Francisco in 2010 was 8.3 percent. ABAG estimates the population of San Francisco to reach 890,400 by 2020 (City of San Francisco, 2015). The typical housing stock in San Francisco is divided into low-medium and higher density structures. Approximately 62.5 percent of occupied housing units are rentals (City of San Francisco, 2015).

The City of Daly City has a land area of 7.66 square miles (U.S. Census Bureau, 2016). In 2010, there were 32,588 housing units and the population was estimated to be 101,123. The vacancy rate for Daly City in 2010 was 4.6 percent. ABAG estimates the population to reach 115,100 by 2020 (City of Daly City, 2013).

The City of Brisbane has a land area of 20.02 square miles (U.S. Census Bureau, 2016). In 2010, there were 1,934 housing units and the population was estimated to be 4,282. The vacancy rate for Brisbane in 2010 was 5.8 percent. ABAG estimates the population to reach 4,500 by 2020 (City of Brisbane, 2015).

3.13.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for impacts on population and housing derived from Appendix G of the CEQA Guidelines, and assess potential project-related construction and operational impacts. Because the project will have no impact on population and housing, APMs have not been included for this section.

3.13.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on population and housing were evaluated for each of the criteria listed in Table 3.13-1, as discussed in Section 3.13.4.3.

3.13.4.2 Applicant-Proposed Measures

The project will have no impact on population and housing, and no APMs are proposed.

3.13.4.3 Potential Impacts

Project impacts on population and housing were evaluated against the CEQA significance criteria, as discussed below. This section evaluates potential project impacts from both the construction phase and operation and maintenance phase.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a proposed Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and extend two underground transmission lines to Egbert Switching Station, creating a proposed Martin-Egbert line and a proposed Egbert-Embarcadero line. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

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

This project will improve electric system resiliency and resolve reliability concerns of a prolonged loss of service at Martin Substation in the event of an extreme event, which could result in widespread power outages in San Francisco. The project will not extend new power lines or other infrastructure into areas not already served; the project does not facilitate growth. New development will not be generated by the project.

During peak construction times, PG&E will employ approximately 88 construction personnel (including switchyard workers, supervisors, and inspectors). Approximately 20 percent of this workforce will be locally sourced. 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. PG&E will operate the new switching station and transmission lines using existing operation and maintenance staff. No impact to population growth would occur. Thus, the project would not directly or indirectly induce substantial population growth.

b) Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? *No Impact.*

Project construction, operation, and maintenance will not displace existing housing, nor will replacement housing need to be constructed. Therefore, no impact will occur.

c) Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? *No Impact.*

Project construction, operation, and maintenance will not displace people, nor will replacement housing need to be constructed. Therefore, no impact will occur.

3.13.5 REFERENCES

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3.14 PUBLIC SERVICES

3.14.1 INTRODUCTION

This section describes existing conditions and potential impacts on public services as a result of construction, operation, and maintenance of the project, and concludes no impacts will occur. Public services include fire and emergency protection, police protection, and maintenance of public facilities such as schools and parks. Emergency access is discussed in Section 3.16, Transportation and Traffic. Temporary construction-related impacts on schools and parks—such as dust and noise—are discussed in Sections 3.3, Air Quality, and 3.12, Noise, respectively. Project compatibility with future park-planning efforts is discussed in Section 3.10, Land Use and Planning. Potential impacts on parks and recreational facilities are discussed in Section 3.15, Recreation.

The project's potential effects on public services were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.14-1 and discussed in more detail in Section 3.14.4.

Table 3.14-1. CEQA Checklist for Public Services

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	☐	☐	☐	☒
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

3.14.2 REGULATORY BACKGROUND AND METHODOLOGY

3.14.2.1 Regulatory Background

No regulatory background information for public services is relevant to the project.

3.14.2.2 Methodology

Public services include fire and police protection, and maintenance of public facilities such as schools and parks. In preparing this section, reviews were conducted of the General Plans for San Francisco, Daly City, and Brisbane. The following websites were reviewed: San Francisco Fire Department, North County Fire Authority (NCFA) (serves both Daly City and Brisbane), SFPD, Daly City Police Department, Brisbane Police Department, San Francisco Unified School District (SFUSD), Bayshore Elementary School District, Jefferson Elementary School District, Jefferson Union High School District, South San Francisco Unified School District, and Brisbane School District.

3.14.3 Environmental Setting

3.14.3.1 Fire Protection and Emergency Services

City and County of San Francisco

Fire protection and emergency services in the city and county of San Francisco are provided by the San Francisco Fire Department, whose services include fire suppression, tactical rescue, emergency medical care, fire prevention, arson investigation, and response to natural disasters, mass-casualties, and hazardous materials incidents. They provide protection to the public within the 49 square miles of San Francisco. Resources consist of 43 engine companies, 19 truck companies, a fleet of ambulances, 2 heavy rescue squad units, 2 fireboats, and multiple special-purpose units distributed through 51 stations (San Francisco Fire Department, 2017). Stations 17, 42, 43, and 44 are within 1 mile of the project; Stations 25 and 49 are approximately 0.5 mile from the potential staging areas on Amador Street, if utilized. Location information for each station is provided in Table 3.14-2.

Cities of Daly City and Brisbane

NCFA serves both Daly City and Brisbane. NCFA provides emergency and non-emergency (i.e., medical, fire, and hazardous situations) services to an area of 60 square miles, serving the cities of Brisbane, Daly City, and Pacifica. There are currently 10 stations, including 1 station in Brisbane and 5 stations in Daly City (NCFA, 2017). Stations 81 (Brisbane) and 93 (Daly City) are within 1 mile of the project (Table 3.14-2).

Table 3.14-2. Emergency Services and Law Enforcement Providers

Station	Address	Distance from Project
San Francisco Fire Department		
Fire Station 17	1295 Shafter Avenue, San Francisco	0.7 mile from the proposed Egbert Switching Station
Fire Station 42	2430 San Bruno Avenue, San Francisco	0.3 mile from the proposed Egbert-Embarcadero and Martin-Egbert lines
Fire Station 43	720 Moscow Street, San Francisco	0.8 mile from the proposed Jefferson-Egbert line
Fire Station 44	1298 Girard Street, San Francisco	0.4 mile from the proposed Jefferson-Egbert line

Table 3.14-2. Emergency Services and Law Enforcement Providers

Station	Address	Distance from Project
Fire Station 49	1415 Evans Avenue, San Francisco	0.5 mile from the potential staging areas on Amador Street
Fire Station 25	3305 3rd Street, San Francisco	0.5 mile from the potential staging areas on Amador Street
North County Fire Authority		
Fire Station 93	464 Martin Street, Daly City	0.2 mile from the proposed Jefferson-Egbert line
Fire Station 81	3445 Bayshore Boulevard, Brisbane	1.0 mile from the existing Martin Substation and potential staging areas within the substation
San Francisco Police Department		
Bayview Police Station	201 Williams Avenue, San Francisco	0.2 mile from the proposed Egbert-Embarcadero and Martin-Egbert lines
Daly City Police Department		
Daly City Police Station	333 90th Street, Daly City	2.9 miles from the proposed Jefferson-Egbert line and the potential staging areas along Carter Street
Brisbane Police Department		
Brisbane Police Department	50 Park Place, Brisbane	1.0 mile from the existing Martin Substation and potential staging areas within the substation

3.14.3.2 Police Services

San Francisco

The SFPD provides law enforcement services to the city and county of San Francisco. There are 10 district stations divided into 2 divisions. The Bayview Police Station would serve the project, including the potential staging areas on Amador Street (Table 3.14-2). In 2014, SFPD averaged 1,691 full-duty sworn officers (SFPD, 2014).

Daly City

The Daly City Police Department consists of 1 station that serves the city of Daly City by way of 6 districts, 4 divisions, and 110 officers (City of Daly City, 2017a). The Daly City Police station is listed in Table 3.14-2.

Brisbane

The City of Brisbane Police Department serves the city of Brisbane. There is 1 district and division with 10 officers (City of Brisbane, 2017). The Brisbane Police Station is listed in Table 3.14-2.

3.14.3.3 Schools

There are 13 schools within 0.25 mile of the project (Table 3.14-3), 10 in San Francisco and 3 in Daly City. There are no schools within 0.25 mile of the potential staging areas on Amador Street.

San Francisco

The SFUSD has a total of 120 schools and 13 charter schools in the San Francisco area. In 2015, there were 55,320 students registered in the district. There are 10 schools within 0.25 mile of the project, as shown in Table 3.14-3 (SFUSD, 2017). All of these schools are operated by SFUSD with the exception of Alta Vista School and Our Lady of the Visitacion School, which operate separately under private ownership. Martin Luther King Jr Academic Middle School is adjacent to the proposed Egbert-Embarcadero and Martin-Egbert lines on Bacon Street in San Francisco. The proposed Jefferson-Egbert line crosses in front of the entrance to Visitacion Valley Middle School as it heads north on Visitacion Avenue and on Mansell Street passes Phillip and Sala Burton Academic High School.

Daly City

Daly City is served by five public school districts and a community college district. Each district is a separate governmental entity. These schools enrolled approximately 21,390 students in 2015 (including schools in South San Francisco, Pacifica, and Colma). There are 2 public schools (Bayshore Elementary and Garnet J Robertson Intermediate School) and 1 private school, Mt Vernon Christian Academy, within 0.25 mile of the project, as shown in Table 3.14-3 (Bayshore Elementary School District, 2017; Jefferson Elementary School District, 2017; California Department of Education, 2017).

Brisbane

Brisbane School District serves three schools: one in Daly City (elementary school) and two in Brisbane (one elementary and one junior high school). These schools enroll approximately 462 students per school year (Brisbane School District, 2017). There are no Brisbane schools within 0.25 mile of the project.

Table 3.14-3. Schools within 0.25 Mile of the Project

School Name	Address	Distance from Project
Martin Luther King Jr Academic Middle School	350 Girard Street, San Francisco	Adjacent to the proposed Martin-Egbert line (work location on Bacon Street near Brussels Street)
Mt Vernon Christian Academy	310 Ottilla Street, Daly City	0.1 mile from the existing Martin Substation and the potential staging areas within the substation
Garnet J Robertson Intermediate School	1 Martin Street, Daly City	0.1 mile from the existing Martin Substation and the potential staging areas within the substation

Table 3.14-3. Schools within 0.25 Mile of the Project

School Name	Address	Distance from Project
Wu Yee New Generation Child Development Center	700 Velasco Avenue, San Francisco	0.1 mile from the proposed Jefferson-Egbert line and 0.2 mile from the potential staging areas along Carter Street
KIPP Bayview Academy	1060 Key Avenue, San Francisco	0.2 mile from the proposed Jefferson-Egbert line
John McLaren Early Education School	2055 Sunnydale Avenue, San Francisco	0.2 mile from the proposed Jefferson-Egbert line
Our Lady of the Visitacion School	785 Sunnydale Avenue, San Francisco	0.2 mile from the existing Martin Substation
Edward Robeson Taylor Elementary School	423 Burrows Street, San Francisco	0.1 mile from the proposed Egbert-Embarcadero and Martin-Egbert lines
Alta Vista School	450 Somerset Street, San Francisco	0.1 mile from the proposed Egbert-Embarcadero and Martin-Egbert lines
El Dorado Elementary School	70 Delta Street, San Francisco	0.1 mile from the proposed Jefferson-Egbert line
Phillip and Sala Burton Academic High School	400 Mansell Street, San Francisco	Adjacent to the proposed Jefferson-Egbert line
Visitacion Valley Middle School	450 Raymond Avenue, San Francisco (main entrance on Visitacion Avenue)	Adjacent to the proposed Jefferson-Egbert 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

3.14.3.4 Parks

There are 28 total parks within 1 mile of the project, with an additional 12 parks if one or both potential staging areas on Amador Street is utilized. The San Francisco Recreation and Park Department builds, maintains, and renovates parks and recreation facilities in San Francisco (City of San Francisco, 2014). In Daly City, there are 25 total municipal parks and "tot lots" (small playgrounds for young children), which are owned and maintained by the Recreation Division of the City (City of Daly City, 2013). In Brisbane, there are two parks, two trails, and one tot lot, all owned and maintained by the City of Brisbane Parks and Recreation Department. Brisbane is adjacent to San Bruno Mountain State and County Park, where 2,416 acres are owned and maintained by San Mateo County Parks Department (County of San Mateo Parks Department, 2017). Table 3.15-2 in Section 3.15, Recreation, lists existing parks within 1 mile of the project; Table 3.15-3 lists parks within 1 mile of the potential staging areas on Amador Street, if utilized.

3.14.3.5 Other Public Facilities

Other public facilities include community centers, public clinics, and libraries. Table 3.14-4 displays other public facilities within 0.5 mile of the project.

Table 3.14-4. Other Public Facilities

Facility	Address	Distance from Project
Boys and Girls Club of San Francisco – Sunnydale Clubhouse	1654 Sunnydale Avenue, San Francisco	Adjacent to the proposed Jefferson-Egbert line
Portola Branch Library	380 Bacon Street, San Francisco	0.1 mile from the proposed Egbert-Embarcadero and Martin-Egbert lines
Portola Family Connections-Social Services	2565 San Bruno Avenue, San Francisco	0.1 mile from the proposed Egbert-Embarcadero and Martin-Egbert lines
Bayview Senior Services – George W Davis Senior Center	1753 Carroll Avenue, San Francisco	0.1 mile from the proposed Egbert-Embarcadero and Martin-Egbert lines
U.S. Post Office – McLaren Branch	2755 San Bruno Avenue, San Francisco	0.1 mile from the proposed Egbert-Embarcadero and Martin-Egbert lines
3rd Street Youth Center and Clinic	1728 Bancroft Avenue, San Francisco	0.1 mile from the proposed Egbert Switching Station
John King Senior Community Center	500 Raymond Avenue, San Francisco	0.1 mile from the proposed Jefferson-Egbert line
Southeast Health Center Clinic	2401 Keith Street, San Francisco	0.3 mile from the proposed Egbert Switching Station
Bayshore Community Center	450 Martin Street, Daly City	0.3 mile from the proposed Jefferson-Egbert line, the potential staging areas on Carter Street, the existing Martin Substation and potential staging areas within the substation
Bayshore Branch Library	460 Martin Street, Daly City	0.3 mile from the proposed Jefferson-Egbert line, 0.2 mile from the potential staging areas on Carter Street, and 0.35 mile from the existing Martin Substation and potential staging areas within the substation
City College of San Francisco – Evans Campus	1400 Evans Avenue, San Francisco	0.5 mile from the potential staging areas on Amador Street
EcoCenter at Heron's Head Park	32 Jennings Street, San Francisco	0.1 mile from the potential staging areas on Amador Street

3.14.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for impacts on public services derived from Appendix G of the CEQA Guidelines and assess potential project-related construction and operational impacts. Because the project will have no impact on public services, APMs have not been included for this section.

3.14.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project-related impacts on public services was evaluated for each of the criteria listed in Table 3.14-1, as discussed in Section 3.14.4.3.

3.14.4.2 Applicant-Proposed Measures

The project will have no impact on public services, and no APMs are proposed.

3.14.4.3 Potential Impacts

Project impacts on public services were evaluated against the CEQA significance criteria and are discussed in further detail below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services: fire protection, police protection, schools, parks, other public facilities? ***No Impact.***

Project construction will result in a temporary, short-term increase of up to approximately 88 construction workers. Although construction workers traveling to the project may use existing public services or amenities, this potential increase in demand will be minimal and temporary, and will not require new or altered government facilities. The project will not include development of new residential units that will directly or indirectly increase population; therefore, no increase in the demand for public services in the area will occur. Furthermore, no new or altered public facilities are needed. Therefore, no construction impact will occur. Operation and maintenance visits will be conducted occasionally by PG&E staff, but no increases in staff levels would be required that would trigger the need for new or altered facilities that could result in environmental impacts. Therefore, no operations or maintenance impact will occur. Detail is provided below by service type.

Fire and Police Protection

As described in Section 3.16, Transportation and Traffic, during project construction, PG&E will coordinate any road closures with emergency service providers so that response times will not be affected.

Switching station operation and maintenance personnel will park vehicles within the switching station or along Egbert Avenue and will 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.

In the event of an unlikely situation requiring fire or police protection support, fire and police services are located within 1 mile of the project components (Table 3.14-2). 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. Therefore, there will be no operation and maintenance impact to fire and police protection services.

Schools

The project will not involve developing new residential units or services that will generate a new residential population in the area. Therefore, the project will not cause an increase in the demand on existing schools that would affect school enrollment or performance objectives. Construction will not create a substantial increase to local workforce that would temporarily increase the need for school facilities. Operation and maintenance of the new switching station and transmission lines will be supported by existing PG&E staff; no permanent on-site staff are planned that could increase the need for school facilities. No construction or operation and maintenance impact will occur.

Traffic impacts to schools that are adjacent to the project because of construction activities and road closures are discussed in Section 3.16, Transportation and Traffic.

Parks

The project will not involve developing new residential units or services that will generate a new daytime or residential population in the area that will increase the demand on parks. Operation and maintenance activities will be supported by existing PG&E staff as part of their scheduled work in the area. Construction workers traveling to the area may use existing public services or amenities such as parks. This potential increase in demand for park services because of the presence of construction personnel will be minimal and temporary, and the demand will not exacerbate the need for or deterioration of the park facilities or result in the need for new facilities. Construction- and operation-related impacts to parks in the project are evaluated in Section 3.15, Recreation.

Other Public Facilities

The project will have no construction or operation and maintenance impacts on the various public facilities near the project (Table 3.14-4). The project will improve electric system resiliency and resolve reliability concerns in the area, and will not directly or indirectly induce growth or create a need for additional public services. Therefore, no construction or operation and maintenance impact will occur.

Traffic impacts during construction activities and lane closures that may impact other public facilities are discussed in Section 3.16, Transportation and Traffic.

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3.15 RECREATION

3.15.1 INTRODUCTION

This section describes existing conditions and potential impacts on recreation as a result of construction, operation, and maintenance of the project and concludes that no impacts will occur in this area. The project will not introduce new housing or a significant number of jobs into the area that could increase the use of existing parks and will not require the introduction of new park facilities. Temporary construction impacts on parks—such as dust, noise, and hazards—are discussed in Section 3.3 Air Quality, Section 3.12 Noise, and Section 3.8 Hazards and Hazardous Materials, respectively. The project's potential effects on recreation were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.15-1 and discussed in more detail in Section 3.15.4.

Table 3.15-1. CEQA Checklist for Recreation

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒

3.15.2 REGULATORY BACKGROUND AND METHODOLOGY

3.15.2.1 Regulatory Background

No federal, state, or local regulations related to recreation are applicable to the project.

3.15.2.2 Methodology

Recreation resources include recreational facilities such as state, regional, and local parks. The California Department of Parks and Recreation website (California State Parks, 2017a) was reviewed to identify local recreational resources as well as the San Francisco Bay Trail website (ABAG, 2017). The San Bruno Mountain State and County Park website was reviewed for trail maps and other recreational facilities near the project (California State Parks, 2017b). The General Plan for Daly City, Recreation and Open Space element of San Francisco's General Plan, and Brisbane's Recreation and Community Services element (City of Brisbane, 1994) of the Brisbane General Plan were reviewed. The San Francisco Municipal Transportation Agency (SFMTA) website was consulted for maps of current and projected cycling projects and programs, and websites for the San Francisco Bicycle Coalition and Bay Area Bike Share were also consulted.

In the event that one of the potential staging areas on Amador Street is selected for use, the Port website was reviewed for existing and proposed recreational facilities. Similarly, should the southerly staging area (South Container Terminal) on Amador Street be selected for use, because the edges of the site are within the San Francisco BCDC 100-foot shoreline, the BCDC website was also reviewed for existing and proposed recreational facilities.

3.15.3 ENVIRONMENTAL SETTING

3.15.3.1 Regional Setting

The project is located in the northern part of the San Francisco Peninsula. San Francisco is located at the tip of the peninsula, with Daly City and Burlingame located south of San Francisco on the western side of San Francisco Bay. On the shore of the Bay, ABAG has planned the Bay Trail, a 500-mile shoreline recreational trail, which provides public open space and pedestrian access and recreational opportunities. The Bay Trail will eventually encircle San Francisco and San Pablo Bays with a continuous network of hiking and bicycling trails. The Bay Trail also runs through a portion of Brisbane, at the Brisbane Marina. More than 325 miles of the Bay Trail have been completed (City of San Francisco, 2014a). The Bay Trail is approximately 1 mile east of the proposed Jefferson-Egbert line. Several extensions of the Bay Trail are proposed along the shoreline of the Hunters Point Naval Shipyard redevelopment and Bayshore Freeway/ U.S. 101, which are both over 1 mile from the project area (ABAG, 2017).

In addition to approximately 1,600 acres of federally owned space within the County of San Francisco, two state parks—Candlestick and Mount Sutro (City of San Francisco, 2014a)—are found within the city's boundaries. San Bruno Mountain State and County Park shares borders with the surrounding cities of Brisbane, Daly City, Colma, 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 State Parks, 2017b).

The SFMTA administers and operates a diverse set of transportation modes, including bicycle-related projects. Bicycle facilities are located throughout San Francisco and typically are marked with route or lane markings (i.e., on-street striped lanes, buffered bicycle lanes, and on-street bicycle routes with shared-lane markings) and signage. Similarly, Daly City has a Bicycle and Pedestrian Master Plan that defines the existing and future bicycle network for Daly City (City of Daly City, 2013b).

3.15.3.2 Local Setting

Local recreation facilities proximate to the project include park facilities and bicycle facilities.

Park Facilities

The 28 existing parks that are located within 1 mile of the project area are listed in Table 3.15-2. Parks within 1 mile of the project area are shown on Figures 3.10-3 and 3.10-4.

The southern extent of construction of the proposed Jefferson-Egbert line occurs on Guadalupe Canyon Parkway in Brisbane. San Bruno Mountain State and County Park is adjacent to

Guadalupe Canyon Parkway, although there are no park trails at this intersection (Table 3.15-2). There are no Brisbane city parks near the project route. Five parks in Daly City are within 1 mile of the proposed Jefferson-Egbert line.

Table 3.15-2. Existing and Proposed Recreational Facilities within 1 Mile of the Project

Park Name/Address	Owner	Amenities	Distance (mi)
San Bruno Mountain State Park (Carter Street and Guadalupe Canyon Parkway)	CDPR	Hiking, natural habitat, and open space	Adjacent to proposed Jefferson-Egbert line
John McLaren Park (Mansell Street and John F Shelley Drive)	SFRPD	Playground, picnic area, open space, golf course, and hiking trails; Coffman Pool (swimming)	Adjacent to proposed Jefferson-Egbert line
Bay View Playground (3rd & Armstrong)	SFRPD	Indoor/outdoor pools, playground, and softball	0.1 mi from proposed switching station site
Palega Recreation Center, 500 Felton Street	SFRPD	Community center with basketball court, soccer field, dog park, playground, and picnic areas	0.2 mi from proposed Egbert-Embarcadero and Martin-Egbert lines
Louis Sutter/Wayland and University	SFRPD	Playgrounds, ball parks, tennis and basketball courts, and soccer field	0.2 mi from proposed Jefferson-Egbert line
Arden Park	DCLRS	Playground, picnic area, basketball	0.2 mi from proposed Jefferson-Egbert line
Bayshore Heights Park (400 Martin Street)	DCLRS	Picnic area and playground	0.2 mi from proposed Jefferson-Egbert line
Visitacion Valley Playground (50 Raymond Avenue)	SFRPD	Playground, athletic field, and baseball field	0.3 mi from proposed Jefferson-Egbert line
Kelloch Velasco Parka/Kelloch and Velasco Street	SFRPD	Playground and basketball courts	0.3 mi from proposed Jefferson-Egbert line
Crocker Amazon Playground (Moscow & Geneva)	SFRPD	Playground and sports complex (soccer, baseball, and softball fields; tennis, basketball, and Bocce courts), clubhouse, community garden, and dog park	0.3 mi from proposed Jefferson-Egbert line
Visitacion Valley Greenway (Campbell and Rutland Streets)	SFRPD	Campbell-Rutland Mini Park, Senior Park, picnic area, Native Plants Park, and gardens	0.3 mi from proposed Jefferson-Egbert line
Ralph D House Community Park	SFRPD	Picnic area	0.3 mi from proposed Jefferson-Egbert line
Silver Terrace Playground (1700 Silver Avenue)	SFRPD	Artificial turf field/baseball, basketball and tennis courts, and playground	0.3 mi from proposed Egbert-Embarcadero and Martin-Egbert lines
Florence Fang Asian Community Garden	Caltrain	Urban cul de sac, staircase, views, community garden	0.3 mi from proposed switching station site

Table 3.15-2. Existing and Proposed Recreational Facilities within 1 Mile of the Project

Park Name/Address	Owner	Amenities	Distance (mi)
Bayview Park (LeConte Avenue)	SFRPD	Hiking trails	0.5 mi from proposed switching station site
Little Hollywood Community Park (Lathrop and Tocoloma)	SFRPD	Playground and basketball court	0.6 mi from Martin Substation
Mission Blue Field (475 Mission Blue Drive)	BPRD	Baseball field and tennis court	0.6 mi from proposed Jefferson-Egbert line
Joseph Lee Recreation Center (1395 Mendell Street)	SFRPD	Recreation center, basketball court, and multipurpose field	0.7 mi from proposed switching station site
Adam Rodgers Park/Ingalls and Oak Streets	SFRPD	Playground, basketball court, picnic tables, and walking/ bicycle paths	0.7 mi from proposed switching station site
Palau and Phelps Mini Park (Palau Avenue and Phelps Street)	SFRPD	Playground	0.7 mi from proposed Egbert-Embarcadero and Martin-Egbert lines
Gilman Playground (Gilman Avenue and Griffith)	SFRPD	Playground and basketball court	0.7 mi from proposed Jefferson-Egbert line
Selby and Palau Mini Park (Palau and Selby)	SFRPD	Playground, picnic, and basketball courts	0.8 mi from proposed Egbert-Embarcadero and Martin-Egbert lines
Hilltop Park (La Salle and Whitney Young Circle)	SFRPD	Skate park, picnic area with barbecue, adult fitness area, and neighborhood trail	0.8 mi from proposed switching station site
Mission Hills Park (Frankfort and Acton Street)	DCLRS	Picnic area, playground, basketball, and dog area	0.9 mi from proposed Jefferson-Egbert line
St. Mary's Recreation Center Picnic Area (Murray and Justin Drive)	SFRPD	Recreation center, picnic areas, baseball field, and tennis and basketball courts	0.9 mi from proposed Egbert-Embarcadero and Martin-Egbert lines
Ridgetop Plaza/Whitney Young Circle	SFRPD	Picnic tables	0.9 mi from proposed switching station site
Prentiss Mini Park/Prentiss and Eugenia	SFRPD	Playground and picnic table	1 mi from proposed Egbert-Embarcadero and Martin-Egbert lines
Excelsior Playground, Russia Ave and Madrid	SFRPD	Play structures, picnic areas, and basketball and tennis courts	1 mi from proposed Jefferson-Egbert line

Note:
SFRPD = San Francisco Recreation and Parks Department

SFRPD builds, maintains, and renovates parks and recreation facilities in San Francisco. Currently, SFRPD owns and manages 3,400 acres of recreation and open space. The proposed Jefferson-Egbert line runs through a portion of San Francisco's second-largest city park, John McLaren Park.

In the event that one of the potential staging areas on Amador Street is selected for use, the Port's Southern Waterfront area was reviewed for additional recreational uses. The Amador Street staging area locations are located near San Francisco's Piers 92-96. The Port has included this area in their *Piers 80-96 Maritime Eco-Industrial Strategy*, which is a plan to co-locate maritime industrial uses with public open space, such as the Heron's Head Park Wetlands (Port of San Francisco, 2016). The potential staging areas are intermingled with maritime and industrial uses. The Amador Yard is adjacent to a 3 acre wetland at Pier 94 and the South Container Terminal is adjacent to 8 acres of natural areas within Heron's Head Park. These wetland areas are accessible and open to the public for bird watching and natural views. Heron's Head Park also has picnicking facilities and an Eco Center. The potential Amador Street staging areas expands the project area to include an additional 12 parks within 1 mile as shown in Table 3.15-3.

Table 3.15-3. Additional Existing and Proposed Recreational Facilities within 1 Mile of the Amador Street Staging Areas, if Utilized

Park Name/Address	Owner	Amenities	Distance from potential Amador St. Staging Areas (mi)
Pier 94 wetland	Port	Birdwatching, natural views	Adjacent
Heron's Head Park Wetlands	Port	Picnic area, Eco Center	Adjacent
India Basin Shoreline Park	SFRPD	Bay Trail connection, kayak access, birdwatching	0.3 mi
Youngblood-Coleman Playground	SFRPD	Sports park (soccer, softball, basketball, tennis), playground, clubhouse, picnic area	0.4 mi
India Basin Open Space	SFRPD	Trail, benches, birdwatching	0.4 mi
Promontory Park	HOPE SF	Public view point, terraces	0.4 mi
Tulare Park	Port	Waterfront	0.5 mi
Islais Creek Park	Port	Picnic area	0.5 mi
Warm Water Cove Park	Port	Waterfront, benches, part of Bay Trail and Blue Greenway	0.7 mi
Hunter's Point/Milton Meyer Recreation Center	SFRPD	Playground, indoor gym, sports park, baseball fields, tennis courts, multi-purpose facility	0.7 mi
Progress Park	Caltrans	Dog run, paths, benches, bocce court	0.9 mi
Tunnel Top Park	Caltrain	Garden, benches, dog run, community gathering space	0.9 mi
Innes Court	Lennar	Public picnic area, playground, gardens	0.9 mi

Bicycle Facilities

Four existing bicycle lanes, one existing route, one existing path, one proposed route, and three proposed Green Connection routes are along or cross the proposed transmission lines (Table 3.15-4). Bicycle facilities are not located on or proposed along Egbert Avenue or Guadalupe

Canyon Parkway in Brisbane. Daly City has proposed a bicycle route along Carter Street. Three existing San Francisco bicycle lanes and one bicycle route are along or intersect with the proposed Jefferson-Egbert line on Mansell Avenue, Geneva Avenue, San Bruno Avenue, and Paul Avenue. The bicycle path adjacent to Mansell Avenue begins immediately west of the Mansell Avenue intersection with Visitacion Avenue where the proposed Jefferson-Egbert line is located. The proposed Martin-Egbert and Egbert-Embarcadero lines will cross and be along an existing bicycle path/route along Bayshore Boulevard (separated bicycle path southbound, bicycle route northbound). See Section 3.16, Transportation and Traffic, for analysis of construction-related effects on traffic and access.

Table 3.15-4. Existing and Proposed Bicycle Facilities Crossed by or Along Project Routes[a]

Facility Location/Name	Owner	Facility Type	Proximity to Project Route(s)
Bicycle Path, Lanes, and Routes (existing and proposed)			
Carter Street	Daly City	Proposed route	Along proposed Jefferson-Egbert line on Carter Street between Martin Street and Geneva Avenue
Geneva Avenue	CCSF	Existing lane	Along proposed Jefferson-Egbert line on Geneva Avenue between Santos Street and Carter Street
Mansell Avenue westbound	CCSF	Existing lane	Along proposed Jefferson-Egbert line on Mansell Avenue westbound between San Bruno Avenue and University Street
Adjacent to Mansell Street west of Visitacion Avenue in John McLaren Park	CCSF	Existing path	Path begins immediately west of the proposed Jefferson-Egbert line where it turns from Visitacion Avenue onto Mansell Street
San Bruno Avenue	CCSF	Existing lane	Intersects with proposed Jefferson-Egbert line at eastern bore pit of U.S. 101 crossing along San Bruno Avenue at Mansell Avenue
Paul Avenue	CCSF	Existing route	Intersects with proposed Jefferson-Egbert line where it crosses Paul Avenue to Crane Street
Bayshore Boulevard	CCSF	Existing path (SB)/ existing lane (NB)	At Bacon Street, the facilities cross the proposed Martin-Egbert line and north of the intersection the facilities are along proposed Egbert-Embarcadero line.
San Francisco-Green Connection (proposed routes)			
Green Connection Route 10	CCSF	Green route	Intersects with proposed Jefferson-Egbert line at Paul Avenue and Crane Street
Green Connection Route 23	CCSF	Green route	Intersects with proposed Jefferson-Egbert line at Visitacion Avenue south of Mansell Street
Green Connection Route 12	CCSF	Green route	Along proposed Jefferson-Egbert line on Hahn Street and Sunnydale Avenue

Table 3.15-4. Existing and Proposed Bicycle Facilities Crossed by or Along Project Routes[a]

Facility Location/Name	Owner	Facility Type	Proximity to Project Route(s)

[a] Definitions: *path* is a separated ROW for the exclusive use of bicycles and pedestrians; *lane* is a striped lane for one-way bicycle travel on a street; *route* is a signed shared roadway that provides for shared use with pedestrians or motor vehicle traffic. (Caltrans, 2006)

Notes:
NB = northbound
SB = southbound

The San Francisco Planning Department has developed a plan called Green Connections, the goal of which is to increase access to parks, open spaces, and the waterfront in the city. Green Connections is a 2-year project for which streets are expected to be upgraded incrementally over the next 20 years (City of San Francisco, 2017a). Three of the Green Connections routes are located on streets used by or crossed by the proposed Jefferson-Egbert line (i.e., Green Connections planned route No. 10 Yosemite Creek along Paul Avenue, planned route No. 12 Lake Merced to Candlestick, and planned route No. 23 Crosstown Trail along Visitacion Avenue through McLaren Park). Table 3.15-4, Existing and Proposed Bicycle Routes and Lanes Crossed by or Along the Project, describes the proximity of the project components with the proposed Green Connections.

In addition to these existing lanes, routes, and path, SFMTA is actively pursuing several projects that will improve bicycle mobility along the proposed transmission line routes, including the Bayshore Boulevard Road Diet and Bikeways Project, Geneva Avenue Multimodal Improvement Project, and Paul Avenue Bike Lane Project.

Of the locations identified as potential staging areas, four are located along the proposed Jefferson-Egbert line or within the existing Martin Substation. The bicycle facilities analysis for these four potential staging areas, which are adjacent to or co-located with a proposed or existing project component, is addressed above. The two potential staging areas on Amador Street expand the project area to include a bike lane on Cargo Way, which intersects the eastern end of Amador Street and continues one block south of the Amador Street potential staging locations. Cargo Way is also a segment of the Bay Trail. There are no bicycle facilities on Amador Street or adjacent to the potential staging areas.

3.15.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for impacts on recreation facilities derived from Appendix G of the CEQA Guidelines and assess potential project-related construction and operational impacts. Because the project will have no impact on recreation facilities, APMs have not been included for this section.

3.15.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area

affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on recreation were evaluated for each of the criteria listed in Table 3.15-1, as discussed in Section 3.15.4.3.

3.15.4.2 Applicant-Proposed Measures

The project will have no impact on recreational resources, and no APMs are proposed.

3.15.4.3 Potential Impacts

Potential project impacts on recreation were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and will extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

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

The project does not include development of new residential units that would increase population; therefore, it will not increase the demand for parks or recreational facilities in the project area.

Project construction will result in temporary employment of up to approximately 94 construction workers. This is a very small fraction of the existing daytime population of the project area. While it is possible that construction workers traveling to the area may use existing parks or recreational facilities, including publicly accessible wetlands near the potential staging areas on Amador Street, this potential increase in demand will be minimal and temporary. The proposed Jefferson-Egbert line interconnects with the existing 230 kV transmission line from Jefferson Substation on Guadalupe Canyon Parkway which is bordered by San Bruno Mountain State and County Park to the west. The park is to the west of the route as it turns north onto Carter Street leaving Brisbane city limits and entering the city limits of Daly City.

The proposed Jefferson-Egbert line passes through San Francisco's John McLaren Park underground within Hahn Street, turning northward onto Visitacion Avenue, and exiting the park after the route turns east on Mansell Street. The existing bicycle path through the park begins immediately west when the proposed Jefferson-Egbert line turns eastward. The proposed

Martin-Egbert line would cross bicycle facilities including, a southbound path, on Bayshore Boulevard at Bacon Street. When north of Bacon Street on Bayshore Boulevard, the proposed Egbert-Embarcadero line would be along the bicycle path.

Project construction will not interfere with park or recreational facilities use or operations (see Section 3.16, Transportation and Traffic, for analysis of construction-related effects on traffic and access).

Operation and maintenance of the project will not result in an increase in personnel; therefore, the project will not increase the use of parks or recreational facilities when the project becomes operational.

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

The project will not include recreational facilities or require the construction or expansion of recreational facilities. Therefore, no impact will occur.

3.15.5 REFERENCES

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3.16 TRANSPORTATION AND TRAFFIC

3.16.1 INTRODUCTION

This section describes existing conditions and potential impacts on transportation and traffic as a result of construction, operation, and maintenance of the project. The analysis concludes that, although existing traffic conditions will be temporarily affected by project construction, project-related impacts on traffic and transportation will be less than significant. The APM as described in Section 3.16.4.2 will further reduce impacts. The project's potential effects on transportation and traffic were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.16-1 and discussed in more detail in Section 3.16.4.

Table 3.16-1. CEQA Checklist for Transportation and Traffic

Would the project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐

3.16.2 REGULATORY BACKGROUND AND METHODOLOGY

3.16.2.1 Regulatory Background

Federal

Americans with Disabilities Act Standards for Accessible Design

The proposed project will involve the reconstruction of sidewalks at pole locations and will be required to comply with Americans with Disabilities Act (ADA) standards. The Department of Justice enacted the ADA in 1990, which adopted enforceable accessibility standards for facility design. The revised ADA standards adopted in 2010 set minimum requirements for newly designed and constructed or altered State and local government facilities, public accommodations, and commercial facilities. State and local government facilities must follow the requirements of the 2010 Standards. The 2010 Standards include the 2010 Standards for State and Local Government Facilities: Title II, including:

- Title II regulations at 28 CFR 35.151; and
- 2004 Americans with Disabilities Act Accessibility Guidelines at 36 CFR part 1191, appendices B and D.

State

Caltrans owns the rights-of-way for State Routes and highways, including any on- and off-ramps. Any project-related work within a Caltrans ROW requires an encroachment permit from Caltrans.

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

Because CPUC 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.

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 cities of San Francisco, Brisbane, and Daly City.

2015 San Francisco Congestion Management Program

The 2015 *San Francisco Congestion Management Program* (San Francisco County Transportation Authority [SFCTA], 2015) guides San Francisco agencies involved in congestion management, sets forth policies and technical tools to implement the Congestion Management Program (CMP) work program, and ensures the city's conformance with CMP legislation created by the state of California. The 2015 *San Francisco Congestion Management Program* establishes traffic level of service (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 (IOZ) 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 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 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 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

C/CAG is the Congestion Management Agency for San Mateo County, and prepares and adopts the CMP. The purpose of the San Mateo County CMP (C/CAG, 2015) is to identify strategies to respond to future transportation needs, develop procedures to alleviate and control congestion, and promote countywide solutions. The CMP includes C/CAG'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 2015 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 element accomplishes these objectives by describing the existing transportation system, 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 will degrade the LOS at any of the city's principal intersections to below acceptable levels, the 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 addresses how the city of Brisbane will maintain, enhance, and expand its circulation system to best meet the needs of its residents, business community, and visitors travelling to, from, or through 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 ADA-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.

3.16.2.2 Methodology

Traffic data and other transportation system information were obtained from maps, literature searches, and aerial photographs. Project activities during construction and operation were evaluated within the context of surrounding transportation facilities to determine whether the project may result in changes that will directly or indirectly affect those facilities. The changes were evaluated against the CEQA checklist to determine potential impacts.

Traffic volumes were obtained from the Caltrans Traffic Data Branch website, and LOS data were obtained from the San Francisco CMP (SFCTA, 2015) and the San Mateo County CMP (C/CAG, 2015).

Both the San Francisco and San Mateo CMPs use average operating speed data to calculate roadway LOS. SFCTA has historically used the 1985 Highway Capacity Manual (HCM) methodology to monitor LOS on the CMP network, and continues to calculate LOS using this method for freeways. The 1985 HCM methodology was utilized in the baseline monitoring cycle, and the methodology is necessary to maintain historical comparisons, identify exempt segments, and monitor potential network deficiencies. Since 2009, all the arterial segments were also evaluated using the HCM 2000 classification. The C/CAG uses the HCM 1994 methodology for roadway segment LOS. Using the calculated average speed for arterials and freeways, the HCM lookup tables are applied to determine the roadway LOS (Tables 3.16-2 through Table 3.16-4). Both CMPs contain LOS data from 2015; therefore, no new LOS calculations were performed as part of this analysis. The LOS for the major roadways in the project area are summarized in Table 3.16-5 (Section 3.16.3.3).

Table 3.16-2. Freeway Segment LOS, HCM 1985

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	-	-

Notes:
LN = lane
MI = mile(s)
PC = passenger car
PCPHPL = passenger car per hour per lane
V/C = volume to capacity
Source: 1985 Highway Capacity Manual (Transportation Research Board, 1985).

Table 3.16-3. LOS Criteria for Arterials, HCM 1994

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

Note:
Source: 1994 Highway Capacity Manual (Transportation Research Board, 1994).

Table 3.16-4. Urban Street LOS by Class, HCM 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: 2000 Highway Capacity Manual (Transportation Research Board, 2000).

3.16.3 Environmental Setting

This section includes a description of the roadways that will be used by workers and delivery trucks during construction. Access routes will 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 Figures 3.16-1 and 3.16-2. The proposed transmission lines traverse through the cities of San Francisco, Brisbane, and Daly City.

3.16.3.1 Regional Roadways

Interstate 80 (I-80) provides regional access from the north to the existing Martin Substation and proposed Egbert Switching Station site via U.S. 101. I-80 begins at its intersection with U.S. 101 just north of the project area. I-80 connects 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 (2015) reports an average of 169,000 vehicles per day on I-80 near the U.S. 101 interchange.

U.S. 101 provides north-south regional access along the San Francisco Peninsula between Santa Clara Valley and San Jose to the south and San Francisco to the north. U.S. 101 is 8 to 10 lanes wide. From the south, the closest interchange to the existing Martin Substation is provided at U.S. 101 and Bayshore Boulevard, near Oyster Point. From the north, the nearest interchange is provided at U.S. 101 and Bayshore Boulevard, near Hester Avenue. Access to and from the proposed Egbert Switching Station site is provided at U.S. 101 and Silver Avenue (from the north), U.S. 101 and Alemany Boulevard (to the north), U.S. 101 and Bayshore Boulevard near Hester Avenue (to the south), and U.S. 101 and Bayshore Boulevard near 3rd Street (from the south). Caltrans (2015) reports an average of 239,000 vehicles per day on U.S. 101 near the I-280 interchange, and 120,000 vehicles per day near the I-80 interchange.

I-280 provides regional north-south access to the project area. I-280 is a regional freeway that connects San Francisco with the greater San Jose area and serves as a major commuter route between the two cities. I-280 and U.S. 101 merge approximately 2 miles north of Candlestick Point. Caltrans (2015) reports an average of 171,000 vehicles per day on I-280 west of U.S. 101, and 111,000 vehicles per day east of U.S. 101.

3.16.3.2 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 San Francisco, extending from its interchange with U.S. 101 and Bayshore Boulevard to Market Street in downtown. It is the main commercial street in the Bayview Hunters Point neighborhood, and also serves as a through street and an access way to the industrial areas north and east of U.S. 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 ROW with the exception of the segment between Kirkwood and Thomas Avenues, where the light rail shares the travel lane with vehicles.

Insert

Figure 3.16-1 Regional Map

Insert

Figure 3.16-2 Local Area

Bayshore Boulevard is a decommissioned state highway and is now a city-owned and -maintained principal arterial. It serves as the transportation spine, connecting Brisbane to San Francisco, Daly City, and southern San Francisco. Bayshore Boulevard runs north-south and generally parallels U.S. 101 within the vicinity of the project. Together with its connecting minor arterial streets, Bayshore Boulevard also provides linkages to and from U.S. 101. Within the project area, 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 San Francisco. Supporting 2 lanes of traffic and an on-street bicycle path in each direction, this arterial provides access to and from U.S. 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 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 both Daly City and the city of San Francisco. Upon development of the Baylands, Geneva Avenue will be extended east to U.S. 101 and will serve as an important east-west arterial connection to U.S. 101. This would replace the current U.S. 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 both Brisbane and Daly City.

San Bruno Avenue is a north-south arterial located in 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. 101 on its western side until reaching its northern terminus adjacent to the I-280 and U.S. 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 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 utilized.

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. 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 mile in the India Basin neighborhood 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 mile 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 a local east-west street near the southeastern city limits of San Francisco. Egbert Avenue is bisected by UPRR 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, and 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. 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. 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, and it is the main access road to the golf course. It runs for just over 0.5 mile 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.

3.16.3.3 Existing Traffic Volumes and Levels of Service

Table 3.16-5 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 3.16-5. Summary of Peak Hour LOS on Primary Study Roadways

			AM Peak Hour LOS a		PM Peak Hour LOS a	
Roadway	**Between**	**And**	**NB or WB**	**SB or EB**	**NB or WB**	**SB or EB**
I-280 [b]	Junipero Serra Boulevard	Bayshore Boulevard	A	F	D	A
	Bayshore Boulevard	6th Street	B	E	E	E
U.S. 101 [b, c]	I-380	San Francisco County Line	E	E	E	E
	San Francisco County Line	Cortland Avenue	F	E	C	B
	Cortland Avenue	I-80	F	D	F	D
	I-80	Market Street	F	E	F	F
I-80 [b]	U.S. 101	Fremont Street	E	C	F	F
	Fremont Street	Treasure Island	D	D	E	F
3rd Street	Jamestown Avenue	Evans Street	C	C	C	C
	Evans Street	Terry A. Francois Boulevard	C	C	C	C
	Terry A. Francois Boulevard	Market Street	D	N/A	D	N/A
Bayshore Boulevard	Geneva Avenue	San Francisco County Line	A	A	A	A
	San Francisco County Line	Industrial Street	D	B	B	B
	Industrial Street	Cesar Chavez	C	B	C	B

Table 3.16-5. Summary of Peak Hour LOS on Primary Study Roadways

Roadway	Between	And	AM Peak Hour LOS a		PM Peak Hour LOS a	
			NB or WB	SB or EB	NB or WB	SB or EB
Cesar Chavez Street	Guerrero Street	Bryant Street	C	D	D	D
	Bryant Street	Kansas Street	B	B	B	B
	Kansas Street	3rd Street	C	C	C	C
Evans Avenue	Cesar Chavez Street	3rd Street	C	D	D	C
Geneva Avenue	Bayshore Boulevard	San Francisco County Line	A	A	A	A
	Santos Street	Paris Street	C	C	C	C

[a] LOS presented by direction. WB = westbound, EB = eastbound

[b] All segments of I-280, U.S. 101, and I-80 within 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 CMP in 1991 or are within IOZs.

[c] U.S. 101, in San Mateo County between I-380 and the county line, is operating at LOS F during both peak hours. However, the C/CAG CMP allows for a reduction in volume (or exemption) on segments where trips originate from outside the county. With the exemption, U.S. 101 operates at LOS E and within the county's LOS standard.

Sources: San Francisco CMP (SFCTA, 2015) and San Mateo County CMP (C/CAG, 2015).

Within the project area, I-80, I-280, and U.S. 101 are exempt from the LOS standards because they were either operating at LOS F in the first CMP in 1991 or are within IOZs. Within the project area, 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 IOZs, as are portions of 3rd Street, and they are therefore also exempt from LOS standards.

3.16.3.4 Bicycle Facilities

Bicycle facilities are a significant part of the existing San Francisco Peninsula road network. Existing bicycle facilities in the project area include routes that are part of the San Francisco Bicycle Network, and regional routes, which 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 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 Daly City along Carter Street between Martin Street and Geneva Avenue (Class II) where the proposed Jefferson-Egbert line would be located (City of Daly City, 2011). Bicycle facilities within Brisbane City limits would not be impacted by the proposed project, and therefore are not discussed.

3.16.3.5 Pedestrian Facilities

Pedestrian facilities are found along many of the streets located within the project area, 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 line will cross a sidewalk between the 400 Paul Avenue parcel and 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.

3.16.3.6 Air Traffic

There are no airports or heliports within the project area.

3.16.3.7 Transit and Rail Services

Figure 3.16-3 provides a map of the existing transit routes in the area (San Mateo County Transit District [SamTrans], 2017). Public transit service near the proposed switching station, along the proposed transmission lines and the potential staging areas is provided by the SFMTA (SF Muni Bus) and by SamTrans. Caltrain runs immediately east of the proposed Egbert Switching Station site. Also, located near the project area 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 SFMTA, and provides local bus service within the project area (SFMTA, 2017). There are seven Muni bus lines along the proposed transmission lines, including Routes 29, 24, 8X, 8BX, 90, 54 and 56. Several bus stops serving SFMTA 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 mile 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 San Francisco and the southern Bay Area communities from Daly City to Palo Alto. Within the project area, SamTrans provides service to the municipalities of Daly City, Brisbane, and 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 line.

Insert

Figure 3.16-3 Transit Routes

Caltrain

Caltrain provides rail passenger service on the peninsula and the Santa Clara Valley between Gilroy and San Francisco. The Peninsula Corridor Joint Powers Board, a joint powers agency (JPA) 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 area is the Bayshore Station in 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.

3.16.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for transportation and traffic impacts derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operation and maintenance impacts on transportation and traffic.

3.16.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts related to transportation and traffic were evaluated for each of the criteria listed in Table 3.16-1, as discussed in Section 3.16.4.3.

3.16.4.2 Applicant-Proposed Measures

PG&E will implement the following APM:

APM Transportation and Traffic (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 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.

3.16.4.3 Potential Impacts

Project impacts on transportation and traffic were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

The 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

project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and will extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

a) Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? *Less-than-significant Impact.*

Construction

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. Construction would also occur within and/or 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. The 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. 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; and the hauling of excavated soils or roadway material from, and 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 will also depend on the location of project staging areas. However, the majority of the project's construction-related trips (vehicle and truck trips) would occur on the roadways identified in Table 3.16-2.

For the purposes of this analysis, it is assumed that the number of employees would peak at approximately 88 construction personnel, including supervisors and inspectors, resulting in a maximum of 88 daily round-trips (176 one-way trips) to the project. A detailed description of the construction workers by activity is presented in the Project Description (Section 2.7.6, Construction Workforce and Equipment). During the switching station grading and foundation excavation phases, about 85 days total of about 27 to 40 trucks trips per day is estimated per phase. Excavation and installation of the lines in Egbert Avenue is expected to occur after the switching station grading and excavation is complete and be supported by approximately 4 truck trips per day for about 180 days. Trucking for the proposed Jefferson-Egbert line is expected for approximately 220 days total with about 8 to 12 trucks per day. The trenchless activities are estimated to have 8 truck trips per day for up to about 10 days at each bore pit. The removal of the Jefferson-Martin line termination equipment in Martin Substation is expected to generate about 9 truck trips per day for approximately 60 days. Construction will typically occur between 7 a.m. and 8 p.m. or during times that will be set through coordination with the city and county of San Francisco, and with the cities of Daly City and Brisbane.

Staging Areas/Work Areas. As described in further detail in the Project Description, one to three staging areas of up to 15 acres total may be identified for use once a construction contractor is selected. Specific staging area locations will 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 2.7-1. 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 will 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 will be maintained for up to 8 weeks during the freeze activity. An open trench length of 150 to 300 feet on each street will be typical at any one time, depending on the permitting requirements of the cities of San Francisco, Daly City, and 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 lines in Egbert Avenue is expected to occur one line at a time. Steel plating will 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 will be opened farther down the street. This process will 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 occurs 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 will 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, each of the following roadways may experience lane closures during construction of the project.

Table 3.16-6. 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

Table 3.16-6. Anticipated Partial Road Closures during Construction

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
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.

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 3.16-7 identifies a preliminary list of locations that could be affected.

Table 3.16-7. Potential Affected Locations

Location	Description of Potential Effects
Sunnydale Boys and Girls Club	The Sunnydale Boys and Girls Club is located at the intersection of Sunnydale Avenue and Santos Street. The club will be impacted by both trench work and vault installation work.
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 will 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 will be affected during transmission line and switching station construction activities.
Vault on Geneva Avenue	The proposed vault location on Geneva Avenue will 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 will 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 will be implemented to direct local traffic safely around the work areas and to minimize impacts to the land uses described in Table 3.16-7. PG&E will apply for a permit from SFMTA and SamTrans, as well as for Special Traffic Permits from the cities of San Francisco, Daly City, and Brisbane, as part of APM TR-1. PG&E will also coordinate provisions for emergency vehicle and local access with city personnel. Once the conduits or pipes are installed, the road surface will be restored in compliance with the locally issued permits. The project may require nighttime work to avoid traffic disruption, which will also be coordinated with the local agency.

Several segments of I-80, I-280, and U.S. 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 percent or less), and no changes to the existing LOS are anticipated. Furthermore, within the project area, I-80, I-280, and U.S. 101 are exempt from the LOS standards because they were either operating at LOS F in the first CMP in 1991 or are within IOZs. 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 are not available for other local roadways. However, because of the primarily linear nature of the project, construction project trips would be distributed across the regional road network and would not be concentrated at one location, other than 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 line beneath U.S. 101 because of the lack of available corridors within the existing franchise. No impacts to travel on U.S. 101 would occur, although the U.S. 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 will be minimal, short term, and periodic. Applicable county, state, and federal regulations, ordinances, and restrictions will be identified and complied with prior to and during construction. Therefore, construction-related traffic will 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.

Operation and Maintenance

Existing operation and maintenance crews will operate and maintain the new switching station and transmission lines as part of their current operation and maintenance activities. No impacts attributable to operation and maintenance activities are anticipated.

b) Would the project conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? *Less-than-significant Impact.*

Construction

As described above, construction of the project would result in an increase in local traffic as a result of construction-related workforce traffic and material deliveries, and construction activities occurring within the public ROW. 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.

The project-added trips represent a temporary minimal increase in traffic compared to the existing highway volumes, and no changes to the existing LOS are anticipated. Several segments of I-80, I-280, and U.S. 101 are operating at LOS E or LOS F. However, these roadways are exempt from the LOS standards.

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. Furthermore, 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 coordinated with and approved by the appropriate local jurisdiction. The project would not conflict with an applicable CMP or other standards for designated roads or highways. Impacts will be less than significant.

Operation and Maintenance

No new staff will be required for maintenance or operation at the new switching station and transmission lines; therefore, no impacts will occur.

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? *No Impact.*

No change in air traffic patterns will occur as a result of the project construction or operation and maintenance, so there will be no impact. No airports or airport runways are found within 20,000 feet of the project; therefore, Federal Aviation Administration 14 CFR 77 regulations regarding obstructions within that distance would not apply to the project.

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? *Less-than-significant Impact.*

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 area 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 cities of San Francisco, Daly, and Brisbane) would govern how project construction would comply with roadside safety protocols so as to reduce the risk of accidents. With these measures, the impact will be less than significant.

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. 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 will be no impact.

e) Would the project result in inadequate emergency access? *Less-than-significant Impact.*

Construction and operation and maintenance of the project would not result in inadequate emergency access. Emergency access routes will 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 project area ROW and within approved temporary construction work and staging areas. Any road closures will be temporary and short-term, and these closures will be coordinated with the local jurisdictions to reduce the effects of potential temporary and short-term emergency access. Emergency responders will be notified prior to construction; and ensuring access for emergency vehicles and all applicable local, state, and federal traffic control measures will be followed to ensure the safety of the local and construction traffic. Implementation of APM TR-1 will further minimize potential impacts. There will be no changes to the emergency access at the existing substations. Switching station operation and maintenance personnel will park vehicles within the switching station or along Egbert Avenue and will 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 will be less than significant.

f) Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? *Less-than-significant Impact.*

Public transit operates in the vicinity of the project area, and project construction could temporarily disrupt transit service. Bicycle facilities also exist in the area of construction. Table 3.16-6 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 will 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 will include procedures for notifying affected agencies in advance of construction activities, including SF Muni and Sam Trans.

Operation and maintenance of the project will 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 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 will be less than significant.

3.16.5 REFERENCES

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3.17 UTILITIES AND SERVICE SYSTEMS

3.17.1 INTRODUCTION

This section describes existing conditions and potential impacts on utilities and service systems as a result of construction, operation, and maintenance of the project, and concludes that no impacts will occur in these areas. Under CEQA, utilities and service systems include water, wastewater, and solid waste collection and treatment. This section also addresses potential impacts on power and natural gas.

The proposed project's potential effects on utilities and service systems were evaluated to using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.17-1 and discussed in more detail in Section 3.17.4.

Table 3.17-1. CEQA Checklist for Utilities and Service Systems

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the Provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

3.17.2 REGULATORY BACKGROUND AND METHODOLOGY

3.17.2.1 Regulatory Background

Federal

No federal regulations pertaining to utilities and service systems are applicable to the proposed project.

State

California Government Code

Section 4216 of the California Government Code protects underground structures during excavation. Under this law, excavators are required to contact a regional notification center at least 2 days prior to excavation of any subsurface installations. In the project area, Underground Service Alert (USA) is the regional notification center. USA notifies utility providers with buried lines within 1,000 feet of the excavation, and those providers are required to mark the specific location of their facilities prior to excavation. The code also requires excavators to probe and expose existing utilities, in accordance with state law, before using power equipment.

Local

Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary regulations. The following summary of local statues and regulations relating to solid waste is provided for informational purposes and to assist with CEQA review.

City of San Francisco

San Francisco Construction and Demolition Waste Ordinance. In 2006, the city adopted Ordinance No. 27-06 mandating the recycling of construction and demolition debris (City and County of San Francisco, 2006). Construction and demolition materials must be source-separated at the construction site or transported to a registered facility that can process mixed construction and demolition debris and divert a minimum of 65 percent of the material from landfills.

San Francisco Mandatory Recycling and Composting Ordinance. In 2009, San Francisco adopted the Mandatory Recycling and Composting Ordinance (No. 100-09) requiring recycling separate bins for recyclables, compostable waste, and trash (City and County of San Francisco, 2009).

City of Daly City

Recyclable Materials. Per city code, 50 percent of all waste must be diverted through source reduction, recycling, and composting (Daly City Municode, 2017).

Waste Management Plan (WMP). Qualified projects must submit a WMP as a portion of the building or demolition permit process. The plan estimates weight of debris, type of debris, provides strategy for diverting 60 percent of debris, identifies the haul facility, and notes any on- or off-site reuse (Daly City Municode, 2017).

Diversion Requirement. Daly City code requires that at least 60 percent of waste tonnage from construction, demolition, and alteration projects is diverted from disposal (Daly City Municode, 2017).

City of Brisbane

Waste Management. Projects are expected to recycle and/or salvage for re-use a minimum of 65 percent of the nonhazardous construction and/or demolition waste and 100 percent of inert solid material associated with excavations and land clearing operations (including trees, stumps, and rocks) in accordance with either an WMP or by an approved waste management company (Brisbane Municode, 2017).

Waste Recycling. A city license fee is required to conduct any activity to recycle non-water-soluble, non-decomposable wastes and industrial wastes (Brisbane Municode, 2017).

Discharge of Pollutants. The discharge of non-stormwaters (i.e., surface water, and groundwater) to the city storm sewer system is prohibited except as provided in the city's municipal code. All discharges of material other than stormwater must be in compliance with an NPDES permit issued for the discharge other than the San Mateo Countywide NPDES Municipal Stormwater Permit No. CA0029921 (Brisbane Municode, 2017).

3.17.2.2 Methodology

General plans and municipal codes of San Francisco, Daly City, and Brisbane, as well as official websites, were reviewed for wastewater collection and treatment, water supply, stormwater drainage, and solid waste disposal for the project area. Electric and gas services information was obtained from PG&E and from municipal websites. Individual utility provider websites documented coverage areas and system information.

3.17.3 ENVIRONMENTAL SETTING

The proposed project is located within urbanized areas of Brisbane, Daly City, and San Francisco. There are a number of utilities both underground and overhead in the project area. Underground utilities that may be encountered include buried water lines, combined storm drains/sanitary sewers, telephone, cable, fiber optic cable, natural gas, electric traffic loops, and electrical distribution lines. Overhead utilities include telephone, cable, and electrical distribution and transmission lines. Utility services and providers are shown in Table 3.17-2.

Table 3.17-2. Local Utility and Service Providers

Utility or Service	Provider
City of San Francisco	
Water Service	San Francisco Public Utilities Commission
Sewer and Stormwater Service	San Francisco Public Utilities Commission Port of San Francisco
Water Line Maintenance	San Francisco Water Department
Wastewater Collection and Treatment at the Southeast Water Pollution Control Plant	San Francisco Public Utilities Commission San Francisco Bureau of Street and Sewer Repair
Garbage Services	Recology – Golden Gate Disposal Recology – Sunset Scavenger
Landfill	Recology – Recology Hay Road Landfill
Natural Gas and Electric Service	San Francisco Public Utilities Commission PG&E ABAG Power

Table 3.17-2. Local Utility and Service Providers

Utility or Service	Provider
City of Daly City	
Garbage and Recycling Collection	Republic Services
Landfill	Republic Services – Ox Mountain Sanitary Landfill
Water and Wastewater Resources	Daly City Services Department
Sewer, water, and streetlights	Daly City Public Works
Natural Gas	PG&E
Electricity Supplier	Peninsula Clean Energy
City of Brisbane	
Garbage and Recycling Collection	South San Francisco Scavenger
Landfill	Republic Services – Ox Mountain Sanitary Landfill
Water and Wastewater Resources	City of Brisbane and City of San Francisco
Natural Gas	PG&E
Sewer, water, and streetlights	City of Brisbane Public Works
Electricity Supplier	Peninsula Clean Energy
State of California	
Buttonwillow Landfill Facility	Clean Harbors
Kettleman Hills Facility	Waste Management

3.17.3.1 Wastewater Collection and Treatment Services

The project area is serviced by three connected sewer districts: Wastewater Enterprise branch of the San Francisco Public Utilities Commission (SFPUC), Bayshore Sanitary District, and City of Brisbane (Figure 3.17-1). A small portion (0.1 mile) of the proposed Jefferson-Egbert line lies inside the city of Brisbane service area and continues north with another small portion (0.2 mile) of line within the Bayshore Sanitary District. Martin Substation also is serviced by the Bayshore Sanitary District. The remainder of the project is within the Wastewater Enterprise service area.

San Francisco Public Utilities Commission

SFPUC is a department of the city and county of San Francisco that provides drinking water, stormwater, and wastewater services to San Francisco. The Wastewater Enterprise, a branch of SFPUC, manages the San Francisco Combined Sewer System, which is a combined stormwater and sanitary sewer system where water is treated prior to discharge to San Francisco Bay or the Pacific Ocean. The Wastewater Enterprise operates and maintains 993 miles of combined sewers, and operates storage facilities and three treatment plants (SFPUC, 2017a).

Figure 3.17-1 Existing Combined Sewer Outflows

Three wastewater treatment plants operated by SFPUC serve San Francisco; the project area is served by the Southeast Water Pollution Control Plant. The plant receives 80 percent of the city's flows and treats 60 to 250 million gallons per day (SFPUC, 2014). The majority of the project is located within the Bayside Watershed, specifically within the Yosemite and Sunnydale drainage basins. The Yosemite system collects and transports sewage and stormwater runoff from the Bayview/Hunters Point and Candlestick areas. In dry weather, gravity directs flows into the Islais Creek Drainage Basin via the Hunters Point Tunnel, or via the Griffith Pump Station. The Griffith Pump Station also pumps wet-weather flows from Yosemite and Sunnydale to the Islais Creek Drainage Basin. From the Islais Creek Drainage Basis, flows continue by gravity to the Southeast Lift Station, where they are lifted to the Southeast Water Pollution Control Plant for treatment.

The Sunnydale Transport/Storage facilities collect and transport sewage and runoff from the drainage area and into the Yosemite system by gravity. During wet weather, Sunnydale flows are diverted from the gravity system to the Transport/Storage structure and Sunnydale Pump Station. From the pump station, wet-weather flows are pumped to the Candlestick tunnel sewer and then flow to the Yosemite system by gravity.

The proposed Jefferson-Egbert line is within the Sunnydale Basin from Daly City, north of the intersection of Carter Street and Alexis Circle, to the intersection of Visitacion Avenue and Mansell Street in San Francisco. The section of the proposed Jefferson-Egbert line east along Mansell Street to the proposed switching station site, and the proposed transmission lines along Egbert Avenue, are within the Yosemite Basin.

Bayshore Sanitary District

The Bayshore Sanitary District is an independent district located in northern San Mateo County, providing sanitary sewer services to portions of Daly City and Brisbane. Unlike the San Francisco Combined Sewer System, stormwater and sanitary sewer services are not combined in the Bayshore Sanitary District (Section 3.17.3.3, Stormwater Drainage). The District discharges wastewater flow to the Sunnydale Drainage Basin, which ultimately exits into San Francisco Bay via the SFPUC's Southeast Water Pollution Control Plant, as described above.

Most of the District's collection system and customers are in Daly City. The sewer force main and Carlyle Pump Station that discharge the wastewater are located within Brisbane city limits.

The proposed Jefferson-Egbert line is within the Bayshore Sanitary District in Daly City on Carter Street between Guadalupe Canyon Parkway and Alexis Circle. Martin Substation is also within the district's service area.

City of Brisbane

The city of Brisbane provides sanitary sewer services to the residents and businesses in its service area. Similar to the Bayshore Sanitary District, stormwater and sanitary sewer services use separate infrastructure for the city of Brisbane. The sewer service area consists of approximately 3,600 residents, several commercial areas, and some light industrial development. A series of gravity collection system mains and smaller pumping stations convey most of the wastewater flow to the Valley Drive Pump Station. The wastewater is then delivered to the city of San Francisco interceptor and ultimately conveyed to the Southeast Water Quality Control treatment facility (City of Brisbane, 2017b).

The proposed Jefferson-Egbert line begins within the city of Brisbane's sewer system management area on Guadalupe Canyon Parkway, then after turning north briefly on Carter Street it exits the service area as it crosses into Daly City and enters the Bayshore Sanitary District.

3.17.3.2 Water Supply

San Francisco

SFPUC provides water to 2.6 million residents in the greater San Francisco Bay Area. Water metered at the San Francisco County line serves customers in the city and county of San Francisco. SFPUC total service area includes wholesale customers in the peninsula, South Bay, and East Bay communities (SFPUC, 2017a).

Daly City

Daly City water supply is received from SFPUC and is supplemented from six underground wells. The city also uses tertiary recycled water from the North San Mateo County Sanitation District wastewater treatment plant (City of Daly City, 2011).

City of Brisbane

The City of Brisbane receives its water from SFPUC. Brisbane operates two separate water districts providing water to the local residents and businesses. The Brisbane Water District serves Central Brisbane, Sierra Point, and the Baylands. The Guadalupe Valley Municipal Improvement District serves Crocker Park and the Northeast Ridge residential development. The water districts are interconnected and are operated together to maximize circulation and flow within the system (City of Brisbane, 2017b).

3.17.3.3 Stormwater Drainage

City of San Francisco

Stormwater is conveyed and collected in the combined system described above. Similar to sewer, stormwater services are provided to most of San Francisco by the Wastewater Enterprise, a branch of SFPUC. As described above, most of the stormwater in the city and county of San Francisco is collected in the San Francisco Combined Sewer System, a combined stormwater and sanitary sewer system where water is treated prior to discharge to San Francisco Bay or the Pacific Ocean.

Daly City

The Streets Section of Daly City's Public Works Department maintains the city's stormwater drainage system. Catch basins and storm pipes are cleaned on a regular maintenance schedule. Water that enters the stormwater system ultimately drains into the Pacific Ocean or San Francisco Bay.

City of Brisbane

Brisbane's storm drain system collects stormwater runoff and eventually discharges to the Brisbane Lagoon or directly to the bay. Brisbane is actively involved in the County Stormwater Pollution Prevention Program to keep urban runoff that is polluted from flushing into storm drains and discharging into the bay (City of Brisbane, 2017b).

3.17.3.4 Solid Waste Disposal

City of San Francisco

Recology serves San Francisco utilizing two hauling companies based on region: Sunset Scavenger and Golden Gate. Recology offers garbage, compost, and recycling pickup. The recycle center is located at Pier 96, where more than 30 large containers are taken for sorting 6 days per week. The San Francisco transfer station is located on Tunnel Avenue within San Francisco city limits, just north of Brisbane. At the transfer station, residents can dispose of construction and demolition debris, electronic waste, household hazardous waste, and other items (Recology, 2017). The transfer station is a registered construction and demolition debris recycling facility and accepts construction materials such as concrete, metal, hard plastics, and wood. Waste that Recology is unable to reuse, recycle, or otherwise manage is taken to the Recology Hay Road Landfill, located in unincorporated Solano County, near Vacaville, California. Based on 2016 waste projections by the California Department of Resources Recycling and Recovery, Recology is expected to reach capacity in 2046 (California Department of Resources Recycling and Recovery, 2016).

Daly City

Republic Services provides recycling, compost, and garbage pickup to Daly City. Waste is taken to Ox Mountain Sanitary Landfill in Half Moon Bay, where all solid wastes are accepted except hazardous materials (Republic Services, 2017). The remaining capacity as reported in December 2015 is 22.18 million cy (California Integrated Waste Management Board, 2016).

City of Brisbane

South San Francisco Scavenger serves Brisbane with pickup of solid wastes including garbage, recycling, and compost. Scavenger built an anaerobic digester to process food and yard scraps into compressed natural gas, which fuels their vehicle fleet (South San Francisco Scavenger, 2017). Waste is taken to Ox Mountain Sanitary Landfill in Half Moon Bay, where all solid wastes are accepted except hazardous materials (Republic Services, 2017).

Section 3.8, Hazards and Hazardous Materials, discusses solid waste disposal of hazardous materials.

3.17.3.5 Electricity and Natural Gas

San Francisco, Brisbane, and Daly City are all within PG&E's electricity and natural gas services territory (PG&E, 2017). PG&E maintains the supporting infrastructure (e.g., electric and gas transmission and distribution).

Electricity may be purchased from non-PG&E sources; PG&E provides delivery, safety, billing, and other services. Similarly, gas can be purchased directly from a third-party gas supplier, Core Transport Agents.

City and County of San Francisco

SFPUC provides generation, energy efficiency, transmission, and other clean energy services (SFPUC, 2017b). ABAG Power is a JPA that assists cities in procuring and managing energy. ABAG Power's primary objective is to conduct pooled purchasing of natural gas on behalf of local governments and special districts that voluntarily join the pool (ABAG Power, 2017).

San Mateo County

The default electrical services provider for San Mateo County is Peninsula Clean Energy (PCE). PCE is a JPA that procures energy for cities in San Mateo County. Customers have the option to opt out of PCE and continue service with PG&E. PG&E maintains the electrical lines and sends electrical bills to customers (PCE, 2017).

PG&E is the gas service provider for San Mateo County, which includes the project areas within Brisbane and Daly City.

3.17.4 Applicant-Proposed Measures and Potential Impacts

The following sections describe significance criteria for impacts on utilities and service systems derived from Appendix G of the CEQA Guidelines and assess potential project-related construction and operational impacts. Because the project will have no impact on utilities and service systems, APMs have not been included for this section.

3.17.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on utilities and service systems was evaluated for each of the criteria listed in Table 3.17-1, as discussed in Section 3.17.4.3.

3.17.4.2 Applicant-Proposed Measures

The project will have no impact on utilities and service systems, and no APMs are proposed.

3.17.4.3 Potential Impacts

Project impacts on utilities and service systems were evaluated against the CEQA significance criteria as discussed below. This section evaluates potential project impacts from both the construction phase and the operation and maintenance phase.

PG&E's engineering team has taken into consideration the location of other underground and overhead utilities in designing the project. Additional utilities identification will occur in the final design stages. As required by state law, PG&E will notify other utility companies (via USA) to locate and mark existing underground structures along the proposed alignments prior to any excavation or augering activities. In addition, PG&E will probe and expose existing utilities, in accordance with state law, before using power equipment. PG&E has conducted existing utilities surveys as part of its feasibility study and routing analysis. Based on these surveys and during detailed design, PG&E will design the project to have no permanent impact on power, natural gas, or any other utilities that are specifically documented.

Also during the detailed design phase, PG&E will assess whether the temporary interruption of other utilities will be necessary. If deemed necessary, PG&E will obtain timely approval from other utilities and closely coordinate with them until those utilities are returned to service. Prior to construction, PG&E will obtain emergency contact information for utilities that may be in close proximity or require monitoring during construction of the project. In case of accidental service interruption to another utility, PG&E will immediately contact the affected utility to coordinate actions to restore service in a safe and timely manner.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? *No Impact.*

The project area will be served by the Southeast Water Pollution Control Plant, which receives combined stormwater and sanitary sewer wastewater from San Francisco, wastewater from Bayshore Sanitary District, and wastewater from the city of Brisbane. The minimal amount of effluent generated by construction personnel will not cause the wastewater treatment plant to exceed its treatment capacity.

PG&E anticipates the use of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit) (Order No. 2009-0009-DWQ; NPDES Permit No. CAS000002) from the State Water Resources Control Board. Groundwater encountered during trenching will be sampled and characterized prior to removal and discharge as described in Section 3.9, Hydrology and Water Quality; as appropriate, the water may be pumped into containment vessels (Baker tanks), tested for measures 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. Temporary approvals for water use and discharge will be obtained as required by the construction contractor, and water will be disposed of in accordance with state and federal standards.

Wastewater treatment requirements of the RWQCB will not be exceeded; therefore, no impacts attributable to project construction will result. For detailed information on potential impacts to groundwater, see Section 3.9, Hydrology and Water Quality.

Operation and maintenance visits will be conducted occasionally by PG&E staff, but no wastewater will result from these activities. Therefore, no operations or maintenance impact to wastewater will occur.

b) Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? *No Impact.*

The project will not require the construction of new, or expansion of existing, water treatment facilities; existing supplies are sufficient to provide water for dust control. Wastewater service will be provided by portable toilets, and waste disposal will occur at appropriately licensed facilities off-site. The minimal amount of effluent generated by construction personnel will not cause a wastewater treatment plant to exceed its treatment capacity. Trench water will be disposed of as described above to a combined system or will be hauled off-site to an appropriate disposal facility.

Once operational, the transmission lines and switching station will not require a potable water source or a connection to the sewer system. Therefore, no impacts will occur to water or wastewater treatment facilities resulting in the need for new or expanded facilities.

c) Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? *No Impact.*

As discussed in Chapter 2.0, Project Description, San Francisco's Stormwater Management Requirements and Design Guidelines requires stormwater management controls for new and redevelopment projects in both the city's separate and combined sewer areas. The City of San Francisco requires all projects creating and/or replacing 5,000 square feet or more of impervious surface to comply with stormwater management requirements and to submit a Stormwater Control Plan. Operation of the subject project's stormwater management system will comply with the above regulations and guidelines.

The project does not include construction of new stormwater drainage facilities, nor will it result in new or expanded stormwater drainage facilities. Therefore, no impacts would occur.

d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? *No Impact.*

The primary need for water will be for construction-related dust control activities. Water will be trucked in as needed. Recycled water will be used if feasible. The minimal water needed for dust control and construction crew consumption will not exceed available supplies. Water trucks used for dust control during construction generally have capacity for 3,000 gallons of water. Sufficient existing water supplies are available; therefore, no impact will occur.

Operation and maintenance visits will be conducted occasionally by PG&E staff, but water is not required for these activities. Therefore, no operations or maintenance impact to water supply will occur.

e) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? *No Impact.*

The project will require portable toilets for construction personnel. Sanitary waste will be disposed of at appropriately licensed facilities with adequate capacity. Trench water will be disposed of as described above or will be hauled off-site to an appropriate disposal facility.

Licensed facilities in the area have adequate capacity; therefore, no construction impact will occur.

The project does not include construction of facilities that will generate wastewater; therefore, operations or maintenance will have no impact.

f) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? *No Impact.*

An estimated 35,000 cy of non-hazardous excavated material from the project, including switching station, trenches, and vault locations, will be off-hauled for disposal to an appropriately licensed facility or hauled to a commercial soil recycling facility. Project waste that can be recycled may be taken to a commercial waste recycling facility, such as Recology's San Francisco Transfer Station. Small amounts of additional food-related trash, packing material, and other miscellaneous trash from construction would also be hauled on a regular basis from construction sites. Existing landfills serving the project area have adequate capacity for this amount of construction debris and soils. Depending on agreements in place at the time of project execution, current landfill capacity, and the results of soil characterization, the project may use Ox Mountain Sanitary Landfill, Recology Hay Road Landfill, or another appropriately approved disposal site; no construction impact will occur.

Approximately 2,700 cy of potentially hazardous material is anticipated for disposal in a facility that accepts hazardous wastes, such as Kettleman Hills Landfill or Buttonwillow Landfill. Disposal of hazardous materials is addressed in Section 3.8, Hazards and Hazardous Materials.

Operation and maintenance visits will be conducted occasionally by PG&E staff. Any small amount of solid waste generated during these activities will not impact landfill capacity. Therefore, no operations or maintenance impact to landfill capacity will occur.

g) Would the project comply with federal, state, and local statutes and regulations related to solid waste? *No Impact.*

PG&E will manage solid waste generated during construction and maintenance and operation of the project by off-hauling to appropriate landfills as described above. PG&E and the project will comply with all applicable federal, state, and local statutes and regulations related to solid waste.

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3.18 MANDATORY FINDINGS OF SIGNIFICANCE AND CUMULATIVE IMPACT ANALYSIS

3.18.1 INTRODUCTION AND METHODOLOGY

This section discusses mandatory findings of significance as well as potential cumulative impacts related to the project.

Cumulative impacts, as defined in Section 15355 of the CEQA Guidelines, refer to two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts. A cumulative impact is the change in the environment that results from the incremental impact of a project when added to other closely related past, present, or reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant impacts occurring over time.

An analysis of potential cumulative impacts for each relevant resource topic is provided in Section 3.18.3.2 Table 3.18-2 lists projects within approximately 0.5 mile of the project area. These projects, developed from available information on websites and with input by the involved municipalities, were included if they had potential environmental impacts, geographic scope and location, and/or timing, and duration of implementation similar to those of the project. The analysis considered the potential cumulative impacts that could result when impacts of the proposed project are considered in combination with impacts of other past, present, and reasonably foreseeable future projects. Some reasonably foreseeable future projects listed in Table 3.18-2 might not be approved or could be modified prior to approval; however, for the purpose of this analysis, approval and construction of identified projects was assumed.

3.18.2 MANDATORY FINDINGS OF SIGNIFICANCE

The analysis presented in this section is based on consideration of the CEQA checklist questions presented in Table 3.18-1. The analysis indicates that there is no substantial evidence, in the light of the whole record, that any of the conditions set forth in Table 3.18-1 will occur.

Table 3.18-1. CEQA Checklist for Mandatory Findings of Significance

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐

Table 3.18-1. CEQA Checklist for Mandatory Findings of Significance

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
b) Have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?	☐	☐	☐	☒
c) Have possible environmental effects that are individually limited, but cumulatively considerable? Cumulatively considerable means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
d) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

a) Would the project have the potential to substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of an endangered, rare or threatened species; or eliminate important examples of the major periods of California history or prehistory? *Less-than-significant Impact.*

Construction activities may have minor, short-term impacts on species habitat resulting in less-than-significant impacts. The project area is largely urban in nature, with habitat areas limited to a few potential staging areas and the roadway work connecting to the Jefferson-Martin line on Guadalupe Canyon Parkway. As all impacts associated with the proposed Egbert Switching Station, proposed transmission line routes, and the potential Amador Street, Cow Palace parking lot, and Martin Substation staging areas are on or under paved surfaces or in ruderal habitat in highly urban areas, there is no potential for special-status plants to occur in those areas of the project. If the potential Carter Street staging area is used, there is a very low potential for special-status plants to occur. Based on the amount of suitable habitat present for each species along the project alignment, impact avoidance strategies are easily implemented for these species. PG&E will implement APMs BIO-1 through APM BIO-3; therefore, the impact will be less than significant.

Cultural resources surveys and records searches identified one historical district in the project APEs. More cultural resources may be present in areas where pavement and other obstacles precluded survey, including some areas that have been identified as high sensitivity for buried or subsurface resources. APMs CR-1 through CR-4 reduce impacts to a less-than-significant level for the potential to cause a substantial adverse change in the significance of an archaeological resource, in the unlikely event that such a resource is discovered during construction activities.

b) Would the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals*? No Impact.*

The project will not achieve short-term environmental goals to the disadvantage of long-term environmental goals. The project will result in either no impact or less-than-significant impacts in both the short- and long term. The project will be compatible with local environmental goals and will not conflict with federal or state environmental policies and regulations. Therefore, no impact will occur.

c) Would the project have possible environmental effects that are individually limited, but cumulatively considerable? Cumulatively considerable means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)*? Less-than-significant Impact.*

A cumulative impact analysis for each resource area is presented in Section 3.18.3.2. The project may contribute incrementally to cumulative impacts in the project area related to aesthetics, air quality, cultural and paleontological resources, geology, GHG emissions, hazards and hazardous materials, hydrology and water quality, noise, and traffic; however, the incremental effects are not significant in the context of those cumulative impacts. Thus, the project will not result in environmental effects that are individually limited but cumulatively considerable. Therefore, the impact will be less than significant.

d) Would the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? *No Impact.*

The project will not adversely affect human beings either directly or indirectly. Potential construction impacts associated with human health include the presence of hazards, hazardous materials use, and temporary air quality impacts. As discussed previously, construction impacts associated with air quality and with hazards and hazardous materials will be less than significant. APMs will further reduce the potential for adverse effects. The project will have a beneficial effect on human beings in the project area by increasing electrical service reliability. Therefore, the impact will be less than significant.

3.18.3 CUMULATIVE IMPACTS

Projects included in the cumulative impact assessment were identified by using a list approach (CEQA Guidelines Section 15130[b][1][A]), including all pending development projects within an approximately 0.5-mile radius of the project area. This area includes the cities of San Francisco, Daly City, and Brisbane. Table 3.18-2 summarizes these pending development projects.

Table 3.18-2. Cumulative Projects in the Project Vicinity

Project Name	Description/Location	Construction Time Frame	Proximity to Project*
Caltrain Electrification and California High-Speed Rail	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
320-400 Paul Avenue Internet Services Exchange	Construct an Internet Services Exchange facility. Improvements include renovation of two buildings, as well as demolition and replacement of an existing building with a data center building.	2018 - 2019	Proposed Jefferson-Egbert line route is on the parcel for 0.2 mile
Geneva Avenue Multimodal Improvement Project	Improve pedestrian safety, bus reliability, and bicycle access for residents, businesses, transit riders, and visitors on Geneva Avenue.	2014 - ongoing	Proposed Jefferson-Egbert line route within avenue for 0.2 mile
Visitacion Valley/ Schlage Lock Development Project	Develop 20 acres of land located in Visitacion Valley and Schlage Lock into a mixed-use urban community.	2016 - ongoing	0.3 mile from proposed Jefferson-Egbert line
Recology Modernization and Expansion Project	Expand the existing Recology recycling center on Tunnel Avenue in San Francisco/Brisbane.	Unknown; to be phased over 4 years	0.4 mile from proposed Jefferson-Egbert line
Hunters Point Substation Rebuild Project	Replace aging infrastructure of PG&E's Hunters Point Substation located on Evans Avenue	2019 - 2021	0.4 mile from potential Amador Street staging area at South Container Terminal
Robertson Intermediate School Development	Redevelop the Robertson Intermediate School property into a single-family residential area.	2017/2018 - 2021	0.1 mile from the existing Martin Substation
~~Point Martin – Phase 2~~	~~Housing Development on Steve Courter Way and Martin Street.~~	~~2017 - 2019~~	~~0.1 mile from proposed Jefferson-Egbert line~~
Calgary Street Subdivision	7 detached homes at 55 Calgary Street, Daly City	Unknown; Approved by City, pending design review	0.2 mile from the existing Martin Substation
Baylands Specific Plan Implementation	Redevelop the Brisbane Baylands.	Unknown; 20-year construction period	0.2 mile from proposed Jefferson-Egbert line

Note:

* Distances are approximate.

Sources: City and County of San Francisco Planning Department, 2017.

City of Brisbane, California, 2017.

City of Daly City Planning Department, 201~~6~~7.

City of Daly City Public Works Department, 2017.

3.18.3.1 Key Projects in the Project Vicinity

The projects listed in Table 3.18-2 are located within 0.5 mile of a component of the project, and may overlap with its construction time line. Figure 3.18-1 includes a graphic indicating the location of these projects in proximity to the project. Additional information is provided on the time line and status of these projects as follows.

Figure 3.18-1 Cumulative Projects in the Project Vicinity

San Francisco

Caltrain Electrification and California High-Speed Rail

The Peninsula Corridor Joint Powers Board's Caltrain Electrification project will replace Caltrain's existing diesel service with a fully electrified service from the 4th and King Station in San Francisco to the Tamian Station in San Jose. Electrification will 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 will share the infrastructure, staying within the existing ROW. The project corridor runs north-south and is located adjacent to the east of the proposed Egbert Switching Station. Construction is anticipated to begin by early 2018, ending in early 2021.

320-400 Paul Avenue Internet Services Exchange

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 line will 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 anticipated to last approximately 12 months. Therefore, construction is not likely to overlap with this project.

Geneva Avenue Multimodal Improvement Project

The Geneva Avenue Multimodal Improvement Project is an SFMTA project to improve pedestrian safety, bus reliability, and bicycle access for residents, businesses, transit riders, and visitors. The project is located on the Geneva Avenue corridor from Santos Street heading west to Ocean Avenue. The proposed Jefferson-Egbert line is located under Geneva Avenue from Santos Street heading west for five blocks until turning off Geneva onto Carter Street. The project was initiated in 2014, and is listed as a "Muni Forward Transit Priority Project" by SFMTA.

Recology Modernization and Expansion Project (San Francisco & Brisbane)

The Recology Modernization and Expansion Project is a comprehensible modernization program designed to facilitate management 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 Brisbane and San Francisco. The 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, 2017a). The modernization and expansion portion of the project is located 0.4 mile from Martin Substation and the portion to be decommissioned is adjacent to the potential Amador Street staging area at South Container Terminal. It is unknown when the project will be initiated, but it will be phased over approximately 4 years.

Hunters Point Substation Rebuild Project

The Hunters Point Substation Rebuild Project is a PG&E project to replace the aging infrastructure of Hunters Point Substation, located near the intersection of Evans Avenue and Jennings Street in San Francisco. 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.

City of Daly City

Robertson Intermediate School Redevelopment

The project will redevelop the 6.96-acre property where the Bayshore Elementary School District's Robertson Intermediate School was formerly located into a planned development for 71 single-family residences. The city of Daly City approved the General Plan Amendment to rezone the site (City of Daly City City Council, 2016), and adopted the Mitigated Negative Declaration for the project in April 2016. Construction is anticipated to begin by early 2018 and last approximately 2 to 3 years. The residences would be served by driveways off Martin Street, and the project site is located 0.1 mile from Martin Substation.

~~Point Martin – Phase Two~~

~~The Point Martin project is located on Steve Courter Way and Martin Street; the completed Phase One developed a 1.9-acre vacant area into a residential area. The second phase of the Point Martin project proposes to develop an additional 7.93 acres into 133-unit townhomes, with construction to begin in late 2017 and lasting 2 years. This project is approximately 0.1 mile from the proposed Jefferson-Egbert line.~~

Calgary Street Subdivision

The Calgary Street Subdivision is located at 55 Calgary Street in Daly City. The project would construct seven detached single-family homes. Daly City has approved the project pending design review. The construction timeline is unknown. The project is approximately 0.2 mile from the existing Martin Substation.

City of Brisbane

Baylands

The Baylands Subarea is a Specific Plan Area designated by the City of Brisbane's General Plan (City of Brisbane, 2017a). The specific plan for redevelopment was submitted by the property owners for the Baylands in 2006, was updated in 2011, and continues to be reviewed and refined in discussions with Brisbane City Council. 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. 101 causeway, and on the south by Brisbane Lagoon. The subarea is located directly across Bayshore Boulevard from Martin Substation. 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 will occur in this area over a 20-year period.

3.18.3.2 Analysis of Cumulative Impacts

The intent of this project is to provide service reliability for existing users. Other than the incremental visual change following construction of the proposed Egbert Switching Station, no long-term impacts have been identified. Implementation of APMs will further minimize less-than-significant short-term construction impacts related to aesthetics, air quality, biology, cultural resources, geology and soils, GHGs, hazards, hydrology and water quality, noise, and traffic. As described in Chapter 3.0, Environmental Setting and Impact Assessment Summary, for agricultural and forest resources, land use, minerals, population and housing, public services, recreation, and utilities, either the project has no impacts or the impacts are so minor that they would have no contribution to cumulative impacts in the area. Because the majority of potential impacts related to the proposed project are construction phase related, the most relevant projects are either those that (1) overlap geographically with the proposed work areas or (2) occur in an overlapping time frame that could lead to potential cumulative effects on construction-related impacts such as traffic and transportation, air quality, or noise.

A discussion regarding each relevant resource area follows.

Aesthetics: The visible component of the project that will remain following construction is the proposed Egbert Switching Station structure and perimeter fencing, which is compatible with the industrial setting and the existing nearby structures. This includes the planned data center development at 320-400 Paul Avenue, assuming the project is constructed as designed. The similarity in terms of overall scale and form of the proposed switching station helps to visually integrate it into the surrounding existing/proposed urban-industrial setting. The proposed switching station, therefore, does not contribute substantially to a cumulative impact in visual conditions to the area.

Air Quality: The air emissions from construction of the project, as well as the nearby projects, will contribute to the cumulative air quality issues in the SFBAAB, particularly by increasing the quantity of regional nonattainment air quality pollutants (volatile organic compounds, NO_x, PM_{10}, and $PM_{2.5}$). Because the air emissions will be temporary and will only occur during limited portions of the 22-month construction period, the project will not have 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 in this document follow those guidelines, thereby further minimizing the significance of the project's contribution to regional air quality.

Biological Resources: The project has no potential to affect terrestrial biological resources other than the limited potential for white-tailed kite, American peregrine falcon, migratory birds, and American badger to be present in the project area while foraging. No direct or indirect impacts to special-status species are anticipated because no suitable habitat for special-status species will be impacted. With implementation of pre-construction bird surveys, and setting up appropriate buffers as needed in the unlikely event that active nests should be found in these urban areas that could be disrupted by construction, the project will have no effect on terrestrial biological resources. Construction of the projects listed in Table 3.18-2 could overlap in time with this project, and could also have a minor impact on these resources; however, any such effects would be minor, and no cumulative impacts would result.

With implementation of the APMs presented in Section 3.4.4.2, including rare plant measures should any be found at the Carter Street potential staging area, the project's minor effects on biological resources would not contribute substantially to any cumulative effect on biological resources. Because the project has no effect on wetlands or special aquatic sites, it will not contribute to any cumulative impacts on these resources.

Cultural and Paleontological Resources: The record search identified one historical district, resources in the project APEs. More resources may be present in areas where pavement and other obstacles precluded survey. APMs CR-1 through CR-4 will 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.

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 line, the excavation depths are unlikely to impact paleontological resources are given that fossils in Pleistocene sediments are rare at shallow depths.

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 paleontological and 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 APMs, the project will have a negligible contribution to any potential cumulative effects.

Geology and Soils: The project is in a seismically active area with underlying older geologic deposits in the majority of the project area. Geologic and seismic hazards with the greatest potential to impact the project include strong ground-shaking and seismic-induced ground failure, while hazards with the greatest potential to impact the project include liquefaction and landslides. However, with implementation of the APMs presented in Section 3.6.4.2, which provide for geotechnical investigations and appropriate engineering and construction measures, any potential impacts will be reduced to less-than-significant levels or eliminated entirely. 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 engineering and construction measures appropriate for that project. The impacts of the project are not individually significant, and will not contribute significantly to any potential hazard when considered in the context of each other as well as with other related projects that have been identified for development in the area.

Greenhouse Gas Emissions: GHG emissions directly generated during construction will result in a less-than-significant, short-term impact to climate change. GHG emissions will be further reduced with implementation of APM GHG-1. As shown in Table 3.7-3, the GHG emissions from the construction phase of the project, with or without APM GHG-1, are expected to be well below SCAQMD's recommended threshold of 10,000 metric tons of CO_2e per year. As a result, the project will 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 will not be cumulatively considerable.

Hazards and Hazardous Materials: All potential impacts related to hazards and hazardous materials are considered less than significant or nonexistent with implementation of the APMs described in Section 3.8.4.2. During construction activities, there is an increased potential for accidental release of fluids from a vehicle or motorized piece of equipment. Any impacts associated with such an accidental release will be reduced to a less-than-significant level by implementation of APMs. The implementation of PG&E's standard hazardous substance control, emergency response, and health and safety procedures will further minimize less-than-significant impacts.

Additional characterization of soils will occur prior to project construction to determine appropriate handling and disposal methods, as is expected for other excavation projects. Other projects in the vicinity, such as the proposed building construction on 320-400 Paul Avenue in San Francisco, 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.

The impacts of the proposed project related to hazards or hazardous materials are not individually significant, and cumulative effects of this and other related excavation projects will 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.

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 described in Section 3.9.4.2 will 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 sewers and to the Bay. These projects would similarly implement measures to minimize any water quality impacts. The project will not contribute substantially to any potential cumulative impacts on water quality.

These APMs include construction SWPPP preparation/implementation and spill prevention and response measures, among others. Potential operational impacts to water quality will be less than significant and will be further reduced through spill prevention and response measures at the proposed Egbert Switching Station; operation and maintenance activities along the transmission lines are not expected to impact water quality.

Noise: 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 of San Francisco noise standards for residential uses within 50 feet. Of the projects in Table 3.18-2, 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.

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 will be primarily limited to daytime hours compatible with local noise ordinances. Unplanned nighttime work will be infrequent, will occur in limited locations, and will be short term. A number of projects listed in Table 3.18-2 (including the nearest 320-400 Paul Avenue Internet Services Exchange, which is expected to be completed prior to construction at the proposed Egbert Switching location, and Caltrain Electrification/High-Speed Rail projects) are in the near vicinity, and may have overlapping construction periods. Noise measures, including noise-reduction measures at the proposed Egbert Switching Station, will reduce construction noise to meet municipal standards as described in Section 3.12, Noise. The project will not contribute significantly to cumulative noise impacts.

Transportation and Traffic: The project would have short-term temporary effects on traffic and parking 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 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 a period of up to approximately 10 days. With implementation of the APMs, the project will 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 will apply for 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 cities' permit process would address other activities in the area that may contribute to traffic impacts at the specific times of construction. Other projects will 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 3.18-2 are expected to have some overlap with project construction, including the Caltrain Electrification and California High-Speed Rail and Robertson Intermediate School Development. For others, the construction time line is uncertain but may overlap. Most of these projects will involve off-street construction, so the on-street impacts of the project are not expected to have a combined substantial cumulative impact. Although the construction schedules of some projects listed in Table 3.18-2 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.

3.18.4 REFERENCES

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CHAPTER 4 ALTERNATIVES

4.1 INTRODUCTION

This discussion is included to comply with the CPUC's General Order (G.O.) 131-D, Section IX.B.1.c, but is not required as part of the CEQA analysis because this PEA has concluded that all impacts from the proposed project will be less than significant. CEQA does not require a review of alternatives where, as with this project, the proposed project would result in no significant environmental impacts after mitigation (CEQA Guidelines, California Code of Regulations, Title 14, Chapter 3 [Guidelines], § 15126.6, subd. [a] and [f][2][A]; CPUC Decision [D.] 10-09-025 at 10.). This is because, under CEQA, a "reasonable alternative" is one that could feasibly accomplish most of the basic objectives of the project and could avoid, or substantially lessen, one or more of the significant effects of the project (Guidelines, § 15126.6, subd. [a]).

This chapter begins with a brief description of considered system alternatives to the proposed project, including the No Project Alternative, considering the ability of each to meet the project objectives. This chapter then describes alternative sites and transmission line routes for the proposed project, discusses the advantages and disadvantages of each alternative, and, in compliance with G.O. 131-D, qualitatively compares the environmental advantages and disadvantages of the proposed project and the alternatives considered.

PG&E evaluated alternative methods, and sites and routes for achieving the basic project objectives, purpose, and need defined in Section 2.2, before recommending the proposed project for approval by the CPUC.

4.2 SYSTEM AND DEMAND SIDE ALTERNATIVES

The California Independent System Operator's (CAISO's) 2014-2015 ISO Transmission Plan discussed and recommended approval of the project. In March 2015, the CAISO Board of Governors approved the project. The stated scope was to address San Francisco reliability concerns stemming from an extreme event that could render Martin Substation inoperable by reconfiguring the existing 230 kV transmission lines terminating at Martin Substation to provide one 230 kV path bypassing Martin Substation.

Other solutions to improving the reliability and resiliency of PG&E's electric service to the northern peninsula area were considered by PG&E and/or CAISO. These system alternatives would also provide an alternative path for electrical power to serve the population of San Francisco. The alternatives as described in the following sections are estimated to cost more than the proposed project and, given the line lengths, will likely have greater environmental project impacts.

The system alternatives evaluation consisted of the following steps:

- Evaluating the existing electric transmission infrastructure to develop a range of alternatives for increasing the likelihood of continued electric service to customers of San Francisco in the event that the transmission system at Martin Substation is rendered inoperable.

- Evaluating the cost and feasibility of the infrastructure alternatives to determine which provides the greatest value while meeting the project objectives.

4.2.1 Description of System Alternatives

PG&E evaluated three alternative approaches to increasing the likelihood of continued electric service to customers of San Francisco in the event that the transmission system at Martin Substation is rendered inoperable: the Egbert Switching Station project, the Moraga-Potrero 230 kV project, and the Eastshore-Potrero 230 kV project. PG&E also evaluated the No Project Alternative. All system alternatives have a San Francisco terminus north of Martin Substation, and each has a different location for the terminus located outside San Francisco (i.e., different connection points to the 230 kV lines feeding San Francisco). All system alternatives will provide a new 230 kV single circuit into San Francisco without going through Martin Substation. The proposed project will install new underground 230 kV lines within the San Francisco Peninsula (peninsula). The other two alternatives have East Bay termini, and will install underground and overhead lines in the East Bay, cross under San Francisco Bay via submarine cable, and continue underground in San Francisco. The proposed project will require a new switching station, while the alternatives will use existing PG&E substations. The proposed project requires the shortest length of new 230 kV transmission lines. The three system alternatives, as well as the No Project Alternative, are summarized in the following sections.

4.2.1.1 Egbert Switching Station (Proposed Project)

The proposed project will require the construction of a new switching station on approximately 1.8 acres of private land. The project requires the installation of approximately 3.9 miles of new 230 kV underground transmission lines. The transmission lines will require very few new easements because most of the lines will be installed within city streets using PG&E's existing franchise agreements. Associated work will include a minor modification at Martin Substation. This alternative will provide bypass capability of approximately 418 megawatts (MW). PG&E estimates the proposed project would cost between $205.8 and $260.8 million in 2022 dollars.

4.2.1.2 Moraga-Potrero 230 kV Alternative

In 2013, PG&E and the CAISO considered providing 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 the following components:

- 4.5-mile overhead section between Moraga Substation and Claremont Substation in Oakland (length assumes paralleling the existing Moraga–Claremont 115 kV line)
- 5- to 9-mile underground section between Claremont Substation and San Francisco Bay (length is dependent on route selected)
- 5- to 11-mile section of submarine cable across San Francisco Bay (length is dependent on route selected)
- Approximately 0.5-mile underground section between San Francisco Bay and Potrero Switchyard

- Associated work at Moraga and Potrero substations to provide the terminus

The project would be designed to provide additional capacity of over 450 MW.

This project alternative was not proposed for construction primarily because of its anticipated higher cost than the proposed project, and potentially greater environmental impacts resulting from much longer line lengths. The project costs are assumed to be in the range of $500 million to $1 billion.

4.2.1.3 Eastshore–Potrero 230 kV Line

PG&E considered providing 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 likely include the following components:

- Approximately 0.5-mile overhead section between Eastshore Substation and San Francisco Bay
- Approximately 21-mile section of submarine cable across San Francisco Bay (length will vary depending on route selected)
- Approximately 0.5-mile underground section between San Francisco Bay and Potrero Switchyard
- Associated work at Eastshore and Potrero substations to provide the terminus

The project would be designed to provide additional capacity of over 450 MW. This project alternative was not proposed primarily because of its anticipated higher cost than the proposed project, and potentially greater environmental impacts resulting from much longer line lengths. The project costs would likely be similar to those for the Moraga–Potrero line alternative.

4.2.1.4 No Project Alternative

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. There would be no new infrastructure to provide improved reliability 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 (see Section 2.2).

The No Project Alternative fails to meet CAISO's and PG&E's basic project objectives; PG&E, therefore, rejected this alternative.

4.2.2 COMPARISON OF SYSTEM ALTERNATIVES

The objectives of the comparative analysis of system alternatives are as follows:

- Determine whether each of the alternatives would meet the project objectives.
- Consider the cost effectiveness and feasibility of alternatives.

- Eliminate the alternative from further consideration if it is not feasible, does not meet the project objectives, or does not provide the comparative greatest value.

PG&E determined that all three system alternatives appear to be feasible, would improve system resiliency, and would increase the likelihood of continued electric service to the six transmission-supplied substations in San Francisco in the event that the transmission system at Martin Substation is rendered inoperable by an extreme event. However, only the proposed project matches the CAISO-approved project (Egbert Switching Station Project) and meets all the PG&E project objectives, including minimizing environmental impacts and cost to ratepayers.

PG&E has performed sufficient preliminary engineering for the proposed project on which to base its cost estimates. For the other alternatives, PG&E performed "desk top" evaluations, but did not perform preliminary engineering to develop detailed cost estimates or environmental analyses.

Visual observation for the overland sections of the Moraga–Potrero 230 kV line alternative found that locating acceptable and feasible routes will be challenging. Steep terrain and residential areas along the existing ROW will require a significant amount of engineering and public outreach to locate an acceptable route between Moraga Substation and San Francisco Bay.

The Eastshore–Potrero 230 kV line alternative is primarily a submarine line with very short underground segments on the Potrero Switchyard side and a short overhead segment from the bay to Eastshore Substation. Additional research, engineering, and discussions with and resource agencies will be required to further confirm the feasibility of the Eastshore–Potrero 230 kV line alternative. Given the similarities between this alternative and the Moraga-Potrero 230 kV line alternative, the estimated cost of the Eastshore-Potrero 230 kV line is assumed to be similar.

Table 4-1 provides a comparison of the key features and estimated costs of the three system alternatives.

Table 4-1. Comparison of Alternatives

Alternative	Transmission Line Length (miles)			Cost Estimate (cost in 2022 dollars; in millions)		
	Under-ground	Over-head	Submarine	Base	Recommended Project Contingency	Total Project Cost
Egbert Switching Station (Proposed Project)	3.9	0	0	$205.8	$55	$260.8
Moraga–Potrero 230 kV Line	5.5-9.5	4.5	5-11	-	-	$500 - $1000
Eastshore–Potrero 230 kV Line	0.5	0.5	21	-	-	$500 - $1000

Comparing the estimated costs indicates that the proposed project is the lowest cost alternative. In addition, the proposed project is the only system alternative that meets the project objective of minimizing environmental impacts because the other two alternatives will have much longer transmission lines. Because of its shorter length, the proposed project is likely to have fewer and less severe environmental impacts than the other two alternatives. For these reasons, the project was retained as the proposed project.

4.2.3 DEMAND SIDE ALTERNATIVES

PG&E considered whether the project objectives could be met with demand side alternatives. These alternatives include distributed generation, energy efficiency, demand response and energy storage, also known as distribution energy resources (DER). PG&E determined that the amount of DER needed with Martin Substation inoperable on a typical weekday would be more than 350 MW for most hours of the day and more than 250 MW for the early morning and early evening hours. This assumes that the typical weekday power demand in San Francisco is more than 650 MW for most hours and that the TBC can deliver 300 MW into San Francisco.

PG&E's forecast of power demand in San Francisco, including DER, shows fairly flat growth. Demand reductions achieved due to DER are forecast to be offset by demand growth from strong construction and development markets. However, even if daily power demand in San Francisco remains at current levels or even drops; it does not appear that DER could offset the loss of power imports up the peninsula that would result from Martin Substation being inoperable.

Current and forecasted DER levels in San Francisco are not expected to reach the level associated with Martin Substation being inoperable (more than 350 MW) in the foreseeable future. And, due to limits on the availability of DER throughout the day, DER would not be able to meet the hour-to-hour demand shortfall in San Francisco resulting from an outage of Martin Substation that could last for several weeks. 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. And energy storage would be very costly and would require a significant amount of time to recharge every day.

In light of the foregoing analysis, PG&E determined that demand side alternatives would not achieve the project objectives.

4.3 SUMMARY OF SITE ALTERNATIVES AND ROUTE OPTIONS

PG&E identified and evaluated potential sites and routes for the proposed project and alternatives that would meet the project objectives. The analysis included stakeholder outreach to discuss the project and to seek information about the study area.

PG&E examined several preliminary potential sites for the proposed project before retaining three site alternatives. Potential transmission line route options to each of the three site alternatives were identified and examined. The three site alternatives and their associated transmission line route interconnections were evaluated against the project objectives to ultimately identify the proposed project.

4.3.1 SITING AND STAKEHOLDER INFORMATION

To support project objectives, PG&E conducted an initial review of potential switching station sites using a study area within 2 miles of the existing Martin Substation, which includes the cities of San Francisco, Daly City, Brisbane, and South San Francisco, as well as the unincorporated

San Mateo County. Given the limited availability of land and the density of existing structures in the study area, switchgear was assumed to be housed within a building instead of having an outdoor arrangement, which would likely require more than 10 acres. The new transmission lines were assumed to be underground, in part to more readily connect to the existing transmission lines, and because the study area does not appear to have sufficient space for three new overhead transmission lines.

Preliminary potential sites and transmission lines route options were identified and evaluated within the study area thorough literature review; GIS database searches and mapping; review of aerial photography (e.g., Google Earth); and stakeholder, agency, and public information. Outreach efforts included meetings with stakeholders, mailings to addresses within at least 300 feet of the proposed project components under evaluation, two open house events (held on May 22 and 24, 2017), and installation of a project website and toll-free number. Stakeholder meetings were held with government agencies (local and state), elected officials, city managers, city planning and public works departments, local business, and home owner associations / neighborhood organizations.

4.3.2 ALTERNATIVES CONSIDERED

PG&E examined several sites for the substation component of the proposed project before selecting three sites (Figure 4.3-1) that would meet the project objectives described in Section 2.2. A summary description of the three retained sites and associated routing considerations is provided in the following sections. Potential transmission line route options to each site were identified. Depending on the proximity to the site, either the Martin-Embarcadero #1 230 kV transmission line (HZ-1) or Martin-Embarcadero #2 230 kV transmission line (HZ-2) (interchangeable in project objectives) was identified for the line reroute from Martin Substation to Embarcadero Substation. The route options to each site were reviewed by evaluating land ownership and jurisdiction, natural resources, and engineering, operations, and construction considerations.

4.3.2.1 Egbert Switching Station – Proposed Project

A switching station at this location within San Francisco would be at the end of a dead-end street abutting a UPRR rail line used by Caltrain (Figure 4.3-2). The site parcel and adjoining parcels are zoned industrial (PDR-2 or M-1). The site is adjacent to primarily industrial and commercial uses; residential zoning and use are across the street, and residential use is across the rail line from the site. The site is currently used for equipment and material storage, and contains no natural habitat. This site is the farthest of the alternatives to Martin Substation.

Egbert-Embarcadero Line Route Options

Route options were considered for connecting to the existing HZ-1 line to Embarcadero Substation. The most direct route option along Egbert Avenue was retained because of the shorter length, and most of the route is located within franchise.

Insert

Figure 4.3-1 Study Area and Preliminary Potential Sites with Zoning Overlay

Insert

Figure 4.3-2 Proposed Egbert Switching Station and Transmission Line Proposed and Alternative Routes

Jefferson-Egbert Line Route Options

Route options connecting to this switching station site from the west were constrained by a high density of utilities within the roads crossing under U.S. 101 and piers supporting the highway. Two trenchless crossing locations under the highway were identified as reasonable and feasible. West of the highway, these two route options have a similar alignment in San Francisco, and are within the same alignment in Daly City and Brisbane. The route along Crane Street to Mansell Street-Westbound was retained because of the shorter length and fewer bends than either other route option; has less trenchless crossings than the east route option; and has more feasible trenchless crossing of the west route options.

Martin-Egbert Line Route Options

The three route options were considered to re-use the existing HZ-1 line remnant south to Martin Substation. The route option along Egbert Avenue was retained because it is shorter, most of the route is located within franchise, and it avoids the engineering and construction constraints of crossing under U.S. 101.

4.3.2.2 Bayshore Switching Station– Alternative Site

Existing zoning at this location within Brisbane is C-1, Commercial Mixed Use. A native plant nursery with a greenhouse uses a portion of this parcel. The Brisbane Baylands Final Environmental Impact Report (EIR) (City of Brisbane, 2015) describes the site as having nonnative annual grassland habitat. 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 mile of the site. The topography and vegetation could provide visual screening from sensitive locations. The EIR, currently in review by Brisbane, identifies this area as potential open space with educational use.

The location would be expected to have relatively shorter transmission line lengths compared to the Egbert Switching Station Site given the site's closer proximity to existing Martin Substation, the existing Jefferson-Martin line, and the existing HZ lines (Figure 4.3-3).

Bayshore-Embarcadero Line Route Options

Route options were considered for connection to the existing HZ-1 and HZ-2 lines. The route option along Bayshore Boulevard was retained because of the shorter length, location within franchise, and avoidance of line siting within the unresolved street locations of the Baylands Master Plan.

Jefferson-Bayshore Line Route Options

Three route options were considered for connection to the existing Jefferson-Martin line. The route option along Ice House Hill was retained because it is shorter and would avoid construction and operation constraints from the high density of utilities within Bayshore Boulevard.

Insert

Figure 4.3-3 Alternative Bayshore Switching Station and Transmission Line Alternative Routes and Options

Martin-Bayshore Line Route Options

Route options to connect this switching station site to existing Martin Substation included two options that would re-use the existing Jefferson-Martin line remnant in Bayshore Boulevard. The Ice House Hill route option, which would connect to the remnant, was retained because of its shorter length within Bayshore Boulevard, re-use of the existing Jefferson-Martin line remnant, and avoidance of line siting within the unresolved street locations of the Baylands Master Plan.

4.3.2.3 Geneva Switching Station – Alternative Site

This site is in Daly City to the west of the Cow Palace complex, and is zoned Commercial (C-RO, commercial, retail, and office) with residential areas across adjacent streets (Figure 4.3-4). The parcel is a former drive-in theatre with sparse, ruderal habitat, and is bordered to the west and south by mature trees. The mature trees on the parcel and on the adjacent parcel may provide some visual screening of the site. Residences are within 400 feet of the site. The parcel is adjacent to the SBM HCP boundary. Daly City's 2030 General Plan and its Cow Palace Master Area Plan have identified this location as part of a future mixed use, commercial, and residential development in the Cow Palace complex area.

This site is the closest of the alternatives to Martin Substation, the existing Jefferson-Martin line, and the existing HZ lines (Figure 4.3-4).

Geneva-Embarcadero Line Route Options

Route options were considered that would connect to the existing HZ-2 line from the alternative Geneva Switching Station. The route option along Geneva Avenue was retained because of its shorter length, and the route is primarily within franchise.

Jefferson-Geneva Line Route Options

One route option connected to the existing Jefferson-Martin line in Guadalupe Canyon Parkway, while two other route options would connect further east in Bayshore Boulevard. The route option along Carter Street connect in Guadalupe Canyon Parkway was retained because of the shorter length than the other route options.

Martin-Geneva Line Route Options

Two route options from the existing Martin Substation to the alternative Geneva Switching Station would connect to the existing HZ-2 line remnant, while a third route option would connect at the HZ-2 terminal within existing Martin Substation. The route option along Geneva Avenue was retained because the route is primarily within franchise and the line would re-use the HZ-2 line remnant into Martin Substation.

4.3.3 ALTERNATIVES COMPARISON

The three retained site alternatives and their associated transmission line route interconnections were compared. A summary of the proposed project and the two alternatives, including land use, resource permitting, environmental considerations, and engineering, construction and operational considerations is provided in Table 4-2.

Insert

Figure 4.3-4 Alternative Geneva Switching Station and Transmission Line Alternative Routes and Options

Table 4-2. Summary of the Proposed Project and Alternatives

Key Elements	Proposed Project – Egbert Switching Station and Lines	Alternative – Bayshore Switching Station and Lines	Alternative – Geneva Switching Station and Lines
Site Size (acreage)	1.7	6.6	11.1
Line Length (total miles)	3.9	2.6	2.3
Existing Zoning and Land Use	Industrial. Equipment and materials staging and laydown use. Routes are within franchise or across private industrial and public properties.	Commercial Mixed-Use. Nursery with greenhouse on-site. Mainly nonnative, ruderal vegetation. Routes are within franchise or across private commercial properties that includes horse stables and corral area.	Commercial. Construction staging and laydown use. Routes are within franchise and across state commercial property.
Adjacent Land Use	Adjacent zoning is industrial. Adjacent land uses: industrial, commercial, and residential.	Adjacent zoning is commercial mixed use. Adjacent land uses: industrial, public (fire station), and commercial.	Within Cow Palace Area Master Plan for a commercial mixed use area. Residential across Carter Street.
Planned Land Use	Industrial. No active permitting. One route briefly crosses private industrial property, one of which is in construction.	Institutional - charter high school, open space - play fields (Brisbane Baylands EIR) High-speed Rail Alternative B for light maintenance facility overlaps with the routes around Ice House Hill.	City 2030 General Plan describes commercial mixed-use development.
Environmental, Engineering, Construction, and Operational Considerations			
Aesthetics	An industrial and commercial area with residential uses across street and rail line. Design shields or generally screens equipment from view.	Mature canopy trees and topography along Bayshore Boulevard partially screen views. Old Bayshore Tunnel Trail adjacent. Residences within 0.25 mile. Site size supports layout options such as setbacks or vegetation screening.	Mature trees and tall shrubs generally screen views of the site. Briefly visible from Guadalupe Canyon Parkway, a San Mateo County Scenic Corridor, and Saddle Loop Trail on San Bruno Mountain. Residences within 400 feet. Site size supports layout options such as setbacks or vegetation screening.

Table 4-2. Summary of the Proposed Project and Alternatives

Key Elements	Proposed Project – Egbert Switching Station and Lines	Alternative – Bayshore Switching Station and Lines	Alternative – Geneva Switching Station and Lines
Land Cover/Biological Resources	Site is developed/ruderal. Routes are paved/ruderal. Nesting bird potential (street trees, parks), white-tailed kite, American peregrine falcon, and American badger.	Site and two routes are developed/ruderal/nonnative annual grassland habitat; one route is paved. Mature trees are on two sides of site. Similar species to proposed project. Potential habitat for sensitive species found on San Bruno Mountain on adjacent Ice House Hill.	Site is developed/ruderal; adjacent to Habitat Conservation Plan; may have rare plant habitat. Routes paved. Sparse, ruderal habitat on-site and bordered by mature trees on two sides. Similar species to proposed project. Site would be surveyed for the potential for rare plant habitat and any habitat avoided.
Hydrology and Water Quality	Site and portion of the routes are within potential inundation zones attributable to reservoir failure.	One route crosses a drainage. Two routes are in unpaved areas. Two sides of site and 0.5 mile of a route are along 100-year flood plain.	Outside of potential inundation or flood areas, unlike the proposed project and the Bayshore Alternative. Shorter length of routes; less potential for erosion.
Resource Permitting	None anticipated.	Potential 404, 401, and 1602 permitting if waterway impacts can't be avoided (trenchless or other design).	None anticipated.
Cultural and Paleontological Resources	Two cultural resources and the historic district in area of potential effect (APE) will not be impacted. Sensitivity for buried resources ranges from low to high within the APE. Areas of moderate to very low paleontological sensitivity.	Two cultural resources are adjacent to or within the APE of two routes. Historic district in APE will not be impacted. Sensitivity for buried resources range same as proposed project. Areas of low or very low paleontological sensitivity.	No known cultural resources in APE. Historic district in APE will not be impacted. Sensitivity for buried resources range same as proposed project. Areas of paleontological sensitivity same as Bayshore Alternative.
Air Quality/GHG Emissions/Noise	Temporary construction-related dust, equipment emissions, and noise are expected.	Shorter routes assume shorter construction schedule and fewer impacts than proposed project.	Shorter routes assume shorter construction schedule and fewer impacts than proposed project.
Known Remedial Action	None identified.	Open groundwater assessment and interim remedial action site (Brisbane Baylands Cleanup Program Site); open groundwater and soil remediation (Tuntex Properties Cleanup Program Site) under RWQCB oversight.	None identified.

Table 4-2. Summary of the Proposed Project and Alternatives

Key Elements	Proposed Project – Egbert Switching Station and Lines	Alternative – Bayshore Switching Station and Lines	Alternative – Geneva Switching Station and Lines
Geology and Soils	The proposed site, routes on Egbert Avenue, and Jefferson-Egbert line to Paul Avenue are underlain by potentially liquefiable material. Proposed Jefferson-Egbert line will cross a mapped debris flow source area on Carter Street.	More than either alternative. Routes around Ice House Hill, and the route in Bayshore Boulevard would cross mapped debris flow source areas. Northern side of Ice House Hill has a known landslide. Very high liquefaction susceptibility on site and routes. Project area has bay mud / fill.	More than the proposed project but less than the Bayshore Alternative. A known landslide is mapped on the western third of the site. The alternative Jefferson-Geneva line would cross the same mapped debris flow source area as the proposed Jefferson-Egbert line.
Route Slope Considerations	Various lengths on Jefferson-Egbert line have slopes that may require additional design cost.	Slope between site and Bayshore Boulevard; northern side of Ice House Hill to Bayshore Boulevard have slopes that may require additional design cost.	Jefferson-Geneva line has slopes that may require additional design cost.
Transportation and Traffic	Short-term construction partial road closures, and possibly one full road closure (one, one-way block for approximately 10 days).	Less than other alternatives with partial road closures limited to one route in franchise (1.4 miles).	Shorter route length (less than 1.5 mile) in franchise than proposed project; longer (approximately 1 mile) than Bayshore Alternative.
Highway or Railway Crossing	One highway crossing.	None.	None.
Underground Existing Utilities	Moderate – high density.	Low – high density.	Moderate – high density.

4.3.3.1 Proposed Project – Egbert Switching Station and Transmission Lines

The proposed project includes construction of a new switching station (Egbert Switching Station) and three new transmission lines (Egbert-Embarcadero, Martin-Egbert, and Jefferson-Egbert) created by re-routing the existing HZ-1 and Jefferson-Martin lines (Figure 4.3-2).

Description

The switching station will be located at 1755 Egbert Avenue in San Francisco (see additional project description in Chapter 2.0, Project Description).

Comparative Summary

Site and routes are located on developed or ruderal parcels, and no resource permitting is anticipated. Overall transmission line extensions would total 1.3 to 1.6 miles more than the line extensions for either of the alternatives. More short-term partial road closures will occur during construction to install the transmission lines and to maintain public safety than the other two alternatives with shorter length of routes in streets. Crossing of U.S. Highway 101 (U.S. 101) is required for this alternative and not for the other two alternatives. Design will address known and potential geological conditions and inundation potential on-site and on the routes similar to the other alternatives. There is no known open remediation action on-site or routes, whereas the Bayshore Alternative would require working through a remedial action site.

The site is in an industrial and commercial area, and is currently used for equipment and materials staging. The site is within approximately 50 feet of residential uses across Egbert Avenue, whereas the other two alternatives are within 230 to 1,200 feet of residential uses. Switching station equipment will be shielded or generally screened from view by the building, equipment screening, and site perimeter fencing. The proposed project has greater compatibility with existing and planned land use for the switching station site than the alternatives. The proposed project has the highest compatibility with the project objectives, and it is preferred.

4.3.3.2 Alternative – Bayshore Switching Station and Transmission Lines

This alternative includes construction of a new switching station (Bayshore Switching Station) and three new transmission lines (Bayshore-Embarcadero, Martin-Bayshore, and Jefferson-Bayshore) created by re-routing the existing HZ-2 and Jefferson-Martin lines (Figure 4.3-3).

Description

The switching station would be located at 3435 Bayshore Boulevard in Brisbane. The current site use includes a native plant nursery and greenhouse. This site is the closest to the existing Jefferson-Martin line of any of the alternatives. The Martin-Bayshore and Jefferson-Bayshore lines would be approximately 0.5 and 0.7 mile long, respectively, and would exit the site to the east on private property to either side of a manufacturing facility. The Martin-Bayshore line would cross an unnamed drainage south of Ice House Hill. The routes would then turn north staying west of the rail line and progressing along the toe 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 routes would generally follow existing dirt roads and would circle back through an area with a corral and horse stables before reaching Bayshore Boulevard and the interconnection with the existing Jefferson-Martin line. The Jefferson-Martin line would be split into two interception points for the two new lines, using the first segment back to Jefferson Substation and the second segment back to Martin Substation. The Bayshore-Embarcadero line extension to the HZ-2 line would exit the site to the west across an area with dense, scrub vegetation and some mature trees onto Bayshore Boulevard within franchise. Commercial use is found along the western side of Bayshore Boulevard. The route 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 route would continue west when 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 route 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 route would continue west within Midway Drive in franchise before turning north on Schwerin Street, where it would intersect with the HZ-2 line near the intersection with Ottilla Street for a total of approximately 1.4 miles.

Comparative Summary

This alternative has slightly longer total transmission lines than the Geneva Alternative (about 0.3 mile) and a shorter total length than the proposed project (about 1.3 miles). Less construction would occur within streets; construction for two routes would be through unpaved areas, unlike the other alternatives. Crossing of highways or railways is not required for this alternative compared to one crossing for the proposed project. While adjacent to franchise, the slope to Bayshore Boulevard from the east is steep and could present operational challenges. More known and potential geology and hydrology conditions would be addressed during design such as very high liquefaction susceptibility potential, mapped debris flow source area, routes adjacent to a known landslide, and adjacent 100-year flood plain than either alternative. Open remedial actions under RWQCB oversight overlap with components of this alternative.

Greater potential for biological resources occurs with this alternative than with the other alternatives, and permitting may be required if project design cannot avoid potential impacts to the unnamed drainage. Two known cultural resources are within the potential area of effects for two routes; judicious final routing could minimize or avoid potential impacts. The size of this site supports layout options such as setbacks or vegetation screening. Old Bayshore Tunnel Trail, which has informal recreational use, would be adjacent to the site where it runs along the southern end of Ice House Hill.

This alternative overlaps with current commercial agricultural use on-site (native plant nursery and greenhouse) and on two of the routes (horse stables and corral). This site and routes around Ice House Hill are within the Brisbane Baylands development proposal under Brisbane's review and the High-speed Rail light maintenance facility Alternative B location. This alternative switching station site has lower compatibility with existing and planned land uses than the proposed project. As previously described, the Bayshore Alternative is less compatible with the environmental (including land use) project objectives than the preferred project, and it is not preferred.

4.3.3.3 Alternative – Geneva Switching Station and Transmission Lines

This alternative includes construction of a new switching station (Geneva Switching Station) and three new transmission lines (Geneva-Embarcadero, Martin-Geneva, and Jefferson-Geneva) created by re-routing the existing HZ-2 and Jefferson-Martin lines (Figure 4.3-4).

Description

The switching station would be located at 2150 Geneva Avenue in Daly City. The three line extensions would be of similar length, about 0.8 mile each for the Geneva-Embarcadero and Martin-Geneva lines connecting with the HZ-2 line and about 0.7 mile for the line connecting with the Jefferson-Martin line. The three lines would be within franchise except when exiting the site to Carter Street, where a state parcel would be crossed for approximately 250 feet. Continuing north in Carter Street, the Geneva-Embarcadero and Martin- Geneva lines would be located within franchise before turning east on Geneva Avenue in franchise and interconnecting with the HZ-2 Line near the intersection of Geneva Avenue and Schwerin Street. The HZ-2 line would be split into two interception points for the two new lines, using the first segment back to Martin Substation and the second segment back to Embarcadero Substation. 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 route for both lines is surrounded by commercial/ residential area. The extension between the Jefferson-Martin line and the site would follow the same alignment described for the Jefferson-Egbert line within Guadalupe Canyon Parkway and Carter Street connecting into the site before Geneva Avenue.

Comparative Summary

The Geneva Alternative would have a shorter total transmission line length than either the Bayshore Alternative or the proposed project. All three transmission lines connect to the site from Carter Street, which may cause operational congestion. Crossing of highways or railways is not required for this alternative. This alternative would have less potential for impacts to biological resources than the Bayshore Alternative or the proposed project because of shorter line lengths adjacent to or through potential habitat. A pre-construction survey would occur to identify any rare plant habitat on-site and mark any habitat for avoidance. A known landslide on the western third of the site would be avoided, or design would address this geologic condition. The alternative Jefferson-Geneva line would cross the same mapped debris flow source area as the proposed Jefferson-Egbert line. Otherwise, this alternative has fewer geological and hydrological constraints than the other alternatives.

The site is briefly visible from Guadalupe Canyon Parkway, a San Mateo County Scenic Corridor, and Saddle Loop Trail on San Bruno Mountain. The site size supports layout options such as setbacks or vegetation screening. Daly City's 2030 General Plan and the Cow Palace Master Plan describe planned commercial/mixed-use development for the site and surrounding area. This alternative site has a lower compatibility with existing and planned land use than the proposed project. As described previously, the Geneva Alternative is less compatible with the environmental (including land use) project objectives than the preferred project, and it is not preferred.

4.4 PROPOSED PROJECT ALTERNATIVES CONCLUSION

It was determined that all three alternative sites and routes have the ability to meet the project objectives. However, after considering the existing and planned land use associated with each alternative site, the Egbert Switching Station site and routes were selected as the proposed project. The proposed project has the highest existing and planned land use compatibility. The proposed site transmission line routes do not cross sensitive drainages or remedial action sites. The new switching station is the only permanent aboveground component of the project, whereas the lines will be installed and operate underground. In addition, the alternative projects offer no perceptible benefit that is not also provided by the proposed project. As described in Chapter 3.0, Environmental Setting and Impact Assessment Summary, construction of the proposed project will result in no significant impacts.

4.5 REFERENCES

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CHAPTER 5 LIST OF PREPARERS

The following PG&E staff and consultants participated in preparation of this Proponent's Environmental Assessment:

PEA Project Management

Mark Schexnayder/PG&E
Brandon Liddell/PG&E
Colleen Taylor/CH2M
Mary Gerut/CH2M

Project Description and Alternatives

Colleen Taylor/CH2M
Lynne Hosley/CH2M

Aesthetics

Marsha Gale/Environmental Vision

Air Quality and Greenhouse Gas Emissions

Elyse Engel/CH2M
Jerry Salamy/CH2M

Biological Resources

David Rasmussen/CH2M

Cultural and Paleontological Resources

Sharon Waechter/ FarWestern (cultural resources)
Kim Carpenter/FarWestern (cultural resources)
MariaElena Conserva/CH2M (paleontological resources)

Agriculture and Forest Resources, Land Use and Planning, Mineral Resources, Population and Housing, Public Services, Recreation, Utilities and System Services, and Mandatory Finds of Significance and Cumulative Impacts

Mary Gerut/CH2M
Lynne Hosley/CH2M

Geology and Soils

Wesley Irons/Northgate Environmental
Ana Demorest/CH2M

Hazards and Hazardous Materials, and Hydrology and Water Quality

Kevin Torres/Northgate Environmental
Ana Demorest/CH2M

Noise

Mark Bastasch/CH2M

Transportation and Traffic

Lisa Valdez/CH2M

Appendix A
List of Parcels within 300 Feet

Appendix B
Electric and Magnetic Fields (EMF) Discussion

Appendix C
Native American Heritage Commission and Native American Correspondence

Proponent's Environmental Assessment

Egbert Switching Station Project

Prepared for

Pacific Gas and Electric Company

December 2017

155 Grand Ave., Suite 800
Oakland, CA 94612

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Acronyms and Abbreviations

°F	degree(s) Fahrenheit
μg/m^3	microgram(s) per cubic meter
3-D	three–dimensional
AB	Assembly Bill
AC	alternating current
ADA	Americans with Disabilities Act
AIA	Airport Influence Area
APE	Area of Potential Effect
APM	Applicant-Proposed Measure
APN	Assessor’s Parcel Number
ATCM	Airborne Toxic Control Measure
BAAQMD	Bay Area Air Quality Management District
BCDC	San Francisco Bay Conservation and Development Commission
bgs	below ground surface
BLM	Bureau of Land Management
BMP	best management practice
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAISO	California Independent System Operator
CalEEMod	California Emissions Estimator Model
Cal/EPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CAP	Clean Air Plan
CARB	California Air Resources Board

CBC	California Building Code
CBCO	City of Brisbane Code of Ordinances
C/CAG	City/County Association of Governments of San Mateo County
CCR	California Code of Regulations
CCSF	City and County of San Francisco
CCVT	Coupling capacitor voltage transformer
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	methane
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
CPCN	Certificate of Public Convenience and Necessity
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CRS	Cultural Resources Specialist
CWA	Clean Water Act
cy	cubic yard(s)

dBA	A-weighted decibel(s)
DER	distribution energy resources
DNL	day-night sound level
DOC	California Department of Conservation
DPM	diesel particulate matter
DSOD	Division of Safety of Dams
DTSC	Department of Toxic Substances Control
EB	eastbound
EDR	Environmental Data Resources Inc.
EIR	environmental impact report
EMF	electric and magnetic field
EOP	Emergency Operations Plan
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FMMP	Farmland Mapping and Monitoring Program
FPVC	Fusible polyvinyl chloride
FTA	Federal Transit Administration
FTC	flowable thermal concrete
GCC	Grid Control Center
GHG	greenhouse gas
GIS	Geographic Information System; gas-insulated switchgear
G.O.	General Order
Guidelines	CEQA Guidelines, California Code of Regulations Title 14, Chapter 3
H_2S	hydrogen sulfide
HAP	hazardous air pollutant

HCM	Highway Capacity Manual
HCP	Habitat Conservation Plan
HDPE	high-density polyethylene
hp	horsepower
HPFF	high-pressure, fluid-filled
HWCL	Hazardous Waste Control Law
HZ-1	Martin-Embarcadero No. 1
HZ-2	Martin-Embarcadero No. 2
I-280	Interstate 280
I-80	Interstate 80
IEEE	Institute of Electrical and Electronics Engineers
in/sec	inch(es) per second
IOZ	Infill Opportunity Zone
IPaC	Information Planning and Consultation
ISO	Independent System Operator
JPA	joint powers agency
kcmil	thousand circular mils
km	kilometer(s)
KOP	Key Observation Point
kV	kilovolt(s)
L90	noise level that is exceeded during 90 percent of the measurement period
L_{dn}	day-night sound level
L_{eq}	equivalent sound pressure level
L_{max}	maximum level
L_v	vibration velocity level
lb	pound(s)

LOP	Local Oversight Program
LOS	level of service
LRA	Local Responsibility Area
LUST	Leaking Underground Storage Tank
MGP	manufactured gas plant
MMT/year	million metric ton(s) per year
MPAC	Modular Protection, Automation, and Control
mph	mile(s) per hour
MRZ	mineral resource zones
MW	megawatt(s)
Mw	moment magnitude
N/A	not applicable
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NB	northbound
NCFA	North County Fire Authority
NFIP	National Flood Insurance Program
N_2O	nitrous oxide
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NOA	naturally occurring asbestos
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory

NWIC	Northwest Information Center
O_3	ozone
Pb	lead
PCB	polychlorinated biphenyl
PCE	Peninsula Clean Energy
PEA	Proponent's Environmental Assessment
peninsula	San Francisco Peninsula
PERP	Portable Equipment Registration Program
PFYC	Potential Fossil Yield Classification System
PG&E	Pacific Gas and Electric Company
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than 2.5 microns
PM_{10}	particulate matter with an aerodynamic diameter less than 10 microns
Port	Port of San Francisco
ppm	part(s) per million
PPV	Peak Particle Velocity
PRC	Public Resources Code
project	Egbert Switching Station Project
PSD	Prevention of Significant Deterioration
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act of 1976
RME	Resource Management Element
ROG	reactive organic gases
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
SamTrans	San Mateo County Transit District
SB	southbound

SBM HCP	San Bruno Mountain Habitat Conservation Plan
SCADA	supervisory control and data acquisition
SCAQMD	South Coast Air Quality Management District
SF_6	sulfur hexafluoride
SFBAAB	San Francisco Bay Area Air Basin
SFBC	San Francisco Bee-Cause
SFCTA	San Francisco County Transportation Authority
SFDPH	San Francisco County Department of Public Health
SFMTA	San Francisco Municipal Transportation Agency
SFPD	San Francisco Police Department
SFPUC	San Francisco Public Utilities Commission
SFRPD	San Francisco Recreation and Parks Department
SFUSD	San Francisco Unified School District
SIP	state implementation plan
SO_2	sulfur dioxide
SOx	sulfur oxides
SPCC	Spill Prevention, Control, and Countermeasure
SRA	State Responsibility Area
SSC	Species of Special Concern
SUD	Special Use District
SVP	Society for Vertebrate Paleontology
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TBC	Trans Bay Cable
TCR	Tribal Cultural Resource
TPP	Transmission Planning Process

UCMP	University of California at Berkeley Museum of Paleontology
U.S.	United States
U.S. 101	U.S. Highway 101
USA	Underground Service Alert
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USDA	United States Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
VRP	visibility reducing particles
WB	westbound
WGCEP	Working Group on California Earthquake Probabilities
WMP	Waste Management Plan
XLPE	cross-linked polyethylene
ZA-1	Embarcadero–Potrero

CHAPTER 1 EXECUTIVE SUMMARY

1.1 OVERVIEW

In accordance with the California Public Utilities Commission (CPUC) General Order (G.O.) 131-D, this Proponent's Environmental Assessment (PEA) has been prepared by Pacific Gas and Electric Company (PG&E) to support the application for a Certificate of Public Convenience and Necessity (CPCN) for the Egbert Switching Station project (project).

The proposed project will address San Francisco reliability concerns by reconfiguring two existing 230 kilovolt (kV) transmission lines terminating at Martin Substation to provide one independent 230 kV path bypassing Martin Substation to Embarcadero Substation. The project includes construction, operation, and maintenance of a new 230 kV switching station (proposed Egbert Switching Station, or switching station) connected to the 230 kV system by reconfiguring two existing underground, single-circuit 230 kV lines located in San Francisco, Daly City, and Brisbane. The project will provide an alternative transmission path to serve the customers of San Francisco in the event Martin Substation and/or the transmission lines are unavailable. The proposed Egbert Switching Station will connect with the rerouted existing Martin-Embarcadero No. 1 (HZ-1) and Jefferson-Martin 230 kV lines. The new underground, single-circuit transmission lines will extend the existing lines approximately 3.9 miles to create the proposed Egbert-Embarcadero, Jefferson-Egbert, and Martin-Egbert lines.

The proposed switching station will be located in San Francisco in an industrial area with some residential and commercial uses. The switching station will be looped into the existing HZ-1 line by constructing two line extensions within Egbert Avenue for approximately 0.4 mile for each extension. The line extensions will be spliced into the intersected existing line within the intersection of Bayshore Boulevard and Bacon Street to create two separate lines. The existing Jefferson-Martin line will be rerouted starting near the intersection of Guadalupe Canyon Parkway and Carter Street in Brisbane. The new line will extend for approximately 3.1 miles in a general northeast direction to the proposed switching station through portions of Daly City and San Francisco. The proposed line will be within city streets that mainly are adjacent to residential but with some areas of open space, park land, public, commercial, or industrial uses. In addition, construction will require staging areas, the exact locations of which will be determined at the time of construction based on availability. Figures 2.3-1 and 2.3-2 show the project vicinity and the proposed project location.

At Embarcadero, Jefferson, and Martin substations, minor indoor control room modifications will occur for protection and control of the lines rerouted from Jefferson and Embarcadero substations. PG&E will remove the HZ-1 conductors that will be isolated by the creation of the loop and will remove Jefferson-Martin 230 kV line terminal equipment within Martin Substation.

1.2 PURPOSE AND NEED AND PROJECT OBJECTIVES

The California Independent System Operator (CAISO) Board approved the proposed project based on recommendations from its staff in the 2014-15 Transmission Planning Process (CAISO, 2015). CAISO concluded that the proposed project was needed to increase the reliability and resiliency of the San Francisco Peninsula (peninsula) resulting from an extreme event that could render the electric transmission system at Martin Substation inoperable. The proposed project will provide an alternative 230 kV transmission path for the 290,000 customers of San Francisco that does not go through Martin Substation.

The objectives of the project are as follows:

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 will 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.

1.3 AGENCY AND PUBLIC OUTREACH

The project proponents met with several regulatory agencies; contacted the California Native American Heritage Commission (NAHC) for information on Native American cultural resources within the project vicinity and Native American tribes who may be interested in the proposed project; and met with the public in the vicinity.

1.3.1 AGENCY OUTREACH

The project proponents met with several regulatory agencies in the early planning stages of the project to solicit input on project design and potential environmental issues in the vicinity of the project. Table 1-1 summarizes the agency meetings that took place in development of this PEA and the CPCN application. Coordination with these agencies will continue through the project's planning process, and discretionary permits will be applied for where necessary.

No local discretionary (e.g., use) permits are required because CPUC has preemptive jurisdiction over the construction, maintenance, and operation of PG&E facilities in California. CPUC's authority does not preempt special districts, such as Air Quality Management Districts, other state agencies, or the federal government. The project proponents will obtain all ministerial building and encroachment permits from local jurisdictions, and CPUC G.O. 131-D requires the project proponents to comply with local building, design, and safety standards to the greatest degree feasible to minimize project conflicts with local conditions. The project proponents will obtain permits, approvals, and licenses, and would participate in reviews and consultations as needed with federal, state, and local agencies.

Table 1-1. Summary of Agency Meetings Conducted to Date

Agency	Outreach Dates
City and County of San Francisco – Department of Public Works	11/24/15 and 09/27/16
City and County of San Francisco – Planning Department	12/22/15 and 02/13/17
Caltrain	12/30/15
City of Brisbane – City Manager, Department of Public Works Director, Community Development Director	01/11/16, 08/23/16, and 03/06/17
City of Daly City – City Manager, Department of Public Works Director, Community Development Director	02/08/16, 09/14/16, and 03/06/17
High Speed Rail	08/05/16
City and County of San Francisco – City Administrator, Director of Real Estate, Emergency Planner	08/22/16
California Department of Transportation	09/22/16
City of Brisbane – Department of Public Works Director, Community Development Director, Chief of Police	09/22/16
City of Daly City – Department of Public Works	09/22/16
Office of City and County of San Francisco Supervisor Malia Cohen, District 10	10/24/16

1.3.2 NATIVE AMERICAN HERITAGE COMMISSION AND TRIBAL OUTREACH

Native American coordination began with the submission of a Sacred Lands file search request to the 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. The NAHC provided a list of six Native American tribes (Amah Mutsun Tribal Band, Amah Mutsun Tribal Band of Mission San Juan Bautista, North Valley Yokuts Tribe, Muwekma Ohlone Indian Tribe of the San Francisco Bay Area, The Ohlone Indian Tribe, and Indian Canyon Mutsun Band of Costanoan) who may have an interest in the proposed project. 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. NAHC and Native American tribe written correspondence is included in the PEA as Appendix C and is summarized in Table 3.5-5.

1.3.3 PUBLIC OUTREACH

PG&E held public open houses on May 22, 2017 (at the Visitacion Valley Branch Library, 201 Leland Avenue in San Francisco) and May 24, 2017 (at the Bayview Police Station, 201 Williams Street in San Francisco). PG&E sent open house invitations to mailing addresses within at least 300 feet of the proposed switching station and transmission lines. Approximately 10 members of the public attended the open houses.

1.4 SCOPE AND ORGANIZATION OF THE PEA

As required by CPUC guidelines, Appendix G of CEQA (hereafter referred to as the CEQA checklist) was used as the format for describing the setting and potential impacts of the project pursuant to CEQA. As lead agency, CPUC will review this information and will be responsible for preparing and providing public review of the environmental documents for the project, and for making final siting and project approval decisions.

This PEA is organized into five chapters with appendices. Table 1-2 identifies the location in this PEA where each item in the CPUC's *Proponent's Environmental Assessment Checklist for Transmission Line and Substation Projects* has been addressed (CPUC, 2008). If an item is not applicable or is confidential, justification is provided. For security reasons, Geographic Information System (GIS) data with Critical Energy Infrastructure Information will be submitted confidentially, although data layers may be used to prepare portable document file maps for public use.

Chapter 2.0, Project Description, of the PEA provides a detailed description of the project components and construction methods as well as project purpose and need.

Chapter 3.0, Environmental Setting and Impact Assessment Summary, describes the environmental setting, and presents an analysis of potential impacts to various categories of resources (as defined in Appendix G of the CEQA Guidelines), which may result from implementing the project. Each subsection includes a description of the regulatory context, environmental setting, resource-specific Applicant-Proposed Measures (APMs) for minimizing potential impacts, and analysis of potential impacts resulting from construction and from operation and maintenance of the project. Chapter 3.0 also addresses findings of significance, an analysis of the project's potential contribution to cumulative projects, and analysis of the project's potential for growth inducement. This chapter covers all elements of the CEQA checklist, including the following resource area sections:

- 3.1 Aesthetics
- 3.2 Agricultural and Forest Resources
- 3.3 Air Quality
- 3.4 Biological Resources
- 3.5 Cultural Resources
- 3.6 Geology and Soils
- 3.7 Greenhouse Gas Emissions
- 3.8 Hazards and Hazardous Materials
- 3.9 Hydrology and Water Quality
- 3.10 Land Use and Planning
- 3.11 Mineral Resources
- 3.12 Noise
- 3.13 Population and Housing
- 3.14 Public Services
- 3.15 Recreation
- 3.16 Transportation and Traffic
- 3.17 Utilities and Service Systems
- 3.18 Mandatory Findings of Significance, Cumulative, and Growth-Inducing Impacts

Chapter 4.0, Alternatives, describes PG&E's siting process and stakeholder outreach that were used to identify the study area, evaluate alternatives, and select the proposed project.

Chapter 5.0, List of Preparers, lists the PG&E staff and consultants who participated in the preparation of the PEA.

Appendices are as follows:

- **Appendix A**: List of Parcels within 300 Feet
- **Appendix B**: Electric and Magnetic Fields (EMF) Discussion
- **Appendix C:** Native American Heritage Commission and Native American Correspondence

1.5 CONCLUSIONS

The project was planned and engineered to avoid or minimize environmental impacts. As part of PG&E's standard construction practices, APMs have been incorporated into the project design, and will be implemented to avoid or minimize impacts to environmental resources. These APMs are identified in the respective resource sections listed above; Table 2.10-1 contains a summary list of all APMs for this project. With implementation of the proposed APMs, all potential project-related impacts will be avoided, further minimized, or reduced to a less-than-significant level. There are no known areas of controversy, and no major issues that must be resolved related to the project.

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
Chapter 1: PEA Summary	
1. The major conclusions of the PEA.	1.0
2. Any areas of controversy.	Not applicable (N/A)
3. Any major issues that must be resolved including the choice among reasonably feasible alternatives and mitigation measures, if any.	N/A
4. Description of inter-agency coordination.	CPCN Application; 1.4.1; 1.4.2
5. Description of public outreach efforts, if any.	1.4.3; CPCN Application
Chapter 2: Project Purpose and Need and Objectives	
2.1 Overview Explanation of the objective(s) and/or Purpose and Need for implementing the Proposed Project.	2.2; CPCN Application

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
2.2 Project Objectives Analysis of the reason why attainment of these objectives is necessary or desirable. Such analysis must be sufficiently detailed to inform the Commission in its independent formulation of project objectives which will aid any appropriate CEQA alternatives screening process.	2.2; CPCN Application
Chapter 3: Project Description	
3.1 Project Location	
1. Geographical Location: County, City (provide project location map(s)).	2.3 and 2.4; Figures 2.3-1, and 2.3-2
2. General Description of Land Uses within the project site (e.g., residential, commercial, agricultural, recreation, traverses vineyards, farms, open space, number of stream crossings, etc.).	2.3.1 and 3.10.3
3. Describe if the Proposed Project is located within an existing property owned by the Applicant, traverses existing rights of way (ROW) or requires new ROW. Give the approximate area of the property or the length of the project that is in an existing ROW or which requires new ROWs.	2.6
3.2 Existing System	
1. Describe the local system to which the Proposed Project relates; include all relevant information about substations, transmission lines and distribution circuits. *[**Note:** Regional system maps would remain confidential for security reasons.]*	2.3.2
2. Provide a schematic diagram and map of the existing system.	Figure 2.3-4, map within Application
3. Provide a schematic diagram that illustrates the system as it would be configured with implementation of the Proposed Project.	Figure 2.4-1
3.3 Project Objectives (Can refer to Chapter 2, Project Purpose and Need, if already described there.)	2.2
3.4 Proposed Project	
1. Describe whole of the Proposed Project. Is it an upgrade, a new line, new substations, switching station etc.?	2.1 and 2.4
2. Describe how the Proposed Project fits into the Regional system. Does it create a loop for reliability, etc.?	2.3 and 2.4
3. Describe all reasonably foreseeable future phases, or other reasonably foreseeable consequences of the Proposed Project.	2.4
4. Provide capacity increase in MW. If the project does not increase capacity, state it.	2.2.1

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
5. Provide Geographic Information System (GIS) (or equivalent) data layers for the Proposed Project preliminary engineering including estimated locations of all physical components of the Proposed Project as well as those related to construction. For physical components, this could include but is not limited to the existing components (e.g., ROW, substation locations, poles, etc.) as well as the proposed pole locations, transmission lines, substations, switching station etc. For elements related to construction include: proposed or likely lay-down areas, work areas at the pole sites, pull and tension sites, access roads (e.g., temporary, permanent, existing, etc.), areas where special construction methods may need to be employed, areas where vegetation removal may occur, areas to be heavily graded, etc. More details about this type of information are provided below.	Provided separately to CPUC staff. For security reasons, GIS data with direct or indirect Critical Energy Infrastructure Information layers will be submitted confidentially.
3.5 Project Components	
3.5.1 Transmission Line	
1. What type of line exists and what type of line is proposed (e.g., single-circuit, double-circuit, upgrade 69 kV to 115 kV).	2.5
2. Identify the length of the upgraded alignment, the new alignment, etc.	2.5
3. Would construction require one-for-one pole replacement, new poles, steel poles, etc.?	N/A
4. Describe what would occur to other lines and utilities that may be collocated on the poles to be replaced (e.g., distribution, communication, etc.).	N/A
3.5.2 Poles/Towers Provide the following information for each pole/tower that would be installed <u>and</u> for each pole/tower that would be removed:	
1. Unique ID number to match GIS database information.	N/A
2. Structure diagram and, if available, photos of existing structure. Preliminary diagram or "typical" drawings and, if possible, photos of proposed structure. Also provide a written description of the most common types of structures and their use (e.g., Tangent poles would be used when the run of poles continues in a straight line, etc.). Describe if the pole/tower design meets raptor safety requirements.	N/A
3. Type of pole (e.g., wood, steel, etc.) or tower (e.g., self-supporting lattice).	N/A
4. For poles, provide "typical" drawings with approximate diameter at the base and the tip; for towers, estimate the width at base and top.	N/A
5. Identify typical total pole lengths, the approximate length to be embedded, and the approximate length that would be above ground surface; for towers, identify the approximate height above ground surface and approximate base footprint area.	N/A
6. Describe any specialty poles or towers; note where they would be used (e.g., angle structures, heavy angle lattice towers, stub guys); make sure to note if any guying would likely be required across a road.	N/A

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
7. If the project includes pole-for-pole replacement, describe the approximate location of where the new poles would be installed relative to the existing alignment.	N/A
8. Describe any special pole types (e.g., poles that require foundations, transition towers, switch towers, microwave towers, etc.) and any special features.	N/A
3.5.3 Conductor Cable	
3.5.3.1 Above-Ground Installation	
1. Describe the type of line to be installed on the poles/tower (e.g., single circuit with distribution, double circuit, etc.).	N/A
2. Describe the number of conductors required to be installed on the poles or tower and how many on each side including applicable engineering design standards.	N/A
3. Provide the size and type of conductor (e.g., ACSR, non-specular, etc.) and insulator configuration.	N/A
4. Provide the approximate distance from the ground to the lowest conductor and the approximate distance between the conductors (i.e., both horizontally and vertically) Provide specific information at highways, rivers, or special crossings.	N/A
5. Provide the approximate span lengths between poles or towers, note where different if distribution is present or not if relevant.	N/A
6. Describe if other infrastructure would likely be collocated with the conductor (e.g., fiber optics, etc.); if so, provide conduit diameter of other infrastructure.	N/A
3.5.3.2 Below-Ground Installation	
1. Describe the type of line to be installed (e.g., single circuit cross-linked polyethylene-insulated solid-dielectric, copper-conductor cables).	2.5.2 and 2.5.3
2. Describe the type of casing the cable would be installed in (e.g., concrete-encased duct bank system); provide the dimensions of the casing.	2.5.2 and 2.5.3
3. Provide an engineering 'typical' drawing of the duct bank and describe what types of infrastructure would likely be installed within the duct bank (e.g., transmission, fiber optics, etc.).	Figures 2.5-4, 2.5-5, and 2.5-6
3.5.4 Substations and Switching Stations	
1. Provide "typical" Plan and Profile views of the proposed substation or switching station and the existing substation or switching station if applicable.	Figure 2.5-3
2. Describe the basic bus pattern or provide a basic one-line diagram and explain the types of equipment that would be temporarily or permanently installed and provide details as to what the function/use of said equipment would be. Include information such as, but not limited to: mobile substations or switching stations, switchgear, circuit breakers, transformers, capacitors, and new lighting.	2.5.1; Figure 2.5-2

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
3. Provide the approximate or "typical" dimensions (width and height) of new structures including engineering and design standards that apply.	2.5.1
4. Describe the extent of the Proposed Project. Would it occur within the existing fence line, existing property line or would either need to be expanded?	2.4
5. Describe the electrical need area served by the distribution substation or switching station.	Figure 2.3-5
3.6 Right-of-Way Requirements	
1. Describe the ROW location, ownership, and width. Would existing ROW be used or would new ROW be required?	2.6
2. If new ROW is required, describe how it would be acquired and approximately how much would be required (length and width).	2.6
3. List properties likely to require acquisition.	Table 2.6-1
3.7 Construction	
3.7.1 For All Projects	
3.7.1.1 Staging Areas	
1. Where would the main staging area(s) likely be located?	2.7.1.1; Figure 2.7-1
2. Approximately how large would the main staging area(s) be?	2.7.1.1
3. Describe any site preparation required, if known, or generally describe what might be required (i.e., vegetation removal, new access road, installation of rock base, etc.).	2.7.1.1
4. Describe what the staging area would be used for (i.e., material and equipment storage, field office, reporting location for workers, parking area for vehicles and equipment, etc.).	2.7.1.1
5. Describe how the staging area would be secured, would a fence be installed? If so, describe the type and extent of the fencing.	2.7.1.1
6. Describe how power to the site would be provided if required (i.e., tap into existing distribution, use of diesel generators, etc.).	2.7.1.1
7. Describe any grading activities and/or slope stabilization issues.	2.7.1.1
3.7.1.2 Work Areas	
1. Describe known work areas that may be required for specific construction activities (i.e., pole assembly, hill side construction, etc.).	2.7.1.2
2. For each known work area, provide the area required (include length and width) and describe the types of activities that would be performed.	2.7.1.2
3. Identify the approximate location of known work areas in the GIS database.	Provided separately to CPUC staff. Available GIS data layers will be submitted confidentially.

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
4. How would the work areas likely be accessed (e.g., construction vehicles, walk in, helicopter, etc.)?	2.7.1.2
5. If any site preparation is likely required, generally describe what and how it would be accomplished.	2.7.1.2
6. Describe any grading activities and/or slope stabilization issues.	2.7.3
7. Based on the information provided, describe how the site would be restored.	2.7.1.4, 2.7.1.6
3.7.1.3 Access Roads and/or Spur Roads	
1. Describe the types of roads that would be used and or would need to be created to implement the Proposed Project. See table below as an example of information required. Road types may include, but are not limited to: new permanent road; new temporary road; existing road that would have permanent improvements; existing road that would have temporary improvements, existing paved road; existing dirt/gravel road, and overland access.	2.7.1.3
2. For road types that require preparation, describe the methods and equipment that would be used.	N/A
3. Identify approximate location of all access roads (by type) in the GIS database.	N/A
4. Describe any grading activities and/or slope stabilization issues. See table in PEA Checklist as an example of information required. Road types may include, but are not limited to: new permanent road; new temporary road; existing road that would have permanent improvements; existing road that would have temporary improvements, existing paved road; existing dirt/gravel road, and overland access	N/A
3.7.1.4 Helicopter Access	
1. Identify which proposed poles/towers would be removed and/or installed using a helicopter.	N/A
2. If different types of helicopters are to be used, describe each type (e.g., light, heavy or sky crane) and what activities they will be used for.	N/A
3. Provide information as to where the helicopters would be staged, where they would refuel, where they would land within the Project site.	N/A
4. Describe any best management practices (BMPs) that would be employed to avoid impacts caused by use of helicopters, for example: air quality and noise considerations.	N/A
5. Describe flight paths, payloads, hours of operations for known locations and work types.	N/A

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
3.7.1.5 Vegetation Clearance	
1. Describe what types of vegetation clearing may be required (e.g., tree removal, brush removal, flammable fuels removal) and why (e.g., to provide access, etc.).	2.7.1.4
2. Identify the preliminary location and provide an approximate area of disturbance in the GIS database for each type of vegetation removal.	Provided separately to CPUC staff. Available GIS data layers will be submitted confidentially.
3. Describe how each type of vegetation removal would be accomplished.	2.7.1.4
4. For removal of trees, distinguish between tree trimming as required under GO-95D and tree removal.	N/A
5. Describe the types and approximate number and size of trees that may need to be removed.	N/A
6. Describe the type of equipment typically used.	2.7.1.4
3.7.1.6 Erosion and Sediment Control and Pollution Prevention during Construction	
1. Describe the areas of soil disturbance including estimated total areas, and associated terrain type and slope. List all known permits required. For project sites of less than one acre, outline the BMPs that would be implemented to manage surface runoff. Things to consider include, but are not limited to, the following: • Erosion and Sedimentation BMPs; • Vegetation Removal and Restoration; and/or • Hazardous Waste and Spill Prevention Plans.	2.7.1.5, 2.10, 3.4.4, 3.8.4, and 3.9.4
2. Describe any grading activities and/or slope stabilization issues.	2.7.3
3. Describe how construction waste (i.e., refuse, spoils, trash, oil, fuels, poles, pole structures, etc.) would be disposed.	2.7.1.5, 2.7.2, and 2.7.3
3.7.1.7 Cleanup and Post-Construction Restoration	
1. Describe how cleanup and post-construction restoration would be performed (i.e., personnel, equipment, and methods). Things to consider include, but are not limited to, restoration of the following: Natural drainage patterns; wetlands; vegetation, and other disturbed areas (i.e. staging areas, access roads, etc.).	2.7.1.6; Table 2.7-2
3.7.2 Transmission Line Construction (Above Ground)	
3.7.2.1 Pull and Tension Sites	
1. Provide the general or average distance between pull and tension sites.	N/A
2. Provide the area of pull and tension sites, include the estimated length and width.	N/A

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
3. According to the preliminary plan, how may pull and tension sites would be required, and where would they be located? Please provide the location information in GIS.	N/A
4. What type of equipment would be required at these sites?	N/A
5. If conductor is being replaced, how would it be removed from the site?	N/A
3.7.2.2 Pole Installation Removal	
1. Describe how the construction crews and their equipment would be transported to and from the pole site location. Provide vehicle type, number of vehicles, and estimated number of trips and hours of operation.	N/A
Pole and Foundation Removal	
1. Describe the process of how the poles and foundations would be removed.	N/A
2. Describe what happens to the hole that the pole was in (i.e., reused or backfilled)?	N/A
3. If the hole is to be filled, what type of fill would be used, where would it come from?	N/A
4. Describe any surface restoration that would occur at the pole site?	N/A
5. Describe how the poles would be removed from the site?	N/A
Top Removal If topping is required to remove a portion of an existing transmission pole that would now only carry distribution lines, please provide the following:	
1. Describe the methodology to access and remove the tops of these poles	N/A
2. Describe any special methods that would be required to top poles that may be difficult to access, etc.	N/A
Pole Tower Installation	
1. Describe the process of how the new poles/towers would be installed; specifically call out any special construction methods (e.g., helicopter installation) for specific locations or for different types of poles/towers.	N/A
2. Describe the types of equipment and their use as related to pole/tower installation.	N/A
3. Describe actions taken to maintain a safe work environment during construction (e.g., covering of holes/excavation pits, etc.).	N/A
4. Describe what would be done with soil removed from a hole/foundation site.	N/A
5. For any foundations required, provide description of construction method(s), approximate average depth and diameter of excavation, approximate volume of soil to be excavated, approximate volume of concrete or other backfill required, etc.	N/A

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
6. Describe briefly how poles/towers and associated hardware are assembled.	N/A
7. Describe how the poles/towers and associated hardware would be delivered to the site; would they be assembled off-site and brought in or assembled on site?	N/A
8. Provide a table of pole/tower installation metrics and associated disturbance area estimates as in PEA Checklist 3.7.2.2.	N/A
3.7.2.3 Conductor/Cable Installation	
1. Provide a process-based description of how new conductor/cable would be installed and how old conductor/cable would be removed, if applicable. *[**Note**, graphical representation of the general sequencing is helpful for the reader here.]*	N/A
2. Generally describe the conductor/cable splicing process.	N/A
3. If vaults are required, provide their dimensions and approximate location/spacing along the alignment.	N/A
4. Describe in what areas conductor/cable stringing/installation activities would occur.	N/A
5. Describe any safety precautions or areas where special methodology would be required (e.g., crossing roadways, stream crossing).	N/A
3.7.3 Transmission Line Construction (Below Ground)	
3.7.3.1 Trenching	
1. Describe the approximate dimensions of the trench (e.g., depth, width).	2.7.2.2
2. Describe the methodology of making the trench (e.g., saw cutter to cut the pavement, back hoe to remove, etc.).	2.7.2.2
3. Provide the total approximate cubic yardage of material to be removed from the trench, the amount to be used as backfill and the amount to subsequently be removed/disposed of off-site.	2.7.2, 2.7.3, and 3.17.4
4. Provide off-site disposal location, if known, or describe possible option(s).	3.17.3.4
5. If engineered fill would be used as backfill, provide information as to the type of engineered backfill and the amount that would be typically used (e.g., the top two feet would be filled with thermal-select backfill).	2.7.2
6. Describe if dewatering would be anticipated, if so, how the trench would be dewatered, what are the anticipated flows of the water, would there be treatment, and how would the water be disposed.	2.7.2
7. Describe the process for testing excavated soil or groundwater for the presence of pre-existing environmental contaminants that could be exposed as a result of trenching operations.	3.8.4.2

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
8. If a pre-existing hazardous waste were encountered, describe the process of removal and disposal.	3.8.4.2
9. Describe any standard BMPs that would be implemented.	APM AQ-1; GHG-1; WQ-1
3.7.3.2 Trenchless Techniques: Microtunnel, Bore and Jack, Horizontal Directional Drilling	
1. Provide the approximate location of the sending and receiving pits.	2.7.2.2; Figure 2.5-1d
2. Provide the length, width and depth of the sending and receiving pits.	2.7.2.2
3. Describe the methodology of excavating and shoring the pits.	2.7.2.2
4. Describe the methodology of the trenchless technique.	2.7.2.2
5. Provide the total cubic yardage of material to be removed from the pits, the amount to be used as backfill and the amount to subsequently be removed/disposed of off-site.	2.7.2.2
6. Describe process for safe handling of drilling mud and bore lubricants.	2.7.2.2
7. Describe process for detecting and avoiding "fracturing-out" during HDD operations.	N/A
8. Describe process for avoiding contact between drilling mud/lubricants and stream beds.	N/A
9. If engineered fill would be used as backfill, provide information as to the type of engineered backfill and the amount that would be typically used (e.g., the top two feet would be filled with thermal-select backfill).	2.7.2
10. Describe if dewatering would be anticipated, if so, how the pit would be dewatered, what are the anticipated flows of the water, would there be treatment, and how would the water be disposed.	2.7.2
11. Describe the process for testing excavated soil or groundwater for the presence of pre-existing environmental contaminants.	2.7.1.5; 2.7.2; 3.8.4.2
12. If a pre-existing hazardous waste were encountered, describe the process of removal and disposal.	2.7.2; 3.8.4.2
13. Describe any grading activities and/or slope stabilization issues.	2.7.2.2
14. Describe any standard BMPs that would be implemented.	APM AQ-1; GHG-1; WQ-1
3.7.4 Substation and Switching Station Construction	
15. Describe any earth moving activities that would be required; what type of activity and, if applicable, estimate cubic yards of materials to be reused and/or removed from the site for both site grading and foundation excavation.	2.7.3
16. Provide a conceptual landscape plan in consultation with the municipality in which the substation or switching station is located.	Figure 2.5-3

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
17. Describe any grading activities and/or slope stabilization issues.	2.7.3
18. Describe possible relocation of commercial or residential property, if any.	N/A
3.7.5 Construction Workforce and Equipment	
19. Provide the estimated number of construction crew members.	2.7.6
20. Describe the crew deployment, would crews work concurrently (i.e., multiple crews at different sites); would they be phased, etc.	2.7.6
21. Describe the different types of activities to be undertaken during construction; the number of crew members for each activity i.e. trenching, grading, etc.; and number and types of equipment expected to be used for said activity. Include a written description of the activity. See example in PEA Checklist 3.7.5.	2.7.6; Tables 2.7-1 through 2.7-3
22. Provide a list of the types of equipment expected to be used during construction of the Proposed Project as well as a brief description of the use of the equipment. See example in PEA Checklist 3.7.5.	2.7.6; Table 2.7-4
3.7.6 Construction Schedule	
23. Provide a Preliminary Project Construction Schedule; include contingencies for weather, wildlife closure periods, etc. Include Month Year, or Month Year to Month Year for each. See example in PEA Checklist 3.7.6.	2.8; Table 2.8-1
3.8 Operation and Maintenance	
1. Describe the general system monitoring and control (i.e., use of standard monitoring and protection equipment, use of circuit breakers and other line relay protection equipment, etc.).	2.9.1
2. Describe the general maintenance program of the Proposed Project, include items such as: • Timing of the inspections (i.e., monthly, every July, as needed); • Type of inspection (i.e., aerial inspection, ground inspection); and • Description of how the inspection would be implemented. Things to consider, who/how many crew members; how would they access the site (walk to site, vehicle, ATV); would new access be required; would restoration be required, etc.	2.9 and 2.9.2
3. If additional full time staff would be required for operation and/or maintenance, provide the number and for what purpose.	N/A
2.9 Applicant Proposed Measures	
1. If there are measures that the Applicant would propose to be part of the Proposed Project, please include those measures and reference plans or implementation descriptions.	2.10

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
Chapter 3: Environmental Setting *[Note: PG&E has elected to combine Environmental Setting with the impact assessment. Detailed descriptions should be limited to those resource areas which may be subject to a potentially significant impact.]*	
3.1 Aesthetics	
1. A description of the physical environment in the vicinity of the project (e.g., topography, land use patterns, biological environment, etc.)	3.1.3
• Local environment (site-specific)	3.1.3
• Regional environment	3.1.3
2. A description of the regulatory environment/context	
• Federal	3.1.2
• State	3.1.2
• Local	3.1.2
3.2 Agriculture Resources	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.2.3
• Local environment (site-specific)	3.2.3
• Regional environment	3.2.3
2. A description of the regulatory environment/context	
• Federal	3.2.2
• State	3.2.2
• Local	3.2.2
3.3 Air Quality	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.3.3
• Local environment (site-specific)	3.3.3
• Regional environment	3.3.3
2. A description of the regulatory environment/context	
• Federal	3.3.2
• State	3.3.2
• Local	3.3.2

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
3.4 Biological Resources	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.4.3
• Local environment (site-specific)	3.4.3
• Regional environment	3.4.3
2. A description of the regulatory environment/context	
• Federal	3.4.2
• State	3.4.2
• Local	3.4.2
3.5 Cultural Resources	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.5.3
• Local environment (site-specific)	3.5.3
• Regional environment	3.5.3
2. A description of the regulatory environment/context	
• Federal	3.5.2
• State	3.5.2
• Local	3.5.2
3.6 Geology, Soils and Seismic Potential	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.6.3
• Local environment (site-specific)	3.6.3
• Regional environment	3.6.3
2. A description of the regulatory environment/context	
• Federal	3.6.2
• State	3.6.2
• Local	3.6.2
3.7 Applicant Proposed Measures to address GHG Emissions	3.7.4
See the menu of suggested APMs in PEA Checklist Section 6.4 that applicants can consider. Applicants can and are encouraged to propose other GHG reducing mitigations. Priority is given to on-site and/or nearby mitigation measures. Off-site mitigation measures within California will be considered.	

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
3.8 Hazards and Hazardous Materials	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.8.3
• Local environment (site-specific)	3.8.3
• Regional environment	3.8.3
2. A description of the regulatory environment/context	
• Federal	3.8.2
• State	3.8.2
• Local	3.8.2
3.9 Hydrology and Water Quality	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.9.3
• Local environment (site-specific)	3.9.3
• Regional environment	3.9.3
2. A description of the regulatory environment/context	
• Federal	3.9.2
• State	3.9.2
• Local	3.9.2
3.10 Land Use and Planning	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.10.3
• Local environment (site-specific)	3.10.3
• Regional environment	3.10.3
2. A description of the regulatory environment/context	
• Federal	3.10.2
• State	3.10.2
• Local	3.10.2
3.11 Mineral Resources	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.11.3
• Local environment (site-specific)	3.11.3

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
• Regional environment	3.11.3
2. A description of the regulatory environment/context	
• Federal	3.11.2
• State	3.11.2
• Local	3.11.2
3.12 Noise	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.12.3
• Local environment (site-specific)	3.12.3
• Regional environment	3.12.3
2. A description of the regulatory environment/context	
• Federal	3.12.2
• State	3.12.2
• Local	3.12.2
3.13 Population and Housing	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.13.3
• Local environment (site-specific)	3.13.3
• Regional environment	3.13.3
2. A description of the regulatory environment/context	
• Federal	3.13.2
• State	3.13.2
• Local	3.13.2
3.14 Public Services	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.14.3
• Local environment (site-specific)	3.14.3
• Regional environment	3.14.3
2. A description of the regulatory environment/context	
• Federal	3.14.2

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
• State	3.14.2
• Local	3.14.2
3.15 Recreation	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.15.3
• Local environment (site-specific)	3.15.3
• Regional environment	3.15.3
2. A description of the regulatory environment/context	
• Federal	3.15.2
• State	3.15.2
• Local	3.15.2
3.16 Transportation and Traffic	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.16.3
• Local environment (site-specific)	3.16.3
• Regional environment	3.16.3
2. A description of the regulatory environment/context	
• Federal	3.16.2
• State	3.16.2
• Local	3.16.2
3.17 Utilities and Public Services	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	3.17.3
• Local environment (site-specific)	3.17.3
• Regional environment	3.17.3
2. A description of the regulatory environment/context	
• Federal	3.17.2
• State	3.17.2
• Local	3.17.2
Chapter 3: Environmental Impact Assessment Summary	

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
3.1 Aesthetics Provide visual simulations of prominent public view locations, including scenic highways to demonstrate the before and after project implementation. Additional simulations of affected private view locations are highly recommended.	3.1.3.3, Figures 3.1-3a through 3.1-7b
3.2 Agriculture Resources Identify the types of agricultural resources affected.	3.2.4.3
3.3 Air Quality	
1. Provide supporting calculations / spreadsheets / technical reports that support emission estimates in the PEA.	3.3.4.3; Table 3.3-7; supporting spreadsheets provided separately to CPUC staff.
2. Provide documentation of the location and types of sensitive receptors that could be impacted by the project (e.g., schools, hospitals, houses, etc.). Critical distances to receptors is dependent on type of construction activity.	3.3.4.3
3. Identify Project greenhouse gas (GHG) emissions as follows:	
• Quantify GHG emissions from a business as usual snapshot. That is, what the GHG emissions will be from the proposed project if no mitigations were used	3.7.4.3, Table 3.7-3
• Quantify GHG emission reductions from every Applicant Proposed Measure that is implemented. Itemize quantifications and place in a table format	3.7.4.3, Table 3.7-3
• Identify the net emissions of a project after mitigations have been applied.	3.7.4.3, Table 3.7-3
• Calculate and quantify GHG emissions (CO_2 equivalent) for the project including construction & operation.	3.3.4.3, Table 3.7-4
• Calculate and quantify the GHG reduction based on reduction measures proposed for the project.	3.3.4.3, Table 3.7-4
• Propose Applicant Proposed Measures (APMs) to implement and follow to maximize GHG reductions. If sufficient, CPUC will accept them without adding further mitigation measures.	3.7.4.2
• Discuss programs already in place to reduce GHG emissions on a system wide level. This includes Applicant's voluntary compliance with USEPA SF6 reduction program, reductions from energy efficiency, demand response, LTPP, et al.	3.7.2
3.4 Biological Resources - In addition to an impacts analysis:	
1. Provide a copy of the Wetland Delineation and supporting documentation (i.e., data sheets). If verified, provide supporting documentation. Additionally, GIS data of the wetland features should be provided as well.	N/A
2. Provide a copy of special status surveys for wildlife, botanical and aquatic species, as applicable. Any GIS data documenting locations of special-status species should be provided.	GIS data layers unavailable per CDFW licensing agreement.

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
3.5 Cultural Resources - In addition to an Impacts Analysis:	
1. Cultural Resources Report documenting a cultural resources investigation of the Proposed Project. This report should include a literature search, pedestrian survey, and Native American consultation.	Provided separately to CPUC staff. Portions of the report are confidential.
2. Provide a copy of the records found in the literature search.	Provided separately to CPUC staff. Copy of the record search is confidential.
3. Provide a copy of all letters and documentation of Native American consultation.	Appendix C
3.6 Geology, Soils and Seismic Potential - In addition to an impacts analysis:	
1. Provide a copy of geotechnical investigation if completed, including known and potential geologic hazards such as ground shaking, subsidence, liquefaction, etc.	N/A
3.7 Applicant Proposed Measures to address GHG Emissions	3.7.4.2
See the menu of suggested APMs in PEA Checklist Section 6.4 that applicants can consider. Applicants can and are encouraged to propose other GHG reducing mitigations. Priority is given to on-site and/or nearby mitigation measures. Off-site mitigation measures within California will be considered.	
3.8 Hazards and Hazardous Materials [Reference and list the documents that apply.] - In addition to an impacts analysis:	
1. Environmental Data Resources report.	Provided separately to CPUC staff.
2. Hazardous Substance Control and Emergency Response Plan.	To be provided once project is approved to align with project specific activities, materials, and areas.
3. Health and Safety Plan.	To be provided once project is approved and construction contractor(s) develop project-specific health and safety plans.
4. Worker Environmental Awareness Program (WEAP).	To be provided once project is approved to align with APMs and other project measures.
5. Describe what chemicals would be used during construction and operation of the Proposed Project. For example: fuels, etc. for construction, naphthalene to treat wood poles before installation.	3.8.4.3
3.9 Hydrology and Water Quality – In addition to an impacts analysis:	

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
1. Describe impacts to groundwater quality including increased run-off due to construction of impermeable surfaces, etc.	3.9.4.3
2. Describe impacts to surface water quality including the potential for accelerated soil erosion, downstream sedimentation, and reduced surface water quality.	3.9.4.3
3.10 Land Use and Planning - In addition to an impacts analysis:	
3. Provide GIS data of all parcels within 300' of the Proposed Project with the following data: APN number, mailing address, and parcel's physical address.	GIS data layers unavailable per licensing agreement
3.11 Mineral Resources - Data needs already specified under Chapter 3 would generally meet the data needs for this resource area.	3.11
3.12 Noise	
1. Provide long term noise estimates for operational noise (e.g., corona discharge noise, and station sources such as substations, switching stations, etc.).	3.12.5.3
3.13 Population and Housing Data needs already specified under Chapter 3 would generally meet the data needs for this resource area.	3.13
3.14 Public Services Data needs already specified under Chapter 3 would generally meet the data needs for this resource area.	3.14
3.15 Recreation Data needs already specified under Chapter 3 would generally meet the data needs for this resource area	3.15
3.16 Transportation and Traffic Describe the likely probable routes that are the subject of the traffic analysis.	3.16.3.2
1. Discuss traffic impacts resulting from construction of the Proposed Project including ongoing maintenance operations.	3.16.4.3
2. Provide a preliminary description of the traffic management plan that would be implemented during construction of the Proposed Project.	3.16.4.2
3.17 Utilities and Services Systems	
1. Describe how treated wood poles would be disposed of after removal, if applicable.	N/A
3.18 Cumulative Analysis	
1. Provide a list of projects (i.e., past, present and reasonably foreseeable future projects) within the Project Area that the applicant is involved in.	Table 3.18-2
2. Provide a list of projects that have the potential to be proximate in space and time to the Proposed Project. Agencies to be contacted include but are not limited to: the local planning agency, Caltrans, etc.	Table 3.18-2

Table 1-2. Index to CPUC PEA Requirements

CPUC PEA Requirements	PEA Section, Figure, or Table Number
3.18.6 Growth-Inducing Impacts, if Significant	
1. Provide information on the Proposed Project's growth inducing impacts, if any. The information should include, but is not necessarily limited, to the following:	
• Any economic or population growth, in the surrounding environment that will directly or indirectly, result from the Proposed Project	N/A
• Any increase in population that could further tax existing community service facilities (i.e., schools, hospitals, fire, police, etc.), that will directly or indirectly result from the Proposed Project	N/A
• Any obstacles to population growth that the Proposed Project would remove	N/A
• Any other activities, directly or indirectly encouraged or facilitated by the Proposed Project that would cause population growth that could significantly affect the environment, either individually or cumulatively	N/A
Chapter 4: Detailed Discussion of Significant Impacts *[Note: With implementation of PG&E's APMs, all impacts will be less than significant. Therefore the first two sections (6.1, Mitigation Measures Proposed to Minimize Significant Effects, and 6.2, Description of Project Alternatives and Impact Analysis) are not required.]*	
3.18.6 Growth-Inducing Impacts *[**Note**: Growth-inducing impacts are addressed in the Impact Assessment]*	
Information required to analyze the Proposed Project's effects on growth would vary depending on the type of project proposed. Generally, for transmission line projects the discussion would be fairly succinct and focus on the following:	
1. Would the Proposed Project foster economic or population growth, either directly or indirectly, in the surrounding environment?	3.13.4.3
2. Would the Proposed Project cause an increase in population that could further tax existing community service facilities (i.e., schools, hospitals, fire, police, etc.)?	3.13.4.3
3. Would the Proposed Project remove obstacles to population growth?	3.13.4.3
4. Would the Proposed Project encourage and facilitate other activities that would cause population growth that could significantly affect the environment, either individually or cumulatively?	3.13.4.3
Other Process-Related Data Needs	
1. Excel spreadsheet that includes all parcels within 300 feet of any project component with the following data: APN number, owner mailing address, and parcels physical address. *[**Note**: notice of all property owners within 300 feet is required under GO 131-D.]*	Appendix A; PEA compact disc

1.6 REFERENCES

California Independent System Operator. 2015. *2014-2015 Transmission Plan*. http://www.caiso.com/Documents/Board-Approved2014-2015TransmissionPlan.pdf. March 27.

California Public Utilities Commission (CPUC). 2008. *Proponent's Environmental Assessment Checklist for Transmission Line and Substation Projects.* http://www.cpuc.ca.gov/environment/. Working Draft. November 24.

CHAPTER 2 PROJECT DESCRIPTION

This chapter describes the Egbert Switching Station Project objectives, location, components, easement requirements, construction methods, and operation and maintenance. It also includes the anticipated permits and approvals, and the APMs that PG&E has committed to in addition to the requirements stipulated in the project permits and applicable regulations to facilitate avoidance and/or minimization of potential adverse environmental impacts. This document has been prepared in accordance with the California Public Utilities Commission's (CPUC's) *Proponent's Environmental Assessment Checklist* (CPUC, 2008).

2.1 OVERVIEW

This Proponent's Environmental Assessment (PEA) evaluates the environmental impacts associated with construction, operation, and maintenance of the project. The project includes the following components:

- **Egbert Switching Station:** a proposed switching station.
- **Jefferson-Egbert Transmission Line:** a modification to the existing Jefferson-Martin 230 kV line where the line is rerouted from the existing Martin Substation to the proposed Egbert Switching Station, creating a new line.
- **Egbert-Embarcadero and Martin-Egbert Transmission Lines**: a modification to the existing Martin-Embarcadero No. 1 (HZ-1) 230 kV line where proposed line extensions loop the proposed Egbert Switching Station through the line, creating two separate new lines.

Minor modifications to the existing Martin, Embarcadero, and Jefferson substations will be required to support the project.

2.2 PROJECT OBJECTIVES

2.2.1 PROJECT PURPOSE AND NEED

The Egbert Switching Station Project is intended to enhance the electric reliability in San Francisco and mitigate an extreme event at Martin Substation that could cause a lengthy loss of electric service. Given the significant adverse economic, safety, and convenience impacts of prolonged power outages in San Francisco, CAISO recommended construction of an alternative 230 kV path to bypass Martin Substation. The project will consist of a new 230 kV switching station located approximately 1.6 miles from Martin Substation, and re-routing two 230 kV transmission lines from Martin Substation to the new switching station. This will create another route for electrical power from the south to serve San Francisco that does not go through Martin Substation.

The project responds to the San Francisco's need for a redundant and geographically-distinct source of 230 kV power that bypasses Martin Substation. The project's need is not dependent on the load forecasts in San Francisco. The project will not provide a capacity increase.

The CAISO evaluated the reliability risk to San Francisco posed by an extreme event and recommended this project be undertaken. CAISO commenced its assessment in the 2013-2014 transmission planning cycle. "The reliability assessment focuses on whether the specific risks and circumstances regarding the San Francisco Peninsula warrant mitigation measures beyond the minimum prescribed by mandatory reliability standards and the effectiveness of various proposed solutions in mitigating the identified risks. The ISO assessment has determined that there are unique circumstances affecting the San Francisco area that form a credible basis for considering mitigations of risk of outages and of restoration times that are beyond the minimum reliability standards. The Peninsula area does have unique characteristics in the western interconnection due to the urban load center, geographic and system configuration, and potential risks with challenging restoration times for these types of events." CAISO 2013-2014 Transmission Plan at 72. As a result of CAISO's evaluation of the unique risks that the San Francisco Peninsula faces, CAISO enhanced its Planning Standards in September 2014 "to recognize that the unique characteristics of the San Francisco Peninsula form a credible basis for considering for approval of corrective action plans to mitigate the risk of outages for extreme events that are beyond the level that is applied to the rest of the ISO controlled grid." CAISO Planning Standards, § 7.1 at 7-8 (Sept. 4, 2014); see also CAISO 2014-2015 Transmission Plan at 69-70.

CAISO completed its reliability assessment of the San Francisco Peninsula in the 2014-2015 planning cycle. It summarized the basis for recommending this project as follows:

> one of the reliability-driven projects, the Martin 230 kV bus extension project, resulted from the extensive analysis of the San Francisco peninsula which had been identified by PG&E as being particularly vulnerable to lengthy outages in the event of extreme (NERC Category D) contingencies. The analysis commenced in the 2013-2014 planning cycle, and concluded in this 2014-2015 planning cycle. This work ultimately concluded that while an additional an additional supply to the peninsula would not materially impact reliability of supply or service restoration times on the peninsula, *further reinforcement of the existing system on the peninsula is necessary. One aspect, the Martin bypass, requires ISO approval* – the other aspects are more appropriately classified as capital maintenance, and are being undertaken by PG&E with the support of the ISO.

CAISO 2014-2015 Transmission Planning Process (TPP) at 2 (emphasis added). CAISO stated that the Project is "necessary to ensure compliance with NERC and ISO planning standards." *Id.* at 7; see also *id*. at 72-73. The CAISO Board of Governors unanimously approved the 2014-2015 TPP, including the Project, at its May 14, 2015 meeting.

By constructing a new 230 kV switching station in the vicinity of Martin Substation and rerouting two existing 230 kV lines into the new station, the project will provide geographically diverse redundancy to the system while mitigating the risk of an extreme event that renders Martin Substation inoperable.

2.2.2 Statement of Project Objectives

The objectives of the project are to:

1) Improve the 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, economically, and technically feasible project that minimizes environmental impacts and will 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.

2.3 PROJECT LOCATION AND EXISTING SYSTEM

The proposed Egbert Switching Station Project will include construction, operation, and maintenance of a new 230 kV switching station (Egbert Switching Station, or switching station) in San Francisco, California. The switching station will provide a geographically diverse alternative for 230 kV power between Embarcadero Substation and Jefferson Substation with the extension of two existing 230 kV lines in San Francisco, Brisbane, and Daly City. Figure 2.3-1 shows the location of the project on the northern portion of the peninsula within San Francisco and San Mateo Counties.

2.3.1 PROJECT LOCATION

The 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. The new Egbert Switching Station is proposed to be constructed on approximately 1.7 acres in San Francisco (Figure 2.3-2). The proposed switching station site is in the neighborhood of Bayview, located on the eastern side of U.S. Highway 101 (U.S. 101). This neighborhood has a mix of residential, industrial, and commercial uses. See Section 2.6 for information on property rights and right-of-way (ROW) requirements.

The project will reroute two existing underground 230 kV transmission lines currently connected to the existing Martin Substation (the existing HZ-1 line and the existing Jefferson-Martin line) to the proposed Egbert Switching Station. The existing HZ-1 line will be looped-in to Egbert Switching Station with construction of two transmission lines underground, creating a Martin-Egbert line and an Egbert-Embarcadero line. An underground transmission line extension will connect the existing underground Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. Work will also occur at PG&E's Jefferson, Embarcadero, and Martin substations. Protection and control modifications will be required at all three substations and the removal of line terminal equipment is planned at Martin Substation.

The project includes approximately 3.9 miles of new underground transmission line installed mainly in paved areas, with approximately 420 feet to be installed by trenchless technology (likely auger bore) under U.S. 101. The proposed Jefferson-Egbert line starts its bypass near the intersection of Carter Street and Guadalupe Canyon Parkway in Brisbane, and continues north along Carter Street through Daly City then northward through San Francisco streets to Mansell Avenue. Once at Mansell Avenue, the proposed Jefferson-Egbert line heads east to the

Figure 2.3-1. Project Vicinity

Figure 2.3-2. Project Location

trenchless crossing under U.S. 101. East of U.S. 101, the route turns north within Crane Avenue and continues north across private property to Egbert Switching Station. Both the proposed Egbert-Embarcadero and Martin-Egbert lines will connect the bisected HZ-1 line to the proposed Egbert Switching Station with the construction of two new approximately 0.4 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, and open space.

In addition, construction will require equipment staging and laydown areas. Fieldwork and agency coordination will be conducted in advance of finalizing the construction plan to identify appropriate staging and laydown areas in existing city streets, in warehouses, and/or on existing paved or graveled areas that are commercially available in existing locations. The precise location of some of the staging or laydown areas may depend on rental availability, specific encroachment permits, and other construction occurring in the area, and will be coordinated with the cities as appropriate. These sites will be finalized once the construction contractors have been chosen. Construction materials for the project may be stored at existing PG&E-owned properties or leased properties suitable for construction storage without physical modifications.

2.3.2 EXISTING SYSTEM

The San Francisco Peninsula has no in-area utility-scale generation making it entirely dependent on electric power imports. There are about 417,000 electric customers served by PG&E's 230 kV and 115 kV transmission systems from the south and the Trans Bay Cable (TBC) from the east (Figure 2.3-3). PG&E's transmission system is sufficient to meet the power needs on the Peninsula and within San Francisco if the TBC is out of service. The TBC cannot meet the Peninsula's or San Francisco's power needs if PG&E's transmission system is out of service.

2.3.2.1 Existing San Francisco Transmission System

Of the 417,000 customers shown on Figure 2.3-3, 290,000 customers within San Francisco are served from either Martin Substation or TBC[1]. These are the customers that will directly benefit from the proposed project. Power into Martin Substation is delivered via two underground 230 kV lines and six overhead 115 kV power lines from the south. One 230 kV line comes from Jefferson Substation (Jefferson-Martin line), and the other from San Mateo Substation (San Mateo-Martin line). The six overhead 115 kV lines that bring power into Martin Substation come from San Mateo Substation on lattice towers routed in a common corridor. The TBC is a high voltage direct current line from the East Bay and connects at PG&E's Potrero Switchyard.

Power from Martin Substation and the TBC is delivered to six San Francisco substations by PG&E's 230 kV and 115 kV underground transmission systems from PG&E's Martin Substation in Daly City. The six San Francisco substations distribute power to the 290,000 customers within San Francisco (Figure 2.3-4).

[1] The number of PG&E account holders in San Francisco served by Martin Substation undercounts the number of individuals and businesses served by the substation because many office or retail commercial buildings house multiple tenants but have only one PG&E account holder, which is usually the building owner.

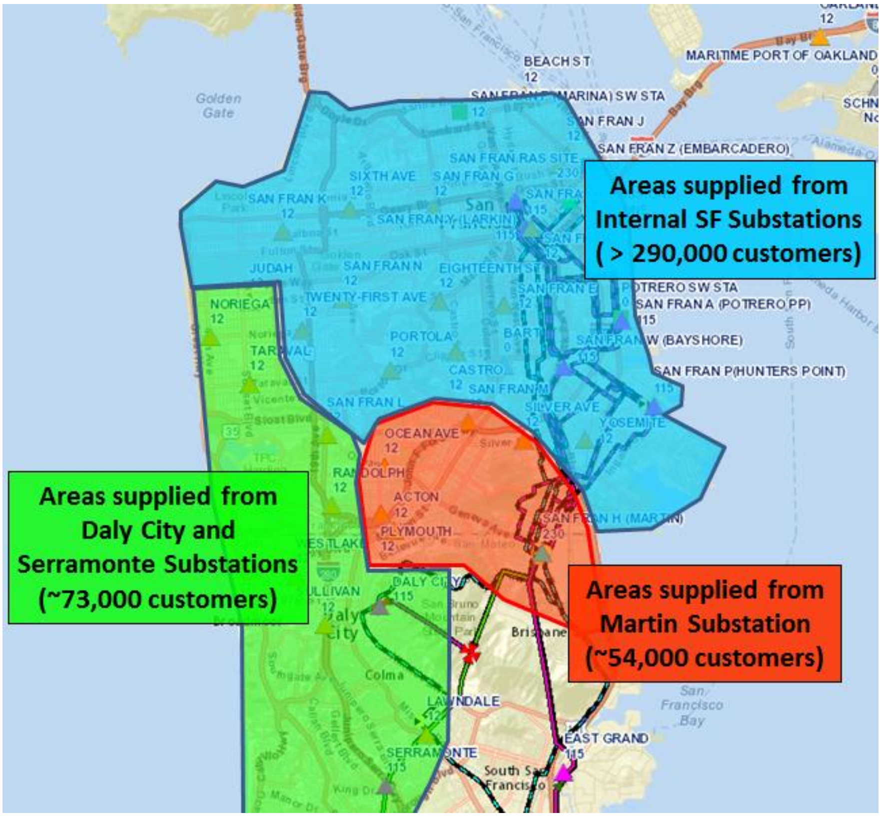


Figure 2.3-3. Areas Supplied by Martin Substation and TBC

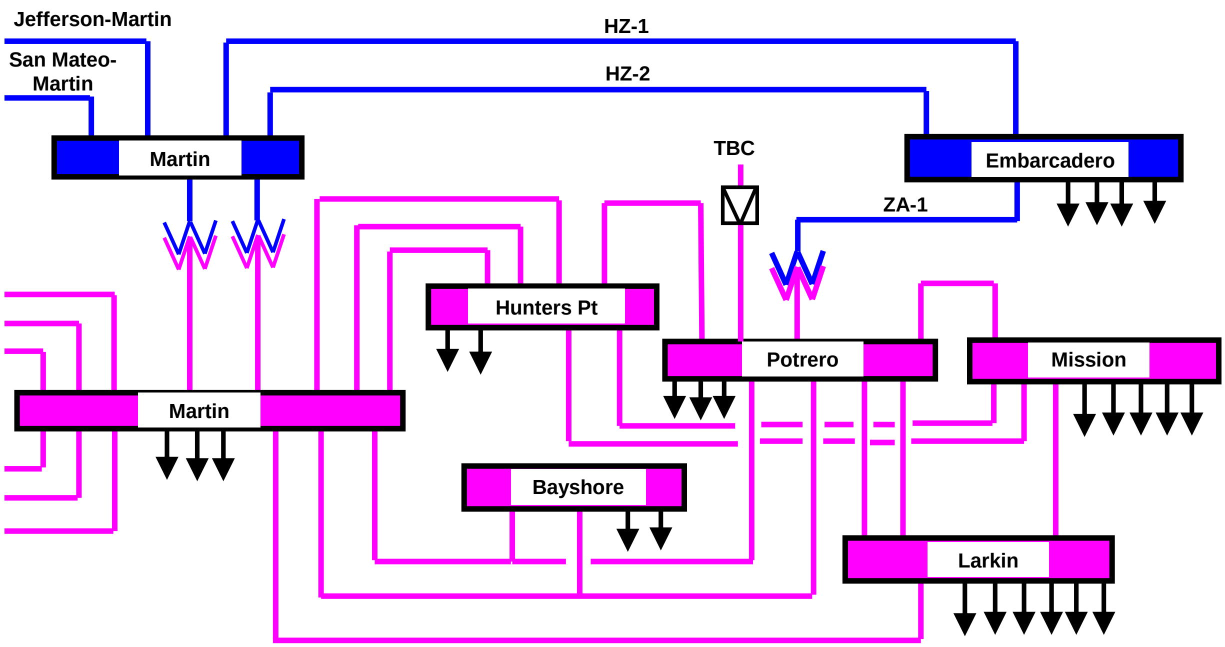
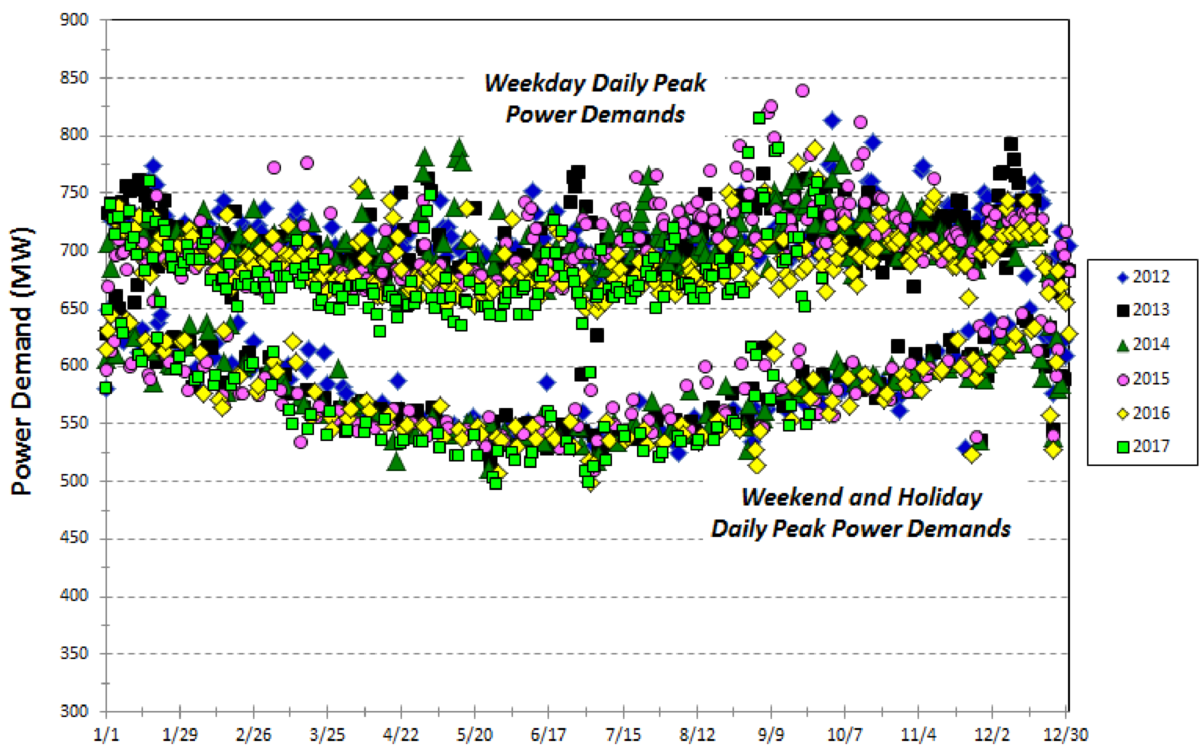


Figure 2.3-4. Electric Transmission System Serving San Francisco
(Note: 230 kV is shown in blue, 115 kV is shown in fuchsia, TBC is Trans Bay Cable, and arrows indicate distribution to customers.)

The transmission system feeding the six substations consists of three 230 kV and six 115 kV underground cables. Two of the 230 kV cables run from Martin Substation to Embarcadero Substation in San Francisco (HZ-1 and HZ-2) and are the primary source of power to Embarcadero Substation. The third cable (ZA-1) connects Embarcadero Substation to Potrero Switchyard. The six 115 kV cables connect to Potrero/Bayshore, Hunters Point, and Larkin substations and complete the connections between Martin Substation and the six substations. The two HZ cables, along with the six 115 kV cables, have sufficient capacity to supply 100 percent of the electrical needs of the six transmission-fed substations in San Francisco if the TBC is out of service.

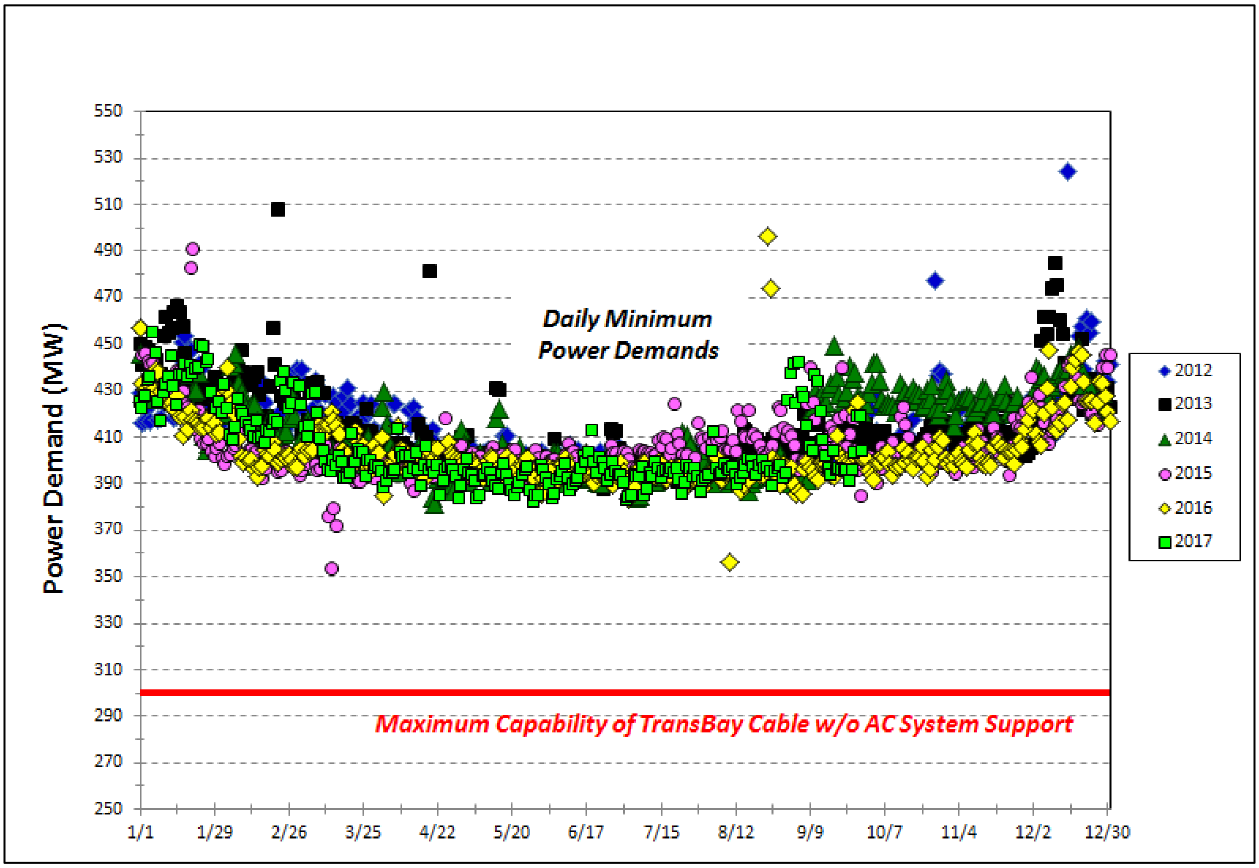
The direct current TBC uses inverters at Potrero Switchyard to convert the power to alternating current (AC). With the AC system out of service, the TBC alone can supply less than 40 percent of San Francisco's peak electrical needs on a hot day (assumes an 800-megawatt [MW] load), and less than 47 percent of San Francisco's typical weekday peak electrical load (assumes a 650-MW load). Even with the TBC operating at capacity of 400 MW,[2] Martin Substation still must deliver over 400 MW of power into San Francisco to serve peak loads, over 250 MW of power into San Francisco on a typical weekday, and over 150 MW of power on weekends (Figures 2.3-5 and 2.3-6).



Source: PG&E, 2017

Figure 2.3-5. Daily Peak Power Demands for the Six Substations within San Francisco

[2] The TBC can provide up to 400 MW when there is an AC power source at Potrero Switchyard 115 kV bus. Without AC power (e.g., loss of Martin Substation), the TBC can provide only 300 MW.



Source: PG&E, 2017

Figure 2.3-6. Daily Minimum Power Demand for the Six Substations within San Francisco

2.4 PROPOSED PROJECT

The project proposes to reroute one of the existing 230 kV lines terminating at Martin Substation to provide a 230 kV path bypassing Martin Substation. In case of a service outage of the transmission system, the proposed project will allow electric service to be routed through the rerouted line and a new switching station to San Francisco.

The new Egbert Switching Station facility is proposed to be constructed in San Francisco. The Jefferson-Martin 230 kV line will be interconnected with a new line to Egbert Switching Station, creating the proposed Jefferson-Egbert 230 kV line (Figure 2.4-1). The existing Jefferson-Martin line remnant between the point of interconnection with the new line and Martin Substation will be left in place for possible use by future transmission or distribution electrical projects. The line terminal equipment at Martin Substation will be removed once the proposed Jefferson-Egbert transmission line is in service (Figure 2.4-2).

The proposed Egbert Switching Station will be looped into the HZ-1 line, creating two new lines (i.e., the proposed Martin-Egbert and Egbert-Embarcadero 230 kV lines). To loop the switching station into the HZ-1 line, one new line will connect into the HZ-1 line heading north to Embarcadero Substation, and the other new line will connect into the HZ-1 line heading south to Martin Substation. Each of the new lines will connect to the HZ-1 line at existing HZ-1 vaults. The line remnant between the two vaults will be retired; the conductor will be removed, but the conduit is expected to be retired in place. Once completed, electrical power will be able to travel from Jefferson Substation to Embarcadero Substation without going through Martin Substation (Figure 2.4-1). The proposed Egbert Switching Station will have a space for a future bay, but it will not be installed as part of this project. No future projects requiring a new bay are currently planned.

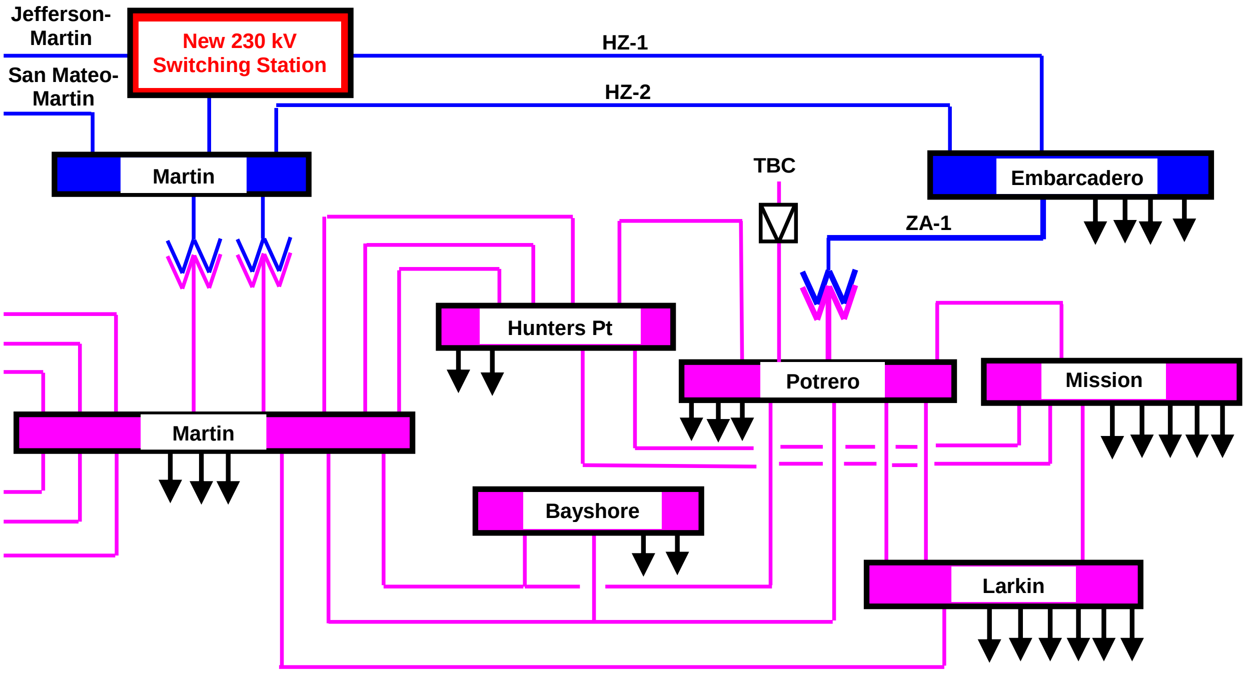


Figure 2.4-1. Proposed Transmission System
(Note: 230 kV is shown in blue, 115 kV is shown in fuchsia, TBC is Trans Bay Cable, and arrows indicate distribution to customers.)

Figure 2.4-2. Martin Substation Area

2.5 PROJECT COMPONENTS

The project involves switching station, substation, and underground transmission line construction activities consisting of the following three major elements:

1. Construct the proposed Egbert 230 kV Switching Station.

2. Extend the existing underground Jefferson-Martin 230 kV transmission line to the proposed Egbert Switching Station, creating the proposed Jefferson-Egbert 230 kV line.

3. Loop the proposed Egbert Switching Station through the existing underground HZ-1 230 kV transmission line, creating the proposed Egbert-Embarcadero 230 kV line and the proposed Martin-Egbert 230 kV line.

New transmission line lengths are expected to be installed underground; no tower or poles are expected to be installed. Table 2.5-1, Transmission Line Sections, Approximate Length, provides an approximation of line length added and removed from service as part of the project. While the majority of the new lines are expected to be open trench construction, at least one portion of the proposed Jefferson-Egbert line has been identified to be installed under U.S. 101 using trenchless technology (Section 2.5.2.2, Trenchless Crossing at U.S. 101). Figure 2.5-1 shows the proposed switching station location and transmission line routes, work area within the existing Martin Substation, and potential staging areas.

Table 2.5-1. Transmission Line Sections, Approximate Length

Transmission Line Section	Approximate Length
New 230 kV Transmission Line Construction	
Open Trench	
Proposed Jefferson-Egbert Line *Existing Jefferson-Martin Line interconnection to proposed Egbert Switching Station*	3.1 miles
Proposed Egbert-Embarcadero Line *Existing HZ-1 Line interconnection to proposed Egbert Switching Station*	0.4 mile
Proposed Martin-Egbert Line *Existing HZ-1 Line interconnection to proposed Egbert Switching Station*	0.4 mile
Trenchless	
Proposed Jefferson-Egbert Line *U.S. Highway 101 crossing*	420 feet
Total Approximate Length of New Construction	4 miles
Existing Bypassed 230 kV Transmission Line Removed from Service	
Existing Jefferson-Martin Line *Proposed Jefferson-Egbert Line interconnection to the existing Martin Substation*	2 miles
Existing HZ-1 Line Between the proposed Egbert-Embarcadero and Martin-Egbert lines interconnections	200 feet
Total Approximate Length of Line Removed from Service	2 miles

In addition, construction will require equipment staging and laydown areas as discussed in Section 2.7.1.1, Staging Areas.

The system protection scheme of the proposed Egbert-Embarcadero, Jefferson-Egbert, and Martin-Egbert lines will be coordinated within the existing control rooms at the existing Embarcadero, Jefferson, and Martin substations, respectively. Once the proposed Jefferson-Egbert line is in operation, construction will include a minor modification within the existing Martin Substation with the removal of the Jefferson-Martin line terminal equipment.

2.5.1 PROPOSED EGBERT SWITCHING STATION

The project involves construction of a new 230 kV switching station (Egbert Switching Station) to be located at 1755 Egbert Avenue, San Francisco (Figure 2.5-1e). The new 230 kV switching station will use gas-insulated switchgear (GIS) equipment. The 230 kV GIS will be configured as a breaker-and-a-half bus arrangement to accommodate the three transmission cables (from the existing Martin, Jefferson, and Embarcadero substations). Possible future use of the proposed Egbert Switching Station not associated with this project, or any currently planned project, includes use of a spare terminal and potential accommodation of up to two future 230 kV connections. An approximately 11,000-square-foot building will house the following (Figure 2.5-2):

- GIS equipment
- Modular Protection, Automation, and Control (MPAC) for control, metering, and protection
- AC and direct current station batteries systems for power backup

The GIS equipment will connect to the underground transmission cables via gas-insulated bus and through a cable-to-sulfur hexafluoride (SF_6) termination unit located outside of the building walls. The building height will be approximately 40 feet above grade to accommodate the installation, operation, and maintenance requirements of the electrical equipment. The proposed switching station's outdoor equipment includes the following Figure 2.5-2:

- 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
- Oil pump house for the proposed Egbert-Embarcadero and Martin-Egbert lines
- Station service transformer for 120/240 AC power

The series reactor connected to the proposed Jefferson-Egbert line will 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 lines will serve to mitigate the high capacitance created by the long underground transmission cables. A Spill Prevention, Control, and Countermeasure (SPCC) Plan is expected be prepared for the proposed switching station to establish procedures, methods, and equipment requirements for the

Figure 2.5-1. Detailed Site and Route Map
(6 figures, a-f)

Figure 2.5-1b Detailed Site and Route Map

Figure 2.5-1c Detailed Site and Route Map

Figure 2.5-1d Detailed Site and Route Map

Figure 2.5-1e Detailed Site and Route Map

Figure 2.5-1f Detailed Site and Route Map

Figure 2.5-2. Proposed Egbert Switching Station Site Plan

aboveground oil storage in the oil pump system (house) and shunt reactors. The series and shunt reactors will be partially enclosed to provide visual screening. The switching station site will be enclosed by a perimeter fence with vehicle and pedestrian access. Figure 2.5-3 provides conceptual views of the switching station from Egbert Avenue and from a passenger's perspective on a southbound Caltrain.

The Institute of Electrical and Electronics Engineers (IEEE) provides recommended practice for seismic design of substations. The switching station equipment will follow High Level IEEE 693 seismic design requirements. Equipment housed on a building floor above the ground level would be qualified for amplified input motions. Provisions will be made for adequate restraint and anchorage of all switching station equipment. Conventional seismic design approaches as well as base isolation technologies will be considered for protection of the building, equipment, and components.

2.5.2 PROPOSED JEFFERSON-EGBERT LINE

A new 230 kV line will be installed between an existing Jefferson-Martin line vault near the intersection of Guadalupe Canyon Parkway and Carter Street in Brisbane and the proposed Egbert Switching Station in San Francisco (Figure 2.5-1a-f).

The proposed Jefferson-Egbert line starts its bypass from the existing vault near the intersection of Carter Street and Guadalupe Canyon Parkway, and continues north along Carter Street in franchise (public ROW) along city streets. From Carter Street, the line turns west 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 line heads east to a trenchless crossing of a state of California property east of San Bruno Avenue. The trenchless line continues east across U.S. 101 to the intersection at Bayshore Boulevard and Crane Street. The line then continues north along Crane Street, crossing Paul Avenue onto privately owned properties at 400 Paul Avenue and 200 Paul Avenue, until the line terminates at the proposed Egbert Switching Station. Routing on these two parcels will be refined during final design with review of the as-built data center infrastructure at 400 Paul Avenue. When the existing Jefferson-Martin line from Jefferson Substation is spliced with the new line at the vault, the splice will create the proposed Jefferson-Egbert line (Figure 2.5-1a). The remnant of the existing Jefferson-Martin line toward Martin Substation will be removed from service by disconnecting the line at the vault. The line remnant between the vault and Martin Substation will be left in place for possible, yet unplanned, future use not associated with this project.

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

- Installing a new duct bank system with vaults located approximately every 1,800 to 2,000 feet along the length of the line

- Installing and splicing new cable and fiber optic lines to connect the Jefferson line with the proposed switching station

Figure 2.5-3. Proposed Egbert Switching Station Architectural Renderings

2.5.2.1 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 will utilize a single cable per phase 2,500 thousand circular mils (kcmil) 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 will be approximately 2 feet 9 inches wide by 2 feet 0 inches high, although typical dimensions may vary depending on soil stability and the presence of existing substructures. The duct bank will maintain a minimum 36 inches of cover (Figure 2.5-4). The duct bank will utilize four 6-inch and two 4-inch polyvinyl chloride (PVC) conduits, which will be encased in a thermal concrete casing.

Fiber optic lines for system protection and communication will be installed in the 4-inch-diameter conduits that will be installed alongside the 6-inch-diameter conduits and within the duct bank. The existing fiber optic cable that follows the existing Jefferson-Martin 230 kV underground transmission line is a 72-strand cable. A 72-strand fiber cable will be installed from the existing Jefferson-Martin 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 will 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 (Figure 2.5-5).

Most of the duct bank will be in a two-by-two duct configuration, as shown on Figure 2.5-4. 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.

2.5.2.2 Trenchless Crossing at U.S. Highway 101

Auger bore installation is the expected method for the proposed Jefferson-Egbert line to cross beneath U.S. 101. The eastern end of the crossing is located at the intersection of Bayshore Boulevard and Crane Street. The crossing will continue underneath U.S. 101 and San Bruno Street until reaching its western end, which is located to the west of the intersection of Mansell Street (westbound) and San Bruno Avenue. The total estimated length of the crossing is approximately 420 feet (Figure 2.5-1e). Other locations along the routes may be considered for trenchless technology as engineering design continues and identifies constraints such as utility congestion or other constraints where use of trenchless technology would reduce construction impacts.

2.5.3 PROPOSED EGBERT-EMBARCADERO AND MARTIN-EGBERT LINES

To create the proposed Egbert-Embarcadero and Martin-Egbert lines, two new line segments will be installed between the proposed Egbert Switching Station and the existing HZ-1 line near the intersection of Bayshore Boulevard and Bacon Street (Figure 2.5-1f). One new line will be spliced into the HZ-1 line north of the intersection in Bayshore Boulevard to create the proposed Egbert-Embarcadero line. The other line will be spliced into the HZ-1 line on the western side of

Figure 2.5-4. Typical Duct Bank, Proposed Jefferson-Egbert Line

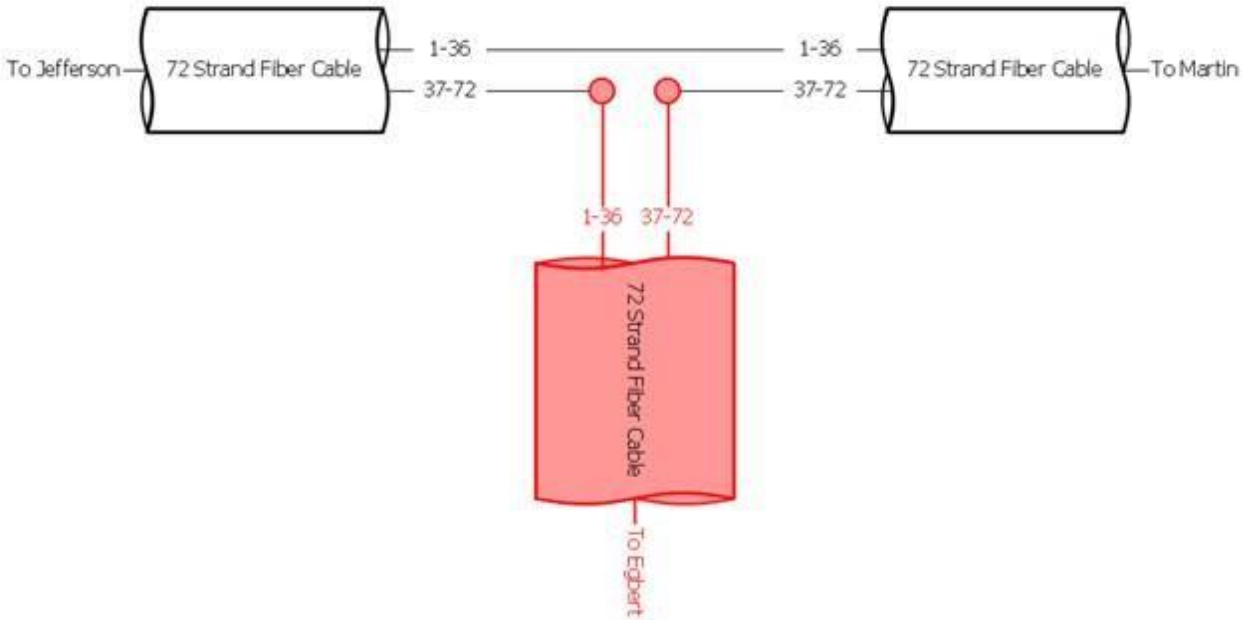


Figure 2.5-5. Fiber Optic Configuration

the Bacon Street and Bayshore Boulevard intersection to create the proposed Martin-Egbert line. The electrical interconnection with the new line extensions will occur at existing HZ-1 vaults on Bayshore Boulevard and Bacon Street, respectively. The new lines will extend to the east from the Bayshore Boulevard and Bacon Street intersection along Egbert Avenue to the proposed switching station site. At the end of the street, franchise ends and three properties (three private properties and one property owned by the state of California) are expected to be crossed to enter into the site.

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

- Installing a new duct bank system for each line with one or two vaults located on Egbert Avenue
- Installing and splicing new pipe and fiber optic lines to loop the intersected HZ-1 line into the proposed switching station

2.5.3.1 Underground Cable

To match the existing cable type and installation, the two new line extensions connecting to the HZ-1 line will utilize a single cable per phase 2,500 kcmil copper conductor, 230 kV HPFF Kraft paper insulated cable.

The dimension of the duct bank will be approximately up to 4 feet wide by 2 feet 6 inches high, and the pipe will maintain a minimum 36 inches of cover (Figure 2.5-6). The duct bank will utilize one 10-inch steel pipe and one 2-inch PVC conduit, which will be encased in a slurry or appropriate alternative such as sand. The electrical conductors will be installed in the steel pipe, and fiber optic cable will be installed in the PVC pipe.

Figure 2.5-6. Typical Duct Bank, Proposed Egbert-Embarcadero and Martin-Egbert Lines

2.5.3.2 Bypassed HZ-1 230 kV Transmission Line

The bypassed HZ-1 line remnant will be removed from service with modifications to both the existing civil and electrical interconnections. The cable, dielectric fluid, and splices will 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 utilized for other future, yet unplanned, transmission/distribution projects not associated with this project.

2.5.4 EXISTING MARTIN SUBSTATION

The project does not require installation of major equipment or construction at the existing Martin Substation. Once the proposed Egbert Switching Station is in operation and the existing Jefferson–Martin 230 kV line has been rerouted to the new switching station, the Jefferson line terminal and associated equipment at Martin Substation will be removed. Equipment modifications to Martin Substation will occur within the existing substation fence line (Figure 2.4-2). Indoor relay-related work will occur within the substation control room as necessary to coordinate with the protection and control equipment at the proposed Egbert Switching Station.

2.5.5 EXISTING EMBARCADERO AND JEFFERSON SUBSTATIONS

Minor modifications for protection and control of the rerouted existing Jefferson and Embarcadero lines are expected to occur at the existing Embarcadero and Jefferson substations. The indoor work will occur within the substation control room, and will include relay-related work to coordinate the system protection schemes.

2.6 PROPERTY RIGHTS REQUIREMENTS

The project is located primarily in franchise agreement parcels, in city streets, or on PG&E-owned property, with the exception of permanent easements required at the locations shown in Table 2.6-1, Permanent Easements Expected for Project. In accordance with PG&E's franchise agreements, no ROW acquisition is anticipated for transmission lines within public streets and California Department of Transportation (Caltrans) ROW.

Table 2.6-1. Permanent Easements Expected for Project

Property Address	Assessor's Parcel Number (APN)	Approximate Easement Dimensions
200 Paul Avenue, San Francisco	5431A-001G	25 feet wide by 220 feet long
400 Paul Avenue, San Francisco	5431A-051	25 feet wide by 950 feet long
Egbert Avenue, San Francisco	5431A-001Z	25 feet wide by 20 feet long
125 Paul Avenue, San Francisco	5431A-019	25 feet wide by 20 feet long
Egbert Avenue, San Francisco	5415-008	25 feet wide by 60 feet long
1700 Egbert Avenue, San Francisco	5415-007	25 feet wide by 125 feet long
San Bruno Avenue, San Francisco	5473-014	25 feet wide by 15 feet long

PG&E will acquire the necessary rights for the land needed to accommodate all anticipated construction work areas associated with the underground electric transmission line requirements. PG&E will obtain ministerial encroachment permits to conduct work in public ROWs in accordance with municipal requirements. PG&E will rent space or acquire temporary construction easements from private or public landowners to stage materials and equipment during construction.

PG&E plans to purchase the property in fee for the 1.7-acre switching station site at 1755 Egbert Avenue in San Francisco (APN 5431A-001A). Land entitlement issues are not part of the regulatory proceeding through which the CPUC is considering whether to grant or deny PG&E's application for a Certificate of Public Convenience and Necessity (CPCN). Rather, any land rights issues would be resolved in subsequent negotiations following the CPUC's decision on PG&E's application.

2.7 CONSTRUCTION

Construction of the project components will proceed as described in the following subsections.

2.7.1 GENERAL CONSTRUCTION CONSIDERATIONS

General considerations relevant to the construction of the project components are discussed focusing on staging areas, work areas, access roads, vegetation clearance, erosion and sediment control and pollution prevention during construction, and cleanup and post-construction restoration.

2.7.1.1 Staging Areas

Approximately one to three staging areas totaling up to approximately 15 acres will be identified for use once a construction contractor is selected. It is anticipated that most of the staging areas will 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 Daly City and San Francisco, and along Amador Street in San Francisco have been identified (Figure 2.7-1); however, specific staging area locations will 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/or spreading gravel on the 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 (Figure 2.5-1e). Typical materials that will be used for construction of the underground

Figure 2.7-1. Potential Staging Areas

conduits (such as PVC conduit, steel pipe, rebar, shoring, and cable reels) will 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 will 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.

2.7.1.2 Temporary Work Areas

The majority of the temporary work areas is expected to be located in franchise for construction of the three new transmission lines (Figure 2.5-1a-f), the proposed Egbert Switching Station (Figure 2.5-1e), within Martin Substation (Figure 2.4-2), 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 line termination equipment removal at Martin Substation will use the area within the substation adjacent to the equipment.

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

Prior to the duct bank installation, vaults will be installed approximately every 1,800 to 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 about 1,500 feet long by 12 feet wide. This workspace will include the following sequential activities:

- An active excavation or open trench, which typically extends 100 to 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 per crew depending upon 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 to 200 feet of trench will be open at any one time depending on the permitting requirements of the cities of San Francisco, Daly City, and Brisbane. Final lane closure plans will be determined following detailed investigations into existing utilities and final construction planning.

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

A trench or excavation (vault or bore pit) will be widened or shored where needed to meet California Division of Occupational Safety and Health safety requirements. A support or excavation system will be installed to maintain the integrity of the excavation and to provide a safe workspace for the assembly of the cable pipe or duct bank package, as well as to provide means for the support of any existing below-grade facilities that the proposed route crosses. The type of excavation support will likely vary throughout the project based on soil conditions, depth of water table, depth of excavation, and the existing facilities to be supported and/or avoided. Methods for excavation support may include, but are not limited to, the following:

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

The current work plan is that initially, two crews will be used for trenching of the Jefferson-Egbert line, with a crew starting at each end. As trenching nears completion on the Jefferson-Egbert line, one crew will move to begin trenching on the new line segments connecting to HZ-1. Open trenching on Egbert Avenue is expected to occur on one line at a time. Once the trenching is complete and conduit integrity is certified, final roadway restoration and any asphalt or concrete paving will be completed.

At the trenchless U.S. 101 crossing location, the eastern pit of auger bore operations will 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 will 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 will use a work area of approximately 3,000 square feet (Figure 2.5-1e). The vertical launching and receiving pits will be approximately 15 feet by 25 to 35 feet, depending on location and depth of shallow obstructions. Temporary vehicle barriers will be installed around the pits, and a temporary chain-link fence will be installed around both boring equipment work areas.

To intersect the existing HZ-1 line, work areas will be established on each side of the line before the splice areas near the intersection of Bacon Street and Bayshore Boulevard (Figure 2.5-1f). An excavation will be made over the existing line in each location to prepare to intersect the line. To manage the fluid in this HPFF line, the current work plan is to use liquid nitrogen to freeze the fluid before cutting into the line. These work areas, commonly referred to as freeze pits, will be approximately 10 by 35 feet. A small shed will be built in each work area to support the freeze monitoring. A liquid nitrogen source (truck or tank) will be staged nearby to maintain the freeze.

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

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

The remnant of the HZ-1 line will be removed from service by working at the HZ-1 splice work areas and/or existing vaults. A work area of approximately 20 by 50 feet will be established at the two existing HZ-1 vault locations to access the line to support removing the existing line remnant from service before the new line extensions are spliced.

Appropriate traffic control configuration is set up and in place ahead of construction activities, and may include traffic control cones, candles, 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 will apply for a Caltrans encroachment permit and a permit from the San Francisco Municipal Transportation Agency (SFMTA), as well as Special Traffic Permits from the cities of San Francisco, Daly City, and Brisbane. PG&E will also coordinate provisions for emergency vehicle and local access with city personnel.

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

2.7.1.3 Access Roads/Spur Roads

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

2.7.1.4 Vegetation Clearance

Transmission line portions of the project will be underground, and most work and staging areas are expected to be in city streets and paved, graveled, or ruderal areas (such as the ROW across 400 Paul Avenue). The new switching station and 400 Paul Avenue are primarily non-vegetated. These sites are composed primarily 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 is 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 line will be located in the landscaped median of Mansell Street. Landscaping within this median includes nonnative 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 will be minimized to that needed for construction; and all temporarily disturbed areas will be restored to pre-construction conditions once construction is completed. Although not anticipated, should any street trees be affected, PG&E will work with the appropriate city department for tree removal permits as required.

Any roots from trees and deep-rooted shrubs will be pruned above the transmission line duct bank to avoid interference.

2.7.1.5 Erosion and Sediment Control and Pollution Prevention During Construction

PG&E will prepare and implement an Erosion and Sediment Control Plan as part of a Stormwater Pollution Prevention Plan (SWPPP) for this project. Measures will address elements such as track-out controls, stockpile handling, dewatering discharge, drain inlet protection, and replacement of any disturbed pavement or landscaping. See Section 3.9, Hydrology and Water Quality, 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 (SWRCB). Temporary approvals for water use and discharge will be obtained as required by the construction contractor, and construction water will be disposed of in accordance with state and federal standards.

Trash will be collected in bins or appropriate containers at the job site, and will then be removed to the staging areas for off-haul to the appropriate solid waste facility. Soils are expected to be characterized in situ for disposal, and spoils and asphalt/concrete waste will be hauled off for appropriate disposal following characterization. Excavated material is not expected to be used as backfill. When necessary, clean backfill will be imported to the project area. Backfill is typically expected to be a concrete mix or slurry sourced from a local concrete supplier.

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.

2.7.1.6 Cleanup and Post-Construction Restoration

Restoration typically consists of removal of equipment and materials and covering the area disturbed by construction with gravel or re-paving, depending on the original condition of the work area. Work areas, whether vegetated or not, will be restored to conditions equal to or better than pre-construction conditions. Vegetated areas disturbed by the project may include limited street- or landscaped areas that would be replanted per agreement with the city or landowner. As part of the final construction activities, PG&E will 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.

2.7.2 UNDERGROUND TRANSMISSION LINE CONSTRUCTION

This section includes an overview of construction methods typically used for underground transmission lines, including the open trenching and trenchless methods expected for this project. Construction of underground transmission lines will 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 line crosses under U.S. 101, a trenchless technology method will be used, likely auger bore. Vehicles and equipment that are typically used to construct an underground transmission line project are listed in Section 2.7.6, Table 2.7-1, Equipment Expected to be Used During Project Construction – Transmission Line.

Table 2.7-1. 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
	Portable air compressor	3
	Dump truck	3
	Pickup truck	9
	Roller	1
	Semi-truck	2
	Concrete truck	3
	Baker (water) storage tanks	As needed
	Pumps	As needed
	Shoring boxes	Variable
	Tank trucks	As needed
Cable Installation and Splicing, including Cable Removal	Workers	22
	Pickup truck	4
	Semi-truck	1
	Cable winch	1

Table 2.7-1. Equipment Expected to be Used During Project Construction – Transmission Line

Phase/Task	Workers, Equipment	Quantity
	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

Prior to any excavation, PG&E will notify other utility companies (via the Underground Service Alert) to locate and mark existing underground structures along the proposed alignments, and will also conduct exploratory excavations (potholing) to prove the locations for proposed facilities as needed. PG&E will apply for a ministerial Excavation Permit from the cities of San Francisco, Brisbane, and 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 will be implemented to allow for certain construction activities and to maintain public safety as described in Section 3.16, Transportation and Traffic.

Materials removed during trench and trenchless excavations, having been pre-characterized, will be placed directly into trucks and will be 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 is not expected to be used as backfill. Depending on agreements in place at the time of project construction, current landfill capacity, and the results of soil characterization, the project may use Ox Mountain Sanitary Landfill, Recology Hay Road Landfill, or another appropriately approved disposal site. Currently based on soil types, approximately 5 percent of the material (1,700 cy) potentially may be hazardous material, and is therefore 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 (FTC), lime slurry, or an appropriate alternative such as sand will be used around the pipes. Controlled density fluidized thermal backfill will be above the pipes. Each material has unique properties specific to its application, while both are designed to have thermal characteristics for heat displacement. For a typical trench, the bottom 2 feet encases the conduit with FTC, or lime slurry in the case of the HPFF installations, while the remainder of the trench is filled with diggable controlled density fill to the roadway sub-base 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/or excavations at the switching station will be conducted using a pump or well points. Groundwater encountered will be sampled and characterized prior to removal and discharge as described in Section 3.9, 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 and/or disposal facility.

2.7.2.1 Open Trench

The first operation during construction of the duct bank and splice vault system will be the placement of the vaults. As these are the physically largest components of the facility to be placed underground, it is typical to have the initial construction crew excavate and place the vaults prior to the trenching and duct bank installation crew work. This process provides fixed ends for the trenching and duct bank crews to work toward, should any minor adjustments on the location of the vaults occur during construction. Once adjacent vaults are installed, trenching and duct bank installation between the vaults can begin. Cable installation will occur once the full length of the duct bank for a new line is installed.

Step 1—Vault Installation

The proposed lines will require the installation of vaults at approximately 1,800- to 2,000-foot intervals. The typical complete pre-cast vault installation usually takes 4 to 7 days, using a standard of 10 working hours per day from breaking ground to finishing grade. An approximately 28-foot-long, 12-foot-wide, and 13-foot-deep excavation will be performed using excavators. The vault excavation requires shoring components such as driven sheet piles or slide rail steel sheeting. Once the initial excavation and shoring is installed, preparation of the sub-base consists of the installation of crushed rock to level to a finished grade.

Once the vault preparation steps (i.e., excavating, shoring, and finished grade leveling) are completed, pre-cast vault sections are lifted and set using either a hydraulic or a lattice-type crane. These vaults will generally be 30 feet 6 inches long by 9 feet 2 inches wide and 9 feet 2 inches tall as depicted on Figure 2.7-2. Most vaults are expected to have two manholes for access to the cable. Vaults on the proposed Jefferson-Egbert line will have a hand hole either adjacent to, or more in-line, to allow access to the communication conduit separate from the cable conduit. With all sections of the vault set in place, backfilling can start as the shoring is removed. Once the vault is placed and backfilled, temporary road restoration work will occur.

Figure 2.7-2. Typical Vaults with Manholes

Step 2—Trenching/Duct Bank Installation

After the route is marked, the pavement within the trench line will be removed by saw cutting of the pavement (where applicable) followed by excavation of the trench. The trench excavation to install the duct bank will be approximately 4 feet 6 inches wide by 8 feet deep on average, but may occasionally be shallower (as little as 5 feet) or deeper (10 feet), depending on field conditions and the presence of other utilities. The trench dimensions for the HZ-1 line may be greater at pipe splice points to allow access for the welders.

Upon reaching final trench excavation depth, a second work crew secures the trench walls via shoring. Once the shoring process is complete for approximately 150 to 300 feet, another crew will install conduit, providing a raceway for the electrical cable. As the trench for the underground 230 kV cable is completed, a crew will install the cable conduit / pipe and encasement duct bank. The duct bank cover will measure at least 36 inches.

Where the electrical transmission duct bank crosses or runs parallel to other substructures that have operating temperatures at earth temperature, the preferred radial clearance is 24 inches; however, in some locations, a minimum radial clearance of 12 inches may be required depending on the existing utilities within the route. For example, these substructures include fiber optic lines, gas lines, telephone lines, water mains, storm lines, and sewer lines. In addition, a 5-foot-minimum radial clearance will be required where the new duct bank crosses another heat-radiating substructure at right angles. A 15-foot-minimum radial clearance will be required between the duct bank and any parallel substructure with an operating temperature significantly exceeding the normal earth temperature. Such heat-radiating facilities may include other underground transmission lines, primary distribution cables (especially multiple-circuit duct banks), steam lines, or heated oil lines.

PG&E has performed subsurface utility surveys, and will continue to identify utilities prior to final design. PG&E will evaluate the proximity of utilities and potential for induced current and/or corrosion, and in coordination with the utility-system owner, will determine whether steps are necessary to reduce the potential to induce current or cause corrosion. PG&E will take the necessary steps in coordination with those utility system owners to minimize any potential effects through measures such as increased cathodic protection or utility relocation. The steps are summarized as follows:

- During final design, PG&E prepares a study of corrosion and induced currents.
- PG&E sends results of the study to each affected owner for review and comments.
- Owners submit requirements for protection of each of their facilities.
- PG&E makes changes accordingly or compensates the owner for future protection measures, in accordance with the owner's preference.

Once the conduits are installed and backfilled, controlled density fluidized thermal backfill will be placed above the concrete that encases the conduit (or the slurry or sand that encases the pipe on the HPFF lines) and compacted. Restoration is based upon matching the roadway's existing sub-base and surface (i.e., asphalt, concrete, or a combination of both). A road base backfill or slurry concrete cap will be installed, and the road surface will be restored in compliance with the locally issued permits. While the completed trench sections are being restored, additional trench lines will be opened farther down the road. This process will continue until the entire conduit / pipe system is in place.

Step 3—Cable Pulling, Splicing, and Termination

This cable system consists of three major components: the cable, splices that connect cable sections, and terminators that connect the cable to the equipment at the substations or switching station.

Cable Pulling

A cable consists of three individual conductors (one per electrical phase) and a communication fiber optic cable. Pulling between two vaults typically takes approximately 2 to 3 days, assuming 10 working hours per day. To pull each XLPE conductor (Jefferson–Egbert Line) through the duct bank, a cable reel is placed at the end of a duct bank section in a vault, and a pulling rig is placed at the other end of the duct bank section in another vault. With a small rope called a fish line, a larger rope is pulled into the duct. The large rope is attached to pulling eyes on a conductor end, and the large rope pulls the conductor into the duct. To ease pulling tensions, a lubricant is applied to the conductor as it enters the duct. The three electric conductors and the communication cable are pulled through their individual ducts at the rate of two of the three sections between vaults per day. The XLPE system consists of three power cables, a ground conductor, and a communications cable. In this instance, a "section" would be a single cable pulled between manholes. To pull all five cables (as outlined above) between two manholes would typically be completed over approximately 2 days. New barrels of cable lubricants will have secondary containment. Used barrels will be placed into 50-gallon drums, and will be disposed of using a disposal vendor. During lubrication and oil pumping activities, construction crews will place spill containment at all locations.

For the HPFF lines (proposed Egbert-Embarcadero and Martin-Egbert lines), the pulling operation will be similar; however, all three electric cables will be pulled concurrently into a single conduit. The HPFF circuit has a pilot wire (not fiber optic) in its own smaller conduit that will be pulled separately. At the proposed Egbert Switching Station, the HPFF cable reels will be set up near the GIS equipment building, where each phase cable will be fed through the individual stainless steel riser pipe. Once the cable reaches the trifurcator (where the single 10-inch pipe converts to individual phase pipes to connect to the GIS equipment), the cables will be joined together by means of a pulling yolk, and will be pulled simultaneously.

Cable Splicing

Prior to starting the actual splicing, the vault is outfitted with steel racks to ensure that the cable splices are securely affixed to the vault's inner walls. This activity usually is completed within 2 days. A splice trailer is positioned adjacent to the vault manhole openings. A mobile power generator will be located directly behind the trailer. The vaults must be kept dry 24 hours per day to prevent water or impurities from contaminating the unfinished splices. Splicing at one vault typically takes 5 days, assuming 10 working hours per day. Therefore, installation of racking and splicing at each vault is expected to take approximately 7 days total to complete.

For the XLPE splices (proposed Jefferson-Egbert line) that tie into the existing line, the splicing operation will also include the disassembly of the existing splice and removal of the portion of cable no longer needed. Once this has been completed, the typical splicing procedure outlined above for new splices will be completed.

For the HPFF lines (proposed Egbert-Embarcadero and Martin-Egbert lines), the process will also include lowering the HPFF line pressure (from approximately 200 to 50 pounds per square inch) and freezing the dielectric fluid in the pipes on the downstream side (i.e., the side of the bifurcation point that will remain) of the existing splices. The freeze serves to create a "plug" in the existing HPFF pipe to minimize the amount of dielectric fluid to be removed between these existing splices. The freeze is established via a cooling coil circulating liquid nitrogen that is wrapped around the 10-inch steel pipe, approximately 20 feet downstream from the existing splice. The operation will require excavating the existing line pipe and establishing a freeze pit as depicted on Figure 2.7-3. The freeze pit will be excavated with traditional excavating equipment, such as a backhoe or excavator. Once the excavation is complete, excavation support will be installed. Typically, this support will consist of trench jacks and plates, or wood lagging and beams, determined based on soil conditions and groundwater table. Once the excavation is supported, a temporary wood-framed shed will be constructed over the excavation to prevent public access, as well as to provide weatherproofing. This temporary structure will have a door to provide construction personnel access to the freeze pit for on-site monitoring.

The freeze pit will require a parked nitrogen truck or tank to be located in relatively close proximity to provide a constant source of liquid nitrogen, and will require 24-hour staffing to monitor the freeze and ensure that it maintains proper operational temperatures. The total freeze time to complete the required activities (described as follows) is expected to be approximately 6 to 8 weeks.

Once the freeze has been established (typically 2 days), the existing dielectric fluid in the segment of cable between the freeze pits will be drained off into trucks and disposed of in accordance with state and federal requirements (approximately 3 days). With the dielectric fluid removed from the pipe, the existing splices will be disassembled and the cable will be removed (usually 2 weeks). Once the new 10-inch steel pipes leading to the proposed Egbert Switching Station are installed (typically 1 week), the new cable will be pulled into the pipe (typically 2 days), and the reconstruction of the existing splice can take place (typically 2 weeks). Upon completion of the splicing and terminating operations, the pipe will be filled and pressurized with dielectric fluid from a tanker truck, resulting in a total freeze time of approximately 6 weeks.

The cable for each of the three lines will continue underground into the proposed Egbert Switching Station, and will connect to a termination structure approximately 14 feet high (Figure 2.7-4). Terminating a cable takes approximately 1 week to complete.

Figure 2.7-3. Freeze Pit Layout

Figure 2.7-4. Typical 230 kV Cable Termination

2.7.2.2 Trenchless (Auger Bore)

Trenchless technology is anticipated to be used to install the portion of the line beneath U.S. 101 because of the lack of available corridors within the existing franchise. The auger bore conduit will 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, thereby 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 multi-stage 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 will 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 will be extruded by a different material casing (e.g., a pipe that is centrifugally cast, glass-fiber-reinforced, polymer mortar—commonly referred to in the industry as a HOBAS pipe), which is considered a "two-pass" installation.

Typical accuracy of auger boring is in the range of +/-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 includes the following steps:

- Excavating and shoring the launching and receiving pits.
- Inserting the auger boring rig into the launching pit.
- Advancing the auger bore casing.
- Installing the HOBAS casing, and pushing the steel boring casing out.
- Pulling fused sections of high-density polyethylene (HDPE)/Fusible PVC (FPVC) conduits into the bore holes.
- Grouting the annulus between the casing and conduits.
- Connecting the ends of HDPE pipes into the duct banks.
- Pulling the cables through the HDPE/FPVC pipes, through the duct banks, and then into the splice vaults.

- Restoring the area to pre-construction conditions.

The auger boring machine and support equipment will be readied for operation within the available temporary workspace. Plastic sheeting, or other appropriate containment, will 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 will have secondary containment. Used containers will be placed into 50-gallon drums and will be disposed of using a disposal vendor. During activities using a lubricant, construction crews will place spill containment at the location. Silt fence or other erosion control devices will be implemented around the boring equipment site. A temporary chain-link fence will be installed around the boring site.

At the eastern work zone, the auger bore pit will be located approximately 90 feet from U.S. 101 near the intersection of Bayshore Boulevard and Crane Street, which is roughly at grade with the adjacent U.S. 101. The auger bore will run underneath U.S. 101 and San Bruno Avenue for a total approximate length of 420 feet. The western work zone is located to the west of the intersection of Mansell Street (westbound) and San Bruno Avenue. The auger bore path will be installed at a depth of 12 to 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 will be protected within temporary traffic control barriers. Excavation will result in a total loose volume of approximately 425 cy, most of which will 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 will 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 shoring type will be determined by soil and groundwater conditions. Soil borings obtained during final design work will 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 will be required.

Final engineering design may indicate that trenchless construction at other locations on the proposed Jefferson-Egbert 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. 101 as described above.

2.7.2.3 Existing 230 kV Lines Remnants – Removal from Service

To accommodate the splice to create the proposed Jefferson-Egbert line, the remnant of the existing Jefferson-Martin XLPE cable will removed from service. The line remnant will 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 will be de-energized and capped at the vault work area.

Removing the HZ-1 line remnant from service will 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 HZ-1 line between the new line interconnection points. Access is expected to be from existing vaults, freeze locations, or the splice locations with the new lines described above. The steel casing pipe is anticipated to be either 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.

2.7.3 EGBERT SWITCHING STATION CONSTRUCTION

Construction of the new switching station will begin with site preparation followed by the installation of the ground grid and building and exterior equipment foundations. The construction of the building will precede the exterior equipment installation, which will then be followed by the internal equipment installation, bus work, and cabling. Final grading, paving, and exterior wall construction along with cleaning and any landscaping will occur while testing and commissioning completes. Equipment expected to be used, including duration and purpose, is provided in Table 2.7-2, Equipment Expected to be Used During Project Construction – Switching Station.

Table 2.7-2. 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	9
	Long haul dump truck	13
	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	13
	Long haul dump truck	8

Table 2.7-2. Equipment Expected to be Used During Project Construction – Switching Station

Phase/Task	Workers, Equipment	Quantity
	Compactor	1
Remaining Equipment Foundations	Workers	6
	Pickup truck	5
	Crawler backhoe	1
	Concrete truck	1
	Dump truck	2
	Compactor	1
Ground Grid and Conduits	Workers	6
	Pickup truck	5
	Crawler backhoe	1
	Trencher	1
	Dump truck	2
	Compactor	1
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
	Workers	34

Table 2.7-2. Equipment Expected to be Used During Project Construction – Switching Station

Phase/Task	Workers, Equipment	Quantity
Install GIS Equipment and Wire; Control Room and Battery Room Equipment; 230 kV Bus Work; Cable Installation; and Dress/Test/Wire Equipment	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
Cleanup and Landscaping	Workers	8
	Pickup truck	6
	Small backhoe	1
	Concrete truck	2

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 will be obtained, and construction areas will be delineated, which will include the switching station site and trenching for underground high-voltage lines leading to the switching station (Figure 2.5-1e). Public safety systems (e.g., fencing and signage) will 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 percent (or approximately 1,000 cy) of the soil may be contaminated. In situ soil characterization will occur, or spoils may be stored on-site until waste characterization is completed, before being disposed of in one or more of the facilities described in Section 3.17.

PG&E will 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 will be laid out inside the property at a depth of approximately 18 inches. The grid is typically made up of sections that average 40 by 40 feet, but the final size of the grid sections will 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, but this will not be known until the ground grid is designed based on the ground grid analysis and soil resistivity.

Step 2 — Building and Perimeter Fencing

This step includes all 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 will 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 either existing service drop or a new distribution tap from Egbert Avenue.

The expected depth of excavation on site contouring will be approximately 1 foot over 16,000 square feet. The excavation for the building, driveways, and equipment slabs will be approximately 2 feet over 36,000 square feet. Twenty-five 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 will be secured during operation by a 12-foot-high fence around the perimeter with likely two 20-foot-wide access gates. The perimeter fence will be set back 5 to 10 feet away from the property line along Egbert Avenue to provide opportunities for a new sidewalk and landscaping. The new switching station will include outdoor lighting for safety and security purposes. 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. The outdoor lighting will 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 will connect new lines to the 230 kV HPFF line (HZ-1, from Embarcadero Substation) and the 230 kV solid dielectric line (Jefferson-Martin 230 kV, from Jefferson Substation). These connections will occur via cable-to-GIS terminations located on the exterior walls of the GIS enclosure buildings. The XLPE cables (Jefferson–Egbert Line) will transition from a horizontal duct bank arrangement to a vertical installation with supporting clamps located below the terminations and GIS bus. For the HPFF lines (proposed Embarcadero–Egbert and Martin-Egbert lines), the 10-inch steel pipe will transition to a vertical arrangement. Once above grade, a trifurcator assembly will be installed to allow separation of the individual phase cables located within individual stainless steel pipes. This trifurcator assembly will also provide a connection point for the fluid pumping plant, which provides the necessary fluid pressure on the HPFF cables to maintain the required electrical insulation levels. Once the cables have been trifurcated, they will connect each cable to its GIS terminations. Above-ground interconnections will be located within the Egbert Property and proposed fence line.

Step 4 — Equipment Installation and Testing

Equipment installation will 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. All cable installation work at the switching station building will take place outside the GIS equipment building.

Step 5 — Cable Connection, Energizing, and Commissioning

Once installed, the new 230 kV cables will be connected into the new switching station equipment followed by cables being energized and final switching station tests being performed. Final site restoration (including general cleanup, final grading and/or paving, and any wall finish or exterior landscaping) is expected to occur during this step as well.

2.7.4 MARTIN SUBSTATION MODIFICATION

Construction at the existing Martin Substation will include minor modification to disconnect the Jefferson-Martin line terminal and remove its associated equipment (Figure 2.4-2). The Jefferson line terminal at Martin Substation can be removed after the proposed Egbert Switching Station facility is in operation and the Jefferson-Martin 230 kV line has been rerouted to the new switching station (e.g., when the proposed Jefferson-Egbert line is in operation). The following equipment will be removed:

- Three 230 kV single-phase series reactor
- 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 (CCVTs)
- Three 230 kV surge arresters
- Four 230 kV dead-end tubular steel structures and associated bus bars and cables
- One set of 230 kV CCVT tubular steel structures

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

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

The foundations will 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 2.7-3, Equipment Expected to be Used During Project Construction – Remote-end Substations. Approximately eight trucks trips are expected to off-haul concrete foundation material to an appropriate recycling/disposal facility.

Table 2.7-3. 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	1
	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

2.7.5 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 will be integrated into the final design and installed as part of the station construction. Also as part of the final design, the system protection equipment at Jefferson, Martin, and Embarcadero substations and the grid control centers (GCCs) will be evaluated. The equipment (relays) may require adjustments to coordinate with the new equipment or may need to be upgraded or replaced.

Simple setting adjustments may be all that is necessary 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 is required if the vintage, capability, and compatibility cannot be matched with the new equipment at the switching station.

The work will occur within the control rooms of the existing facilities, and is minor in nature. The replacement of protective relay devices is a typical operation and maintenance activity, and would be performed prior to placing the new equipment into service. 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 2.7-3, Equipment Expected to be Used During Project Construction – Remote-end Substations.

2.7.6 CONSTRUCTION WORKFORCE AND EQUIPMENT

Transmission line and switching station construction activities are expected to occur simultaneously. Different phases of the construction process will 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 force of 88 personnel. Typically, two to three crews of six to 16 construction personnel will support transmission line activities; and on average, approximately 34 construction personnel will 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 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 percent 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 along with expected crew workforce in Table 2.7-1, Equipment Expected to be Used During Project Construction – Transmission Line. Vault installation typically averages 10 days per vault. Trenching and duct bank installation duration assumes that work progresses at about 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 about 40 days within the period anticipated for the proposed Jefferson-Egbert line trenching. Trenching for the HZ-1 line loop-in is expected to start when the proposed Jefferson-Egbert line trenching is complete. Thus, cable installation for the proposed Jefferson-Egbert line will occur while trenching along Egbert Avenue occurs. Splicing the proposed Jefferson-Egbert line is expected to overlap with the Egbert Avenue trenching and cable installation. Cable splicing of the proposed Martin-Egbert and Egbert-Embarcadero lines is anticipated to conclude about the same time as the proposed Jefferson-Egbert line.

Switching station construction is anticipated to employ an average of approximately 34 construction personnel over about 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 pads construction activities. Equipment installation and cabling activities occur over an approximately 6-month period. Testing and commissioning are planned to occur during site restoration activities over an approximately 3-month period. An estimated four truck drivers are expected to support the site preparation and the site restoration phases. Equipment expected to be used during project construction is summarized by activity along with expected crew workforce in Table 2.7-2, Preliminary Construction Workforce and Equipment Use – Switching Station.

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. Also at this time, relay work at the remote-end substations (Embarcadero, Jefferson, and Martin) will 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 2.7-3, Preliminary Construction Workforce and Equipment Use – Remote-end Substations.

The equipment that will be used during project construction is outlined in Table 2.7-4, Construction Equipment Summary. This is a preliminary equipment list, and other equipment may be identified when the project design is finalized or during construction if unexpected conditions require additional and/or different equipment.

Table 2.7-4. Construction Equipment Summary

Equipment	Use
Pickup truck	Transport personnel, material, and equipment
Man lift	Lift crew to working height
Dump truck	Haul excavated materials; import backfill
Boom truck	Lift crew to working height
Mobile crane	Lift/load/move/set large equipment or materials, including vaults
Large backhoe	Excavate trenches
Small or crawler backhoe	Move materials
Small backhoe with breaker	Break concrete
Bulldozer	Move materials
Oil truck	Transport oil
Semi-truck	Haul trailers with equipment or materials
Excavator	Excavate trenches; excavate for vault installation; excavate bore pits
Hydraulic breaker for excavator	Break pavement for excavation
Sheet driver for excavator	Drives sheets for trench stability and safety
Trencher	Excavate trenches

Table 2.7-4. Construction Equipment Summary

Equipment	Use
Compactor	Compact soil
Roller	Compress new pavement on streets
Large/Front loader	Move soil and material
Portable air compressor	Provide compressed air for tools
Portable/Mobile generator	Gas-powered equipment; power for construction
Baker (water) storage tanks	Store water pumped from trenches, if needed
Pumps	Remove water from trench, if needed
Shoring boxes	Maintain trench walls, prevent collapse of loose soils or sand
Tank trucks	Transport water from Baker tanks to process/disposal facility
Cable winch	Pulls and tension cable
Cable reel cart	Transport reels; guide cables into conduits
Auger boring machine equipment	Boring for cable installation
Welding machine	Join metal materials such as pipe
Pavement saw cutting equipment	Cut pavement
Concrete truck	Haul and pour concrete slurry
Boom truck	Lift crew to working height
Man lift	Lift crew to working height
Forklift	Lift and move material
Rigging truck	Lift and move material
Jack hammer	Break concrete
Oil truck	Transport oil

2.8 PERMITTING AND CONSTRUCTION SCHEDULE

The estimated construction duration for the project is approximately 22 months, as shown in Table 2.8-1, Preliminary Proposed Permitting and Construction Schedule. PG&E seeks to complete construction and place the line in service by early spring 2023. 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. 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.

Table 2.8-1. Preliminary Proposed Permitting and Construction Schedule

Task Name	Proposed Schedule
CPUC/CPCN process	
CPUC conducts CEQA review, including public review	Dec 2017–Jul 2018
CPUC issues Proposed Decision, subject to public comments	Dec 2018
CPUC grants a CPCN and certifies the CEQA document	Jan 2019
Secondary permits issued by other government agencies	Aug 2019
Acquisition of land rights	Sep 2019
Materials procurement	May 2020
Construction begins	May 2020
Construction substantially completed	Dec 2021
Project operational	Feb 2022
Construction and restoration completed	Mar 2022

Note:
CEQA = California Environmental Quality Act

Construction will typically occur between 7 a.m. and 8 p.m. or during times that will be set through coordination with the city and county of San Francisco, and with the cities of Daly City and Brisbane. If trenching work will cause traffic congestion, the 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. All applicable city, county, state, federal, and railroad regulation, ordinances, and restrictions will be identified and complied with prior to and during construction.

2.9 OPERATION AND MAINTENANCE

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

2.9.1 MONITORING AND CONTROL

Monitoring and control functions for the new switching station facilities will be connected to the existing PG&E transmission energy management system by telecommunication circuits. The new transmission line segments will be monitored and protected by sets of relays located at each end of the line. The required constant communication between protective relays at each end will be over redundant communication paths. The relays are also connected into PG&E's Supervisory Control and Data Acquisition (SCADA) system. Any alarms resulting from relay actions will be promptly annunciated at PG&E's GCC located in Vacaville, California. In the event of an alarm, required corrective actions can be quickly initiated by operators on round-the-clock duty at the GCC.

Data collection devices for the SCADA system may include remote terminal units, microprocessor relays, data concentrators, and fault recorders. The devices will be capable of storing data for download via local and/or remote access.

2.9.2 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 needing maintenance, repair, or replacement will assure continued safe operation of the project. Existing operation and maintenance crews will access the switching station site and transmission lines on existing roads by vehicle. Aboveground components will be inspected at least annually for corrosion, equipment misalignment, loose fittings, and other common mechanical problems. The underground portion of the line will be inspected regularly from inside the vaults using a handhole or a manhole for access; therefore, inspections will not significantly disturb traffic using city streets.

Typical XLPE 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 lines and energized vaults and infrared inspection of the terminations to detect hot spots

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

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

2.10 APPLICANT-PROPOSED MEASURES

PG&E proposes to implement the APMs listed in Table 2.10-1 to avoid or further minimize potential less-than-significant project impacts. The APMs are discussed in context, with their respective environmental resources, in the APMs subsection within each resource category subsection in Chapter 3.0, Environmental Setting and Impact Assessment Summary.

Table 2.10-1. Applicant-Proposed Measures Summary Table

3.1 Aesthetics
APM Aesthetics (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.
3.2 Agricultural and Forest Resources
The project will have no impact on agricultural and forest resources, and no APMs are proposed.

Table 2.10-1. Applicant-Proposed Measures Summary Table

3.3 Air Quality

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 Table 3.3-6, 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, 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.

Table 2.10-1. Applicant-Proposed Measures Summary Table

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.

3.4 Biological Resources

APM Biological Resources (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 2.10-1. Applicant-Proposed Measures Summary Table

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 2.10-1. Applicant-Proposed Measures Summary Table

3.5 Cultural Resources

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: 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 2.10-1. Applicant-Proposed Measures Summary Table

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).
APM Paleontological Resources (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.
3.6 Geology and Soils
APM Geology and Soils (GS)-1: Appropriate Design Measures Implementation. A site-specific geotechnical investigation will be performed to develop appropriate conclusions and recommendations for final design.

Table 2.10-1. Applicant-Proposed Measures Summary Table

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
3.7 Greenhouse Gas Emissions
APM Greenhouse Gas (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 SF_6 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 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 USEPA'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.
3.8 Hazards and Hazardous Materials
APM Hazardous Materials (HM)-1: Development and Implementation of Hazardous Material and Emergency Response Procedures.

Table 2.10-1. Applicant-Proposed Measures Summary Table

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 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.

Table 2.10-1. Applicant-Proposed Measures Summary Table

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 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.
3.9 Hydrology and Water Quality
APM Water Quality (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

Table 2.10-1. Applicant-Proposed Measures Summary Table

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.
3.10 Land Use and Planning
APM Land Use (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.
3.11 Mineral Resources
The project will have no impact on mineral resources, and no APMs are proposed.

Table 2.10-1. Applicant-Proposed Measures Summary Table

3.12 Noise
APM Noise (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 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.
3.13 Population and Housing
The project will have no impact on population and housing, and no APMs are proposed.
3.14 Public Services
The project will have no impact on public services, and no APMs are proposed.

Table 2.10-1. Applicant-Proposed Measures Summary Table

3.15 Recreation
The project will have no impact on recreational resources, and no APMs are proposed.
3.16 Transportation
APM Transportation and Traffic (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 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.
3.17 Utilities and Service Systems
The project will have no impact on utilities and service systems, and no APMs are proposed.

2.11 REQUIRED APPROVALS

The CPUC is the lead agency under CEQA for this project. This PEA is being prepared as part of an application to obtain a CPCN for the project from the CPUC. Because the project will disturb more than 1 acre of land, PG&E will apply for a National Pollutant Discharge Elimination System Stormwater Construction Permit for discharges of stormwater associated with Small Linear Underground/Overhead Construction Projects (General Permit) from the SWRCB.

Caltrans will be consulted for approval and acquisition of an encroachment permit for the proposed Jefferson-Egbert line crossing U.S. 101.

PG&E will acquire the following ministerial permits from the City of San Francisco:

- Excavation Permit
- SFMTA Permit
- Special Traffic Permits
- Building Permit
- Grading Permit
- Night Noise Permits

PG&E will acquire the following ministerial permits from the cities of Brisbane and Daly City:

- Excavation Permit
- Special Traffic Permits
- Night Noise Permits

2.12 ELECTRIC AND MAGNETIC FIELDS DISCUSSION

Recognizing that there is public interest and concern regarding potential health effects from exposure to electric and magnetic fields (EMF) from power lines, this document provides some general background information in Appendix B regarding EMF. The CPUC has repeatedly recognized that EMF is not an environmental impact to be analyzed in the context of CEQA because (1) there is no agreement among scientists that EMF creates a potential health risk, and (2) there are no defined or adopted CEQA standards for defining health risk from EMF. See, for example, CPUC Decision No. 04-07-027 (July 16, 2004); Delta DPA Capacity Increase Substation Project Final Mitigated Negative Declaration and Supporting Initial Study (November 2006), A.05-06-022, Section B.1.14.1, page B-31, adopted in Decision 07-03-009 (March 1, 2007).

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

2.13 REFERENCES

California Independent System Operator. 2015. *2014-2015 Transmission Plan*. http://www.caiso.com/Documents/Board-Approved2014-2015TransmissionPlan.pdf. March 27.

CHAPTER 3 ENVIRONMENTAL SETTING AND IMPACT ASSESSMENT SUMMARY

The following sections (3.1 through 3.18) provide an assessment of environmental impacts anticipated from construction, operation, and maintenance of the project. The environmental impacts are evaluated for the following resource areas, consistent with the requirements of the California Environmental Quality Act (CEQA):

1. Aesthetics
2. Agriculture and Forest Resources
3. Air Quality
4. Biological Resources
5. Cultural Resources
6. Geology and Soils
7. Greenhouse Gas Emissions
8. Hazards and Hazardous Materials
9. Hydrology and Water Quality
10. Land Use and Planning
11. Minerals
12. Noise
13. Population and Housing
14. Public Services
15. Recreation
16. Transportation and Traffic
17. Utilities and Service Systems
18. Mandatory Findings of Significance and Cumulative Impact Analysis

Sections 3.1 through 3.18 present the environmental impact analysis for each resource area evaluated for the project. A checklist is provided at the beginning of each section to summarize the anticipated level of impact (i.e., No Impact, Less Than Significant, Less Than Significant with Mitigation Incorporated, and Potentially Significant Impact) to each resource area, according to CEQA significance criteria. Each section addresses applicable regulations, analysis methodology, environmental setting, environmental impacts, and APMs to minimize or avoid potential impacts. Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary regulations. A summary of local standards and ordinances pertaining to the resource within the project area is provided for informational purposes and to assist with the CEQA review process in each section.

The analysis concludes that impacts will be less than significant after implementation of APMs.

3.1 AESTHETICS

3.1.1 INTRODUCTION

This section describes existing conditions and potential impacts on aesthetic resources as a result of construction, operation, and maintenance of the project. The analysis concludes that impacts on aesthetic resources will be less than significant; the APMs described in Section 3.1.4.2 will further reduce the project's less-than-significant impacts on aesthetic resources.

The project's potential effects on aesthetic resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.1-1 and discussed in more detail in Section 3.1.4.

Table 3.1-1. CEQA Checklist for Aesthetics

Would the Project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

3.1.2 REGULATORY BACKGROUND AND METHODOLOGY

The following subsections describe the regulatory background related to the project area as well as the methodology used to estimate aesthetic impacts.

3.1.2.1 Regulatory Background

Federal

No federal regulations related to aesthetic or visual resources are applicable to the project.

State

California Scenic Highway Program

California's Scenic Highways Program, a provision of the Streets and Highways Code, was established by the Legislature in 1963 to preserve and enhance the natural beauty of California. The State Scenic Highway System includes highways that are either eligible for designation as scenic highways or have been designated as such. The status of a state scenic highway changes from eligible to officially designated when the local jurisdiction adopts a scenic corridor protection program, applies to the California Department of Transportation (Caltrans) for scenic highway approval, and receives the designation from Caltrans (Caltrans, 2017). A City or County may propose adding routes with outstanding scenic elements to the list of eligible highways. However, state legislation is required for a highway to be officially designated.

No designated state scenic routes are located near the project. Interstate 280 (I-280), an Eligible State Scenic Highway, lies 0.75 mile away to the west of the proposed switching station site; however, intervening buildings generally screen views of the site from this roadway.

Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the project is not subject to local discretionary regulations. This section includes a summary of local standards and ordinances pertaining to the visual character of the project area for informational purposes and to assist with the CEQA review process.

As shown on Figure 2.3-2, the project area is located within portions of the county of San Mateo, city and county of San Francisco, city of Daly City, and city of Brisbane. 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 of San Francisco. This section reviews visual resource-related policies contained in City plans and ordinances.

City of San Francisco San Francisco General Plan

Goals and policies related to the preservation of aesthetic resources in the context of new and existing development are outlined within the City's 10 Area Plans that set specific policies and guidelines for certain neighborhoods in San Francisco, in addition to General Plan Elements pertaining to recreation and open space, urban design, and transportation.

City 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 United States Highway 101 (U.S. 101) to the San Francisco waterfront.

Housing

> *POLICY 2.1. Improve the physical and social character of Third Street to make it a more livable environment.*
>
> *POLICY 5.1. Preserve and enhance the existing character of residential neighborhoods.*

Urban Design

> *POLICY 10.1 Better define Bayview's designated open space areas by enabling appropriate, quality development in surrounding areas.*

POLICY 10.2. Improve the visual quality and strengthen the pedestrian orientation of the Third Street core area.

Recreation and Open Space Element

In addition to the related neighborhood plans discussed above, the Recreation and Open Space Element of San Francisco's General Plan (San Francisco Planning Department, 2014a) includes policies that pertain to the project area. This element includes Map 03, which identifies Paul Avenue south of the site and Carroll Avenue east of the site as Proposed Green Connections. Green Connections are further discussed below.

POLICY 3.2 Establish and Implement a network of Green Connections that increases access to parks, open spaces, and the waterfront. (p. 37)

Green Connections Final Report

The Green Connections Final Report (San Francisco Planning Department, 2014b) lists streets nearby the site (Paul Avenue south of the site and Carroll Avenue east of the site) as future routes in a citywide plan. The plan includes design standards for these routes to enhance pedestrian and cyclist use.

A Green Connection is a special street or path that connects people to parks and open spaces and enhances the ecology of the street environment: routes are intended to improve access to parks for both people and wildlife. The three project goals served by these special streets are:

1) Public Health: Increase active transportation to parks;
2) Sustainability: Enhance urban ecology; and,
3) Livability: Support neighborhood stewardship and placemaking. (p. 23)

San Francisco General Plan: Urban Design Element

The Urban Design Element (San Francisco Planning Department, 2010b) includes policies regarding aesthetic considerations of development (e.g., the height of buildings). Map 4-Design Guidelines for Height of Buildings 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 1.11: Indicate the purposes of streets by means of a citywide plan for street landscaping.

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 3.3: Promote efforts to achieve high quality of design for buildings to be constructed at prominent locations.

POLICY 4.12: Install, promote and maintain landscaping in public and private areas.

POLICY 4.13: Improve pedestrian areas by providing human scale and interest.

San Francisco General Plan: Transportation Element

The Transportation Element (San Francisco Planning Department, 2010c) includes policies regarding public sidewalks and streetscape elements.

POLICY 23.3: Maintain a strong presumption against reducing sidewalk widths, eliminating crosswalks and forcing indirect crossings to accommodate automobile traffic.

POLICY 23.5: Establish and enforce a set of sidewalk zones that provides guidance for the location of all pedestrian and streetscape elements, maintains sufficient unobstructed width for passage of people, strollers and wheelchairs, consolidates raised elements in distinct areas to activate the pedestrian environment, and allows sufficient access to buildings, vehicles, and streetscape amenities.

San Francisco Municipal Code

The Municipal Code (San Francisco, City of, 2017) includes a Better Streets Policy, which presents design guidelines for creating better streets within the city.

Streetscape and Pedestrian Improvements on Existing Right-of-Ways.

(A) The Better Streets Plan shall govern design and dimensions of all pedestrian and streetscape elements, including but not limited to those elements shown in Table 1 and defined in the Better Streets Plan, on any public right-of-way.

(B) All public and private sponsors that propose or are required to make changes to any such right-of-way shall:

(i) Be consistent with the principles and guidelines for streetscape and pedestrian elements and overall streetscape design found in the Better Streets Plan.

(ii) Select streetscape elements from a City-approved palette of materials and furnishings, where applicable.

(iii) Select streetscape elements that are consistent with the overall character and materials of the corridor and district.

(iv) Follow, to the maximum extent possible, the street design guidelines set forth in the NACTO Urban Street Design Guide (2013) and the NACTO Urban Bikeway Design Guide (2014), and any subsequent editions of these Guides. (C) Street improvements shall be subject to approval by all applicable City agencies.

3.1.2.2 Methodology

The project described in Chapter 2.0, Project Description, proposes a new 230 kV switching station. The project includes three new underground 230 kV transmission line connections between the new switching station (Egbert Switching Station) and the existing Embarcadero, Jefferson, and Martin substations; the transmission lines will be located underground, will not be visible to the public, and will not affect existing visual resources. The relay-related work at Embarcadero, Jefferson and Martin substations will be within the control room, will not be visible to the public, and will not affect existing visual resources. Because work at these locations will not be visible to the public, Embarcadero and Jefferson substations are not addressed further in this section. Removal of the Jefferson-Martin line termination equipment at Martin Substation will result in a minor decrease in the amount of equipment located inside the existing perimeter wall. This reduction in the amount of visible equipment will not appreciably affect the appearance of the existing facility or existing visual resources. The proposed transmission lines and potential staging areas will 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 described in Section 2.5.1, and visual effects related to construction activities along the lines, at potential staging areas, and at Martin Substation.

The visual analysis is based on review of technical data, including proposed project maps and drawings provided by PG&E and Jensen Architects, aerial and ground-level photographs of the proposed project area, 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 proposed project area and to identify potentially affected sensitive viewing locations.

As part of the PEA aesthetics analysis, as seen from key representative public viewpoints or Key Observation Points (KOPs) (Figures 3.1-1 and 3.1-2a-g), a set of visual simulations was prepared to illustrate before and after visual conditions in the proposed switching station area (Figures 3.1-3 through 3.1-6). Four vantage points have been selected to represent close-range public viewing locations, where the proposed switching station would be most visible. Described briefly below, the simulation methods employ 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 photo log sheet notation, Global Positioning System recording, and basemap annotation. Digital aerial photographs and switching station design information supplied by PG&E provided the basis for developing a three–dimensional (3-D) computer model of the new switching station components.

Insert

Figure 3.1-1 Photograph Viewpoint Locations

Insert

Figure 3.1-2 Photographs of the Project and Vicinity

Figure 3.1-2a (1. Bay View Playground looking west
2. Third Street and Carroll Avenue transit stop looking west)

Insert

Figure 3.1-2b Photographs of the Project and Vicinity

(3. Carroll Avenue at Waterbend Apartments Community Garden looking southwest
4. Emergency access road at Waterbend Apartments looking north)

Insert

Figure 3.1-2c Photographs of the Project and Vicinity

(5. Mendell Street at Bancroft Avenue looking south
6. Williams Avenue at Caltrain overcrossing looking south)

Insert

Figure 3.1-2d Photographs of the Project and Vicinity

(7. Thornton Avenue near Florence Fang Community Garden looking south
8. Egbert Avenue at Newhall Street looking east)

Insert

Figure 3.1-2e Photographs of the Project and Vicinity

(9. Bitting Avenue near Newhall Street looking southeast
10. Bitting Avenue near Kalmanovitz Street looking southeast)

Insert

Figure 3.1-2f Photographs of the Project and Vicinity

(11. Paul Avenue near Bayshore Boulevard looking northeast
12. Paul Avenue at Caltrain overcrossing looking north)

Insert

Figure 3.1-2g Photographs of the Project and Vicinity

(13. Highway 101 looking northeast
14. Bayview Park near end of Key Avenue looking northwest)

For each simulation viewpoint, viewer location was input from global positioning system data using 5 feet as the assumed eye level. Computer "wireframe" perspective plots were overlaid on the simulation photographs to verify scale and viewpoint location. Digital visual simulation images were then produced based on computer renderings of the 3-D model combined with digital versions of the selected site photographs. The simulations are presented on Figures 3.1-3 through 3.1-6; each of these figures consists of two full-page images designated "a" and "b," with the existing views shown in the "a" figure and the "after" visual simulations shown in the "b" figure. Discussion of these simulations is included in Section 3.1.4.5.

This visual assessment employs methods based, in part, on those adopted by the United States Department of Transportation Federal Highway Administration (FHWA), and other accepted visual analysis techniques. The impact analysis describes change to existing visual resources, and assesses viewer response to that change. Central to this assessment is an evaluation of representative views from which the proposed switching station will be visible to the public. The visual impact assessment is based on evaluation of the changes to the existing visual resources that will result from construction and operation of the proposed switching station. These changes were assessed, in part, by evaluating the "after" views provided by the computer-generated visual simulations and comparing the simulations to the existing visual environment.

3.1.3 ENVIRONMENTAL SETTING

Figure 3.1-1 includes a map and an annotated aerial photograph that shows the location of the proposed Egbert Switching Station site within its urban landscape context. Regional and local landscape setting is provided in 3.1.3.1.

The proposed switching station site layout and its relationship to the immediate surroundings is shown on Figure 2.5-1e.

3.1.3.1 Regional and Local Landscape Setting

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. Situated approximately 0.8 mile west of the San Francisco southeastern waterfront, the site is at an elevation of approximately 30 feet above sea level. Topography in proximity to the site is relatively flat, while approximately 0.75 mile to the south, Bayview Park (a public access open space) rises to an elevation of approximately 400 feet. To the southwest, located approximately 1 mile from Martin Substation and approximately 3.5 miles from the proposed switching station site, the ridgeline of San Bruno Mountain reaches an elevation of approximately 1,200 feet.

In the immediate vicinity of the site, a mix of transportation corridors, industrial and warehouse facilities, and utility structures (including numerous overhead distribution power lines) interspersed with semi-detached and multi-unit residential buildings are established urban landscape features. Bordering the site's eastern perimeter is a Union Pacific Railroad (UPRR) right-of-way (ROW) that is used by Caltrain as a regional passenger transportation corridor to connect downtown San Francisco with peninsular communities. The site is approximately 750 feet west of 3rd Street, a major north-south arterial that connects San Francisco's downtown (approximately 3 miles to the north) with the city's southeastern districts. The recent introduction of light rail transit along 3rd Street with improved streetscape amenities along this corridor has coincided with increased residential development in the area, including both new construction and renovation of former industrial buildings.

Two freeways, U.S. 101 and I-280, provide connections to the southern peninsula and locations beyond and are approximately 0.25 mile to the west and approximately 0.75 mile to the northwest of the new switching station, respectively. Paralleling the eastern side of U.S. 101, Bayshore Boulevard provides access to numerous commercial enterprises surrounded by extensive open air parking to the west of the proposed switching station site. The northern perimeter of the switching station site is bordered by Egbert Avenue, a street that dead-ends at the Caltrain corridor and provides the only direct vehicular access to the site. The absence of a grade crossing at the railway corridor and security fencing along the railroad corridor restricts east-west vehicular and pedestrian movement at this location.

3.1.3.2 Project Viewshed

A project viewshed is defined as the general area from which a project is visible. For purposes of describing a project's visual setting and assessing potential visual impacts, the viewshed can be broken down into foreground, middleground, and background zones. The foreground is defined as the zone within 0.25 to 0.5 mile or less of the viewer; the middleground is defined as the zone that extends from the foreground to a maximum of 3 to 5 miles of the viewer; and the background zone extends from the middleground to infinity (United States Department of Transportation, 2015).

Viewing distance is a key factor that affects the potential degree of project visibility. Visual details generally become most apparent to the viewer when they are observed in the foreground, at a distance of 0.25 to 0.5 mile or less. For the purpose of this analysis, the potential effects on foreground viewshed conditions are emphasized, particularly those areas within 0.25 mile of the switching station site.

3.1.3.3 Visual Character and Representative Views of the Proposed Switching Station Area

This section describes the existing visual character found in the proposed switching station area. Figure 3.1-2 presents 14 photographs that show representative visual conditions and public views within the area. Figure 3.1-1 delineates the proposed switching station site and photograph viewpoint locations.

The site occupies approximately 1.7 acres at the northeastern corner of an area of industrial and commercial properties bordered by Egbert Avenue on the north, the Caltrain corridor on the east, Paul Avenue on the south, and Bayshore Boulevard on the west. An unpaved storage yard currently occupies the site, which is enclosed along its northern and eastern perimeters by continuous single-story, corrugated metal-clad shed structures, and is surrounded by chain-link fencing. Bordering the site on the south and west are industrial operations that include multi-story structures as well as open-air storage facilities and paved areas for vehicle parking. On the north, the site occupies approximately 200 feet of frontage along Egbert Avenue, across from which is a self-storage facility, with the Portola Place townhome residential development to the northwest. While limited views of the site are available from places along the heavily travelled 3rd Street and U.S. 101 corridors, open views toward the site are primarily confined to locations within a block or approximately 500 feet of the site. Longer-range views toward the site are generally constrained by intervening structures.

Photograph 1 (Figure 3.1-2) is a view toward the site taken adjacent to a children's play area within Bay View Playground, which is a 3.5-acre park that also includes a swimming pool, playground, baseball field, picnic areas, and recreation center. This location within the park is approximately 950 feet east of the site and, because of several intervening multi-story buildings situated primarily along nearby 3rd Street (seen just beyond the fence in the immediate foreground), the site is only visible through a relatively narrow opening. From this location, views toward the site are also partially obstructed by the perimeter park fence, vehicles, signage, and other streetscape elements seen in the foreground along 3rd Street.

A slightly more open view toward the site, approximately 750 feet east of the Caltrain corridor, is available from a transit stop on 3rd Street at Carroll Avenue (shown in **Photograph 2**). Taken from a slightly elevated perspective of the transit platform and approximately 200 feet southwest of the **Photograph 1** viewpoint, multi-story buildings, street trees, and vehicles along Carroll Avenue dominate foreground views toward the site. A portion of the site can be seen between the structures visible in the foreground, while a number of multi-story warehouse and commercial/office buildings are visible west of the site in the background.

The recently completed multi-story Waterbend housing development is situated just east of the Caltrain corridor approximately 175 feet from the site. As shown on **Photographs 3 and 4**, open views toward the site are possible from some outdoor areas located west and north of this residential complex. In addition, the site is visible from west-facing apartments. **Photograph 3** is a view looking west from a fenced community garden area located across from the housing complex to the north along Carroll Avenue, approximately 300 feet from the site. In the immediate foreground beyond the garden, parked cars line both sides of the street, which dead ends at the Caltrain corridor, beyond which low shed structures and fencing enclosing the site's northeastern perimeter can be seen. On the left, a multi-story concrete warehouse structure is discernible beyond the site; and on the right, multi-story residences making up the Portola Place townhome development can be seen beyond a single-story metal structure, which is part of a self-storage facility occupying the eastern perimeter of the townhome complex. **Photograph 4** is a view from the emergency access drive along the western edge of the residential complex looking northwest toward the site, visible along a low embankment beyond the Caltrain corridor. The double row of recently installed trees seen in the foreground partially blocks views toward the site and more distant views of residences to the north.

Photograph 5 is a view from the edge of an established residential development located adjacent to the eastern side of the Caltrain corridor, approximately 475 feet northeast of the site. Dominating the immediate foreground is a close-range view of the rail line and its perimeter metal security fencing. A single-story beige corrugated metal storage building borders the far side of the rail corridor, beyond which multi-story residences and industrial and commercial structures can be seen in the middle distance against the backdrop of a densely developed residential hillside. From this location, views of the site are largely obstructed by adjacent structures; however, the eastern perimeter of the site is partially visible south of the storage facility.

Photographs 6 and 7 are two open, elevated views looking south along the Caltrain corridor showing the site within the broader urban landscape context. **Photograph 6** is a view from the Williams Avenue Caltrain overcrossing, approximately 0.25 mile north of the site. An open paved surface in the foreground overlooks the rail corridor seen to the left, with multi-story residential complexes (shown in **Photographs 3 through 5**) visible beyond. In the foreground to the right are one- and two-story metal storage units that occupy a large paved self-storage facility alongside the railway and are back-dropped by the Portola Place residential development. Light-colored metal rooftops of the existing structures situated on the switching station site are discernible in the center of the view beyond the storage facility. Large-scale industrial buildings and warehouses dominate the view directly behind the site, with dense low-rise residential neighborhoods visible. Bayview Park can be seen on the upper left, and more distant undeveloped ridgelines are visible in the backdrop. **Photograph 7**, taken at slightly higher elevation, shows a view from Thornton Avenue near the northern side of the Florence Fang Asian Community Garden, approximately 1,800 feet from the site. From this vantage point and distance (although the site is discernible to the right of the railway beyond the self-storage building rooftops seen in the center of the view), and given the scale of existing buildings in the area, the site blends in with the surrounding urban landscape.

The Portola Place residential development is situated immediately north of the site, and residential views toward the site are screened or obstructed to varying degrees by intervening vegetation and structures. **Photograph 8**, taken from the southwestern edge of the residential development, is a view looking east along Egbert Avenue from the Newell Avenue intersection. The existing entry to the site is partly visible along the street beyond a two-story industrial building, and can be seen against the backdrop of the Waterbend Apartment complex situated on the far side of the Caltrain corridor. Some of the residences near the southern edge of the development directly face the site; however, as shown in **Photographs 9 and 10** taken from Bitting Avenue between Newhall Street and Kalmanovitz Street, a perimeter wall and vegetation located along the southern edge of the residential development generally obstruct views toward the site from the street.

Photographs 11 and 12 are views from two locations along Paul Avenue, which is a local street dividing the industrial-commercial developments south and west of the site from the predominantly residential neighborhoods located further south. This street also provides direct access from the Bayshore Boulevard-U.S. 101 freeway to the 3rd Street corridor, as well as areas to the east. **Photograph 11** is a view taken along Paul Avenue near the intersection of Bayshore Boulevard looking northeast, approximately 0.25 mile from the site. Set back slightly along the northern side of Paul Avenue, with mature vegetation along the street frontage, a large-scale multi-story concrete storage facility and a smaller concrete industrial building dominate the foreground. Partially visible through a gap between the two structures, the site can be seen against hillside residences at Hunters Point Ridge in the backdrop. Looking northwest where Paul Avenue crosses the Caltrain corridor, **Photograph 12** is an elevated view toward the site from approximately 1,000 feet. The multi-story Waterbend apartment complex is visible on the right; and on the left, industrial buildings and infrastructure surrounded by open pavement and chain-link fencing dominate the foreground view, while utility poles are noticeable elements along the railway ROW. From this location, a small portion of the site seen as low, light-colored structures in the center of the view is discernible against the distant backdrop of residences in the Silver Terrace neighborhood to the north.

The site is within 0.25 mile of the heavily-traveled U.S. 101 corridor; however, the site is generally not visible from this roadway corridor because of the presence of intervening structures of varying sizes, along with areas of mature vegetation that lie to the north and east of the highway. **Photograph 13**, taken from northbound U.S. 101, depicts the tall concrete storage structure seen in **Photograph 11**, along with a stand of mature trees and stockpiles of sand and gravel effectively blocking views of the site.

Photograph 14 is a view toward the site from Bayview Park, an approximately 46-acre park located on Bayview Hill approximately 0.50 mile southeast of the site. The visual character of this public park is a naturalistic, largely forested landscape with paved hiking trails offering panoramic views of the city and bay. Although not particularly noticeable, the site can be seen near the center–right of this photograph, in front of the expanse of terra cotta-colored roofs of the Portola Place residential complex, and surrounded on three sides by taller industrial and residential structures.

3.1.3.4 Potentially Affected Viewers

Accepted visual assessment methods, including those adopted by FHWA, establish sensitivity levels as a measure of public concern for changes to scenic quality. Viewer sensitivity, which is one of the criteria for evaluating visual impact significance, can be divided into high, moderate, and low categories. Factors considered in assigning a sensitivity level include viewer activity, view duration, viewing distance, adjacent land use, and special management or planning designation. According to the United States Department of Transportation Visual Impact Assessment for Highway Projects, research on the subject suggests that certain activities tend to heighten viewer awareness of visual and scenic resources, while others tend to be distracting (United States Department of Transportation, 2015). The proposed switching station viewshed includes several types of concerned viewer groups, including rail passengers, roadway motorists, residents, and recreational users.

The largest potentially affected viewer group consists of rail passengers travelling on the Caltrain passenger rail line that runs adjacent to the site. Approximately 90 passenger trains pass the site each weekday, most travelling between downtown San Francisco and locations along the southern peninsula (Caltrain, 2016). The site will primarily be seen by riders seated on the western side of train carriages, and will appear within the context of other industrial structures. While the maximum speed of Caltrain travel is 79 miles per hour (mph), train speeds near the site are estimated to be closer to 45 mph, and affected train passenger views are generally brief in duration, typically lasting a few seconds. Viewer sensitivity is considered low to moderate.

Motorists make up the second-largest viewer group, and include people traveling on 3rd Street, which is a major north-south road and local transit corridor, as well as travelers on a number of local streets. While the traffic volumes on 3rd Street are relatively high, motorist views toward the site are quite limited because of intervening buildings and vegetation. A limited number of motorists use other public streets near the site, including Egbert and Carroll Avenues to the east and west, Williams Avenue to the north, and Paul Avenue to the south. The majority of these are local residents and truck drivers accessing nearby industrial sites. Affected views are generally brief in duration, typically lasting less than 1 minute. Viewer sensitivity is considered low to moderate.

A third viewer group includes nearby residents. The closest residences are located directly across Egbert Avenue in the Portola Place townhome development, approximately 50 feet from the site. A masonry wall and planting screen most ground-level views from streets within the development; however, some two-story residences (particularly those located along the southeastern perimeter of the complex) have direct views of the site. Depending on orientation, views are also available from some apartments within multi-family 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 ROW, industrial structures and warehouses, and outdoor storage yards. Residential views tend to be long in duration, and the sensitivity of this viewer group is considered moderate to high.

A fourth viewer group includes pedestrians and bicyclists using 3rd Street and nearby urban streets, in addition to visitors at nearby parks and open space. The future improvements to pedestrian and bicycle routes under the city's Green Connections Plan may expand this group. Views toward the site from the nearest public open space, Bay View Playground, which is 800 feet to the east on 3rd Street, are largely screened by multi-story buildings. From Bayview Park, 0.5 mile away, views of the site appear within the context of an urban-industrial landscape setting, and the switching station site is not evident from San Bruno Mountain, located more than 2.5 miles away. Duration of pedestrian and recreational views ranges from brief or moderate, and the sensitivity of this viewer group is considered low to moderate.

3.1.4 Applicant-Proposed Measures and Potential Impacts

The following sections describe significance criteria for aesthetic impacts derived from Appendix G of the CEQA Guidelines, provide APMs to reduce impacts, and assess potential project-related construction and operational aesthetic impacts.

3.1.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project-related impacts on aesthetics was evaluated for each of the criteria listed in Table 3.1-1, as discussed in Section 3.1.4.3.

3.1.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

APM Aesthetics (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.

3.1.4.3 Potential Impacts

Project impacts related to aesthetics and visual resources were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

The project consists of minor modifications (removal of existing equipment) to the existing Martin Substation, construction of the new Egbert Switching Station, and extensions to two existing 230 kV transmission lines. The project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and will extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

Proposed Transmission Lines and Martin Substation Minor Modification

The proposed transmission lines will be installed underground and will include open trench construction activities in existing roadways and use of trenchless technology (likely auger bore) under U.S. 101. Construction will progress along the three lines over a total period of approximately 18 to 19 months but typically progressing at a rate of 40 linear feet per day per crew during open trenching. Equipment removal at Martin Substation may take up to 3 months. Equipment, materials, and construction personnel will be part of the landscape along the proposed transmission lines, potential staging areas, and Martin Substation during the construction phase.

During the project's operation and maintenance phase, the underground transmission lines will be accessed through manholes in vaults. Activities at Martin Substation will continue unchanged as part of the regular operation and maintenance.

Proposed Egbert Switching Station

The new 230 kV switching station is proposed to be constructed on a previously disturbed site currently occupied by an unpaved storage yard. Unlike conventional switching stations where the equipment is mostly outdoors and largely visible to the public, this switching station proposes to enclose the switchgear components in an approximately 11,000-square-foot building, while outdoor equipment (including a 230 kV series reactor, two 230 kV shunt reactors, station service voltage transformers, pump house, and their respective cable-to-air bushing connections) will be largely shielded from view by above-grade vertical visual screening enclosures. A local architectural firm has been retained to design the building and has prepared preliminary designs that enclose or screen new equipment on the site. While final design has not yet started, the conceptual and schematic designs are for a steel framed building with panels overlaid with a metal material that will match or compliment the equipment screens and fencing material. The conceptual designs have been reviewed and favorably received by San Francisco Planning Department in February 2017. The building housing the switchgear components is approximately 40 feet high to accommodate the installation, operation, and maintenance requirements of the electrical equipment. The height of the outdoor equipment enclosures ranges from 28 to 40 feet above-grade, and consists of solid as well as perforated material. In addition, a 12-foot-high perimeter security wall (metal mesh is shown in simulations but type has not been finalized) will surround much of the site perimeter, except for a portion of the site, where the new facility borders an existing industrial building on the south. Along the Egbert Avenue frontage, the wall will be set back 5 to 10 feet from the property line to allow an area for new sidewalk and will also include likely two 20-foot-wide entry gates. Including the outdoor equipment pad, the facility footprint covers an area measuring approximately 315 feet by 265 feet, or approximately 1.7 acres.

Table 3.1-2 outlines the approximate dimensions of the major switching station components.

Table 3.1-2. Approximate Dimensions of Major Components at Egbert Switching Station

Major Component	Height (feet)	Length (feet)	Width (feet)
Series reactor screen	40	120	175
Switchgear building enclosure	40	107	84
Shunt reactor fire walls and screening	28	107	54
Station service voltage transformer screen	28	55	55
Perimeter wall	12	825	-

Lighting. The new switching station will include outdoor lighting for safety and security purposes, and will be designed to avoid casting light or glare off-site. The new lighting will be operated only as needed to support security technology and safety.

Visual Change. A set of visual simulations, presented on Figures 3.1-3 through 3.1-6, documents the visual change that would occur as a result of the proposed project, and provides the basis for evaluating potential visual effects of the project on key public views. Table 3.1-3 presents an overview of the visual simulations, including viewpoint location and number, visible project change that would be seen from each of the viewpoints, and approximate viewing distance to the proposed switching station.

Figure 3.1-3a is a close-range perspective of the site, in a view looking northwest from the emergency access drive along the western edge of the Waterbend apartment complex. The existing site can be seen along a low embankment beyond the Caltrain corridor, and shows temporary structures, material stockpiles, and machinery in the open storage yard. This ground-level view approximates views available to residents of west-facing apartments within the complex. Metal security fencing and the railbed dominate the immediate foreground, and newly installed trees lining the fence partially block views of the site. Part of the adjacent gray concrete industrial warehouse can be seen on the left side.

Insert

Figure 3.1-3a. Existing View from Waterbend Apartments

Figure 3.1-3b. Visual Simulation of Proposed Project from Waterbend Apartments

Insert

Figure 3.1-4a. Existing View from Mendell Street

Figure 3.1-4b. Visual Simulation of Proposed Project from Mendell Street

Insert

Figure 3.1-5a. Existing View from Williams Avenue

Figure 3.1-5b. Visual Simulation of Proposed Project from Williams Avenue

Insert

Figure 3.1-6a. Existing View from Bitting Avenue

Figure 3.1-6b. Visual Simulation of Proposed Project from Bitting Avenue

Table 3.1-3. Summary of Simulation Views of the Proposed Switching Station Site

Viewpoint # (Figure 3.1-1)	Location	Visible Project Change	Approximate Distance to Nearest Site Element	PEA Figure Number
4	Emergency access road at Waterbend Apartments	• Eastern side of equipment building and part of upper outdoor equipment screen • Eastern perimeter wall • Removal of temporary equipment sheds and open storage yard	280 feet	3.1-3
5	Mendell Street at Bancroft Avenue	• Upper portion of equipment building • Upper and lower outdoor equipment screen • Eastern perimeter wall	500 feet	3.1-4
6	Williams Avenue overcrossing	• Upper portion of equipment building • Lower outdoor equipment screen • Part of northern perimeter wall • Removal of temporary equipment sheds	1,300 feet	3.1-5
10	Bitting Avenue near Kalmanovitz Street	• Parts of upper and lower outdoor equipment screens • Part of northern perimeter wall	260 feet	3.1-6

The Figure 3.1-3b visual simulation depicts the eastern side of the proposed switching station, seen to the right of the existing warehouse building. The simulation shows the eastern façade of the metal clad building and a portion of one of the perforated metal screening panels that shields the facility's outdoor equipment. Much of the outdoor switching station equipment is screened from view in this ground-level perspective. Additionally, portions of the proposed switching station components would be seen from some nearby, upper-level residences. As discussed under CEQA question c) below, when seen from an elevated perspective of nearby residences, the outdoor switching station equipment would generally be shielded from view. In terms of scale and appearance, the building and panels at the proposed switching station facility are compatible with those of the adjacent industrial warehouse and other structures found along the railroad ROW. It is also noted that the switching station will be built within approximately 3 years, at which time the newly planted deciduous trees seen in the foreground along the emergency access drive at the apartment complex could be taller with broader canopies. Moreover, within 5 to 10 years, these trees could provide substantial visual screening with respect to views toward the site from this location. Taken together, the project-related changes represent a minor, incremental effect that will not degrade the overall character and visual quality of the existing view.

Figure 3.1-4a and 3.1-4b portrays "before" and "after" views from Mendell Street approximately 500 feet from the site looking southwest, and represents a comparatively close-range, relatively unobstructed view toward the site seen by residents of nearby townhomes as well as being indicative of the view seen by passengers travelling the adjacent Caltrain corridor. Dominant elements in the foreground include metal security fencing, the railbed, and the corrugated metal wall of adjacent storage facility located across the railroad ROW. A multi-story industrial building and warehouse are visible directly behind the site, whose location is indicated by the outer wall of a temporary shed structure and chain-link fence covered by weedy vegetation along the railroad embankment.

The Figure 3.1-4b visual simulation depicts an open view of the northeastern corner of the proposed switching station. In this simulation, much of the northern facade along with an oblique view of the eastern façade and perimeter fence parallel to the railroad ROW is visible. The new facility's perforated metal-clad building can be seen along with horizontal screens against the backdrop of an industrial warehouse and more distant hillside residences and landscaping in the background. As seen from this vantage point, the proposed switching station (with its pronounced horizontally aligned screening components, textured metal surface, and muted color) is compatible with the existing structures situated immediately behind and in front of the facility. The similarity in terms of overall scale and form of the proposed switching station helps to visually integrate it into the surrounding urban-industrial setting; therefore, the proposed switching station does not substantially alter existing visual conditions in the area.

Figure 3.1-5a and 3.1-5b is both an existing and simulation view from Williams Avenue, looking toward the site where it crosses the Caltrain corridor approximately 0.25 mile to the north. From this open, elevated vantage point, the site can be seen in the broader Bayview urban landscape context of mixed residential and industrial-commercial elements. This location represents views seen by nearby residents of the Silver Terrace neighborhood as well as by motorists and pedestrians along Williams Avenue. On the right, metal storage units along the rail corridor embankment are prominent foreground elements, which are seen against a backdrop of the landscaped perimeter of the Portola Place residential development located to the west. The site is partially discernible on the right, including the existing shed structure rooftops, visible beyond the single-story storage building adjacent to the railroad embankment. On the left, the Waterbend apartment complex and nearby industrial lofts overlook the rail corridor just beyond the open paved area in the foreground.

The Figure 3.1-5b simulation portrays the proposed switching station and shows the Egbert Avenue frontage, including the new perforated metal-clad equipment building, elevated horizontal outdoor equipment screening structure, and perimeter fence. From this vantage point, the proposed switching station is seen against a backdrop of a larger industrial building of similar form. Additionally, the color, form, and scale of the new facility are visually consistent and compatible with the adjacent storage facility seen in the foreground. As described above and demonstrated by comparison of the existing view and post-project simulation, the visual changes associated with the proposed switching station in this location will not substantially alter existing visual conditions in the area.

Figure 3.1-6a shows a close-range view of the site from the Portola Place townhome development. This street view looks south toward the Egbert Avenue frontage from a distance of approximately 260 feet, along Bitting Avenue near Kalmanovitz Street at the southern edge of the residential complex where existing multi-story residences directly face the site.

Figure 3.1-6a shows a vine-covered masonry wall in the foreground separating the southern edge of the development from Egbert Avenue. Utility poles and overhead conductors situated along Egbert Avenue are visible beyond the wall, while a stand of evergreen (juniper) trees partially screen views toward the multi-story apartment complexes seen in the distance and, along with the wall, blocks views of the existing site. On the right, a portion of the tree-covered Bay View Hill can also be seen in the backdrop.

The Figure 3.1-6b simulation shows the northwestern corner of the proposed switching station with the new perforated steel equipment screening elements visible above the wall. The new facility components are set back more than 80 feet from the Egbert Avenue frontage. This ample setback helps to minimize the perceived height of the proposed switching station in relation to surrounding structures, including nearby residences and streetscape elements such as overhead power lines, as well as more distant multi-story apartments. As demonstrated by the simulation, the perforated panels provide a degree of transparency to the structure, particularly when viewed against a sky backdrop; this partial transparency preserves the view toward the Bay View Hill, seen in the backdrop on the right. These aesthetic characteristics further reduce the potential visual impact of the structure when seen at close range. In terms of scale and overall form, the proposed switching station will be compatible with the existing visual character found in the site vicinity, and therefore represents a minor incremental change to the existing visual environment.

a) Will the project have a substantial adverse effect on a scenic vista? *No Impact.*

CEQA requires that the project be evaluated as to whether its implementation has a substantial, adverse effect on a scenic vista. For purposes of this evaluation, a scenic vista is defined as a distant public view along or through an opening or corridor that is recognized and valued for its scenic quality.

For the equipment removal at Martin Substation, during the construction phase and subsequent operation and maintenance phases, the change would not be particularly noticeable from the ridgeline of San Bruno Mountain because of the viewing distance of approximately 1 mile as well as the visual presence of the overall substation facility. Transmission lines construction activity, including use of potential staging areas, would not be noticeable from San Bruno Mountain given the viewing distance and because of similar equipment and activity that is common to existing traffic and construction equipment in the area.

For the proposed Egbert Switching Station site during construction and operation and maintenance phases, although there are no recognized scenic vistas within the switching station viewshed, panoramic public views are available from Bayview Park, located approximately 0.75 mile from the switching station site, where distant views of landscape features such as the San Francisco skyline, San Francisco Bay, and the East Bay Hills can be seen. Because of the viewing distance and the urbanized character of the site vicinity, the proposed switching station will not be particularly noticeable when seen from Bayview Park (Photograph 14 on Figure 3.1-2g).

Therefore, the project will not have a substantial adverse effect on a scenic vista, and there will be no construction or operation and maintenance impact.

b) Will the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? *No Impact.*

As documented in Section 3.1.3, there are no designated State Scenic Highways within the project viewshed; therefore, the project will not substantially damage scenic resources within a State Scenic Highway. I-280, an Eligible State Scenic Highway, passes within 0.75 mile to the northwest; however, intervening buildings and roadside vegetation block views of the site from this roadway. As a result, the project will not affect scenic resources within a state scenic highway corridor, and there will be no construction or operation and maintenance impact.

c) Will the project substantially degrade the existing visual character or quality of the site and its surroundings? *Less-than-significant Impact.*

Construction

<u>Proposed Transmission Lines and Martin Substation Minor Modification</u>

Construction activities along the proposed transmission lines and at Martin Substation, and use of potential staging areas, as described in Section 2.7 will not substantially degrade the existing visual character or quality of the site and its surroundings. The transmission lines will be installed primarily within roadways adjacent to residential, industrial, and commercial uses, as shown on Figure 3.10-2.

As part of construction restoration, work areas will be restored to conditions equal or better than pre-construction conditions. Because the visible construction activities will be short-term and temporary in nature and because the equipment and activities will be seen within the context of various equipment that is common to existing traffic and construction equipment in the area, the construction related visual effects of the transmission lines, potential staging areas, and Martin Substation construction activities will be less than significant.

During operation, the transmission lines will be underground and maintenance will occur quarterly and bi-annually at vault locations; operation and maintenance of the transmission lines will not degrade the existing visual character or quality of the line and its surroundings.

Removal of some existing equipment at Martin Substation will be a minor incremental change that will not be particularly noticeable because it will be seen within the context of the overall large-scale existing facility. Therefore, it will not substantially degrade existing visual character or quality of the substation site or surrounding landscape; no permanent impact will occur.

<u>Proposed Egbert Switching Station</u>

Construction of the proposed Egbert Switching Station, described in Section 2.7.3, will not substantially degrade the existing visual character or quality of the site and its surroundings. Construction of the switching station is expected to take approximately 19 months, during which time potential temporary construction-related visual impacts could occur because of the presence of construction equipment and vehicles as well as work crews and temporary structures. Work will primarily be performed within the property limits of the facility; however, some off-site equipment staging areas, laydown yards, equipment and material storage areas, and areas to store temporarily excavated materials near Egbert Switching Station site may be secured at existing PG&E or other existing industrial or commercial facilities for larger equipment or construction materials not immediately incorporated into the work.

Temporary activity associated with construction could be visible from nearby city streets and the Caltrain corridor that lies adjacent to the site. The switching station is situated in an urbanized area near ongoing industrial operations and where large equipment, trucks, and storage structures not unlike construction equipment to be used at the site are part of the landscape setting. Currently Egbert Avenue serves as a conduit for trucks and other equipment serving nearby industrial operations, including activities at the site where close-range views of these operations are available to some residents in the Portola Place development. As a result, the temporary visual effect associated with project construction would be an incremental change, and the effect with implementation of APM AE-2 would be less than significant.

Operation and Maintenance

Proposed Egbert Switching Station

The project will introduce a new switching station on a previously disturbed site currently occupied by temporary shed structures and used as a semi-open air industrial materials storage yard. The site is in a developed urban environment, and throughout much of the site area, intervening structures will partially or fully obstruct views of the site. These intervening structures include numerous industrial, commercial, and residential buildings, many of which are considerably larger than the new facility. Close-range, unobstructed views toward the site occur from a limited area within several hundred feet of the facility; however, as described in Section 3.1.4.3 and depicted on Figures 3.1-3a through 3.1-6b, the switching station design includes enclosure buildings, screening panels, and a perimeter wall that will generally screen the new equipment from public view. Chapter 2.0, Project Description, includes two conceptual architect's renderings that portray additional public views of the project (Figure 2.5-3). Close-range views of the site would also be seen from some nearby private residences. When seen from an elevated perspective of nearby upper level residences, the site would also be seen within the context of an adjacent industrial building and other existing development and that the outdoor switching station equipment would generally be shielded from view. Additionally, the Figure 3.1-5b simulation demonstrates that in elevated public views from a somewhat greater distance, the site will be seen in the context of the surrounding urban environment and the new switching station enclosure will not be particularly noticeable. Overall, the new facility design is visually compatible and will generally blend in with development seen in the surrounding urban landscape in terms of color, texture, scale, and form.

In light of the aesthetic characteristics and visual conditions described above and given the presence of industrial buildings, storage facilities, utility structures, and a railroad corridor in the immediate vicinity, the site will represent an incremental visual change that will not substantially degrade the existing visual character or quality of the urban landscape setting.

d) Will the project create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area? *Less-than-significant Impact.*

Construction

Nighttime construction is not anticipated unless certain short-term construction procedures are required because of safety considerations or because of activities that need to be completed once started (e.g., line splicing, etc.), or to take advantage of line clearances during off-peak hours. Potential staging areas may use nighttime lighting for security. This effect will be temporary and, by directing lights away from any residential uses, will be less than significant.

Operation and Maintenance

Proposed Transmission Lines and Martin Substation Minor Modification. The proposed transmission lines will be located underground, and equipment will be removed from Martin Substation, thus neither activity will create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.

Proposed Egbert Switching Station - Glare. The switching station includes equipment enclosures and perimeter walls that will be painted a neutral gray color with a non-reflective finish, as well as a natural-color equipment building that will be faced with the same neutral grey-color metal screening. Additional switching station components will be a galvanized finish that will weather to a dull, non-reflective patina. The switching station design characteristics described above will minimize potential effect of glare.

Proposed Egbert Switching Station - Nighttime Lighting. The new substation will include outdoor lighting for safety and security purposes, and will be designed to avoid casting light or glare off-site. The new lighting will be operated only as needed to support security technology. The switching station is located within an urban, primarily industrial setting with existing overhead lighting adjacent to the site as well as localized lighting sources related to streetlights and commercial and industrial facilities. Currently there is some lighting located on the site. Seen within this context, new switching station lighting will represent a minor incremental change to existing nighttime lighting conditions. The impact will be less than significant. Implementation of APM AE-1 will further reduce potential night lighting effects.

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3.2 AGRICULTURAL AND FOREST RESOURCES

3.2.1 INTRODUCTION

This section describes existing conditions and potential impacts on agricultural and forest resources as a result of construction, operation, and maintenance of the project. The analysis concludes that the project will have no impact. The project's potential effects on agricultural and forest resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.2-1 and discussed in more detail in Section 3.2.4.

Table 3.2-1. CEQA Checklist for Agricultural and Forest Resources

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural land?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined by Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest uses?	☐	☐	☐	☒
e) Involve other changes in the existing environment, which, due to their location or nature, could result in the conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

3.2.2 REGULATORY BACKGROUND AND METHODOLOGY

3.2.2.1 Regulatory Background

Federal

No federal regulations related to agricultural or forest resources are applicable to the project.

State

Farmland Mapping and Monitoring Program

The California Department of Conservation (DOC), under the Division of Land Resource Protection, has established the Farmland Mapping and Monitoring Program (FMMP) to monitor the conversion of the state's farmland to and from agricultural use. The FMMP maps agriculturally viable lands and designates specific categories, including Prime, Unique, non-Prime, or Farmland of Statewide Importance.

California Public Resources Code

The California Public Resources Code (PRC) contains the following definitions:

- Forest Land: Section 12220(g) defines "forest land" as land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.

- Timberland: Section 4526 defines timberland as land—other than land owned by the federal government and land designated by the State Board of Forestry and Fire Protection as experimental forest land—that is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees.

Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the project is not subject to local discretionary regulations. This section includes a summary of local zoning in the project area for agricultural use or forest land, and is provided for informational purposes and to assist with the CEQA review process.

The project area is within the urban City and County of San Francisco, and cities of Daly City and Brisbane, which have no agricultural or forest land zoning or policies (City and County of San Francisco, 2011; City of Brisbane, 1994; City of Daly City, 2013).

San Francisco General Plan Policy 3.6 discusses the city's interest in maintaining, restoring, and expanding the urban forest. The San Francisco Planning Department and Department of Public Works have developed an Urban Forest Plan to support the General Plan policies (City and County of San Francisco, 2014). Phase 1: Street Trees has been published and provides a long-term strategy for the city's street trees. The Planning department is currently scoping future phases of the Urban Forest Plan that will address the needs of trees in parks and open spaces (Phase 2) as well as trees of private property (Phase 3).

3.2.2.2 Methodology

Various sources were consulted to complete the analysis for agricultural and forestry resources, including the DOC FMMP data and maps; general plans, zoning ordinances, and maps; environmental impact reports (EIRs) for other projects in the area; and field reconnaissance in the area.

3.2.3 ENVIRONMENTAL SETTING

The project would be constructed within the urban boundaries of the City and County of San Francisco, the City of Daly City, and the City of Brisbane. There are no agricultural lands, forest lands, or DOC mapped farmlands in the vicinity of the project. In San Mateo County, the DOC map was reviewed, and the land in the project vicinity was determined to be Urban and Built Up Land. Urban and Built Up Land is defined as being occupied by structures with a building density of at least 1 unit to 1.5 acres, or 6 structures to a 10-acre parcel (DOC, 2012).

The proposed Jefferson-Egbert line interconnects with the existing 230 kV transmission line from Jefferson Substation on Guadalupe Canyon Parkway which is bordered by San Bruno Mountain State and County Park to the west. The park is to the west of the route as it turns north onto Carter Street leaving Brisbane city limits and entering the city limits of Daly City.

With the exception of the San Bruno Mountain State and County Park, the project does not pass through or adjacent to Brisbane or Daly City parks, forested or otherwise.

The urban forest is defined in the San Francisco General Plan's Recreation and Open Space section as trees and understory plantings in city parks, public open spaces, and streets, as well as within private property. The proposed Jefferson-Egbert route passes through San Francisco's John McLaren Park underground within Hahn Street, turning northward onto Visitacion Avenue, and exiting the park after the route turns east on Mansell Street.

Although there are no agricultural lands, there is a local bee farm called San Francisco Bee-Cause (SFBC). SFBC is a nonprofit that seeks to help bees thrive in an urban environment in order to assist with environmental health, including agriculture and biodiversity. SFBC is located in San Francisco within 1 mile of the proposed Jefferson-Egbert line. This farm is not mapped as farmland, and it would not be impacted by the project (SFBC, 2017).

3.2.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for agricultural and forest resources impacts derived from Appendix G of the CEQA Guidelines and assess potential project-related construction and operational impacts. Because the project will have no impact on agricultural and forest resources, APMs have not been included for this section.

3.2.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project-related impacts on agricultural and forest resources were evaluated for each of the criteria listed in Table 3.2-1, as discussed in Section 3.2.4.3.

3.2.4.2 Applicant-Proposed Measures

The project will have no impact on agricultural and forest resources, and no APMs are proposed.

3.2.4.3 Potential Impacts

Project impacts on agriculture and forest resources were evaluated against the CEQA significance criteria, as discussed below. This section evaluates potential project impacts from both the construction phase and operation and maintenance phase.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and will extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will be supported by existing PG&E staff as part of their scheduled work in the area with routine inspections at the switching station (at least monthly) and detail inspections (at least annually) at switching station and vault locations along the lines.

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the FMMP, to non-agricultural use? *No Impact.*

The FMMP does not identify any farmlands within the cities of San Francisco, Daly City, or Brisbane; therefore, no impacts from the project during construction or operation and maintenance phases would occur.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract? *No Impact*.

There are no lands zoned for agricultural use or under Williamson Act contract in the vicinity of the project; therefore, no impact during construction or operation and maintenance phases would occur.

c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? *No Impact*.

There is no zoning for forestland or timberland in the vicinity of the project; therefore, no impact during construction or operation and maintenance phases would occur.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use? *No Impact*.

Project construction and operation and maintenance will occur on industrial-use land or within city streets, a portion of which pass through the City of San Francisco's John McLaren Park and San Bruno Mountain State and County Park. The project will not result in the loss of forest land, nor conversion of forest land to a non-forest use because construction and operation and maintenance will occur within the already disturbed street and shoulders when adjacent to park land; therefore, no impact would occur.

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

There is no farmland or forestland in the project footprint; therefore, no impact during construction or operation and maintenance phases would occur.

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3.3 AIR QUALITY

3.3.1 INTRODUCTION

This section discusses potential air quality issues associated with the project construction, operation, and maintenance, including both regional and site-specific concerns, and concludes that impacts will be less than significant in these areas. Air quality emissions will occur within the Bay Area Air Quality Management District (BAAQMD). Emission evaluations follow CEQA guidance provided by BAAQMD for activities within its jurisdiction. Primary air emissions from the project includes construction emissions associated with fugitive dust, heavy construction equipment, construction vehicles traveling around the project site or hauling materials to/from the project site, and construction workers commuting to and from the project site. Air emissions evaluated include reactive organic gases (ROG), nitrogen oxides (NO_X), carbon monoxide (CO), sulfur oxides (SO_X), and particulate matter with an aerodynamic diameter less than 10 microns or less than 2.5 microns (PM_{10} and $PM_{2.5}$, respectively). Toxic air emissions, in the form of diesel particulate matter (DPM) and asbestos, were also qualitatively evaluated. Greenhouse gas (GHG) emissions are discussed separately in Section 3.7. The analysis concludes that impacts to air quality will be less than significant. Incorporation of the APMs described in Section 3.3.4.2 will further minimize potential less-than-significant impacts.

Emission calculations in this document were based on worst-case estimates of pollutant emissions to ensure presentation of a conservative environmental analysis. This analysis may be revised, as needed, to reflect changes to the project plans. The project's potential effects on air quality were evaluated using the criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.3-1 and discussed in more detail in Section 3.3.4.

Table 3.3-1. CEQA Checklist for Air Quality

Would the project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

3.3.2 REGULATORY BACKGROUND AND METHODOLOGY

3.3.2.1 Regulatory Background

Federal

The federal Clean Air Act (CAA) establishes the statutory framework for regulation of air quality in the United States. Pursuant to this act, the U.S. Environmental Protection Agency (USEPA) has established various regulations to achieve and maintain acceptable air quality, including the adoption of National Ambient Air Quality Standards (NAAQS), mandatory state implementation plan (SIP) or maintenance plan requirements to achieve and maintain NAAQS, and emission standards for both stationary and mobile sources of air pollution. NAAQS were established in 1970 for six pollutants: CO, ozone (O_3), PM_{10} and $PM_{2.5}$, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead (Pb). These pollutants are commonly referred to as criteria pollutants, because they are considered the most prevalent air pollutants known to be hazardous to human health. The USEPA designates a region that is meeting the air quality standard for a given pollutant as being in "attainment" for that pollutant; regions not meeting the federal standard are designated as being in "non-attainment" for that pollutant. If a region is designated as non-attainment for a NAAQS, the federal CAA requires the state to develop a SIP to demonstrate how the standard will be attained, including the establishment of specific requirements for review and approval of new or modified stationary sources of air pollution. The CAA Amendments of 1990 directed the USEPA to set standards for toxic air contaminants and required facilities to sharply reduce emissions. Table 3.3-2 summarizes state and federal ambient air quality standards. Table 3.3-3 summarizes the state and federal attainment status for the San Francisco Bay Area Air Basin (SFBAAB).

State

The California Air Resources Board (CARB) is the state agency responsible for California air quality management, including establishment of California Ambient Air Quality Standards (CAAQS), mobile source emission standards, and GHG regulations, as well as oversight of regional air quality districts and preparation of implementation plans, including regulations for stationary sources of air pollution. The CAAQS are generally more stringent, except for the 1-hour NO_2 and SO_2 standards, and include more pollutants than the NAAQS (see Table 3.3-2). California specifies four additional criteria pollutants: visibility reducing particles (VRP), sulfates, hydrogen sulfide (H_2S), and vinyl chloride. Similar to USEPA, CARB designates counties in California as being in attainment or non-attainment for the CAAQS.

The Air Toxic "Hot Spots" Information and Assessment Act, also known as AB 2588, identifies toxic air contaminant hot spots where emissions from specific stationary sources may expose individuals to an elevated risk of adverse health effects, particularly cancer or reproductive harm. Many toxic air contaminants are also classified as hazardous air pollutants (HAPs). AB 2588 requires that a business or other establishment identified as a significant stationary source of toxic emissions provide the affected population with information about health risks posed by the emissions. Although DPM is considered a toxic air contaminant under AB 2588, this project is not subject to AB 2588 because the DPM-emitting sources will only be temporarily employed during construction. Operation of the project does not require the installation of new stationary sources of DPM or emissions of other toxic air contaminants. Therefore, the project is not considered a stationary source of toxic emissions.

Airborne Toxic Control Measure for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower and Greater

In an effort to reduce DPM emissions throughout the state, CARB has established the Airborne Toxic Control Measure (ATCM) for DPM from Portable Engines Rated at 50 Horsepower (hp) and Greater (California Code of Regulations, Title 13, Section 93116 [13 CCR 93116]). This ATCM requires portable diesel-fueled engines having a maximum rating of 50 hp and greater to meet fleet-average DPM emissions standards.

Statewide Portable Equipment Registration Program

Voluntary registration under the Statewide Portable Equipment Registration Program (PERP) allows owners or operators of portable engines to operate their equipment throughout California without having to obtain individual air district permits. Diesel engines eligible for PERP registration must not be self-propelling, must be certified to Tier 4 emissions standards, and must not reside in the same location longer than 12 consecutive months. Examples of portable equipment include air compressors, generators, pumps, drills, and welders.

Regulation for In-Use Off-Road Diesel-Fueled Fleets

CARB has established the Regulation for In-Use Off-Road Diesel-Fueled Fleets to reduce NOx, DPM, and other criteria pollutant emissions from in-use off-road diesel-fueled vehicles (13 CCR 2449). This regulation applies to all self-propelled off-road diesel vehicles rated 25 hp or greater, including vehicles that are rented or leased, and requires restricted vehicle idling time, reporting of vehicle use, and compliance with fleet-average emission standards. Although this regulation does apply to rented or leased vehicles, the compliance responsibility predominantly lies with the rental or leasing company if the vehicles are rented or leased for a period of less than one year.

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 naturally occurring asbestos (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 will exist during project construction; if NOA is encountered during construction, the project will comply with the requirements of the Asbestos ATCM (Bonilla, 1998 and United States Geological Survey [USGS], 2011).

Table 3.3-2. Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS [a]	NAAQS [b]	
			Primary [c]	Secondary [d]
Ozone	1 hour 8 hours	0.09 ppm 0.070 ppm	-- 0.070 ppm	-- 0.070 ppm
CO	1 hour 8 hours	20 ppm 9.0 ppm	35 ppm 9 ppm	-- --
NO_2	1 hour Annual Arithmetic Mean	0.18 ppm 0.030 ppm	0.100 ppm [e] 0.053 ppm	-- 0.053 ppm
SO_2	1 hour 3 hours 24 hours Annual Arithmetic Mean	0.25 ppm -- 0.040 ppm --	0.075 ppm [f] -- 0.014 ppm 0.030 ppm	-- 0.5 ppm -- --
PM_{10}	24 hours Annual Arithmetic Mean	50 μg/m^3 20 μg/m^3	150 μg/m^3 --	150 μg/m^3 --
$PM_{2.5}$	24 hours Annual Arithmetic Mean	-- 12 μg/m^3	35 μg/m^3 12 μg/m^3	35 μg/m^3 15 μg/m^3
Lead [g]	30-day Average Calendar Quarter Rolling 3-month Average	1.5 μg/m^3 -- --	-- 1.5 μg/m^3 0.15 μg/m^3	-- 1.5 μg/m^3 0.15 μg/m^3
VRP [g]	8 hours	[h]	--	--
Sulfates	24 hours	25 μg/m^3	--	--
H_2S	1 hour	0.03 ppm	--	--
Vinyl chloride	24 hours	0.01 ppm	--	--

Notes:
-- = No standard has been adopted for this averaging time
μg/m^3 = microgram(s) per cubic meter
ppm = part(s) per million
[a] CAAQS for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1- and 24 hour), NO_2, and particulate matter (PM_{10}, $PM_{2.5}$, and VRP), are values that are not to be exceeded. All others are not to be equaled or exceeded.
[b] NAAQS (other than O_3, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in 1 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 one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard.
[c] Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
[d] Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
[e] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 0.100 ppm.
[f] To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 0.075 ppm.

Table 3.3-2. Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS [a]	NAAQS [b]	
			Primary [c]	Secondary [d]

[g] CARB 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.
[h] Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.
Source: CARB, 2017a

Table 3.3-3. Federal and California Air Quality Attainment Status for San Francisco Bay Area Air Basin

Pollutant	Averaging Time	Federal Status	California Status
O_3	1 hour 8 hours	-- Marginal Non-attainment	Serious Non-attainment Non-attainment
CO	1 hour 8 hours	Maintenance Maintenance	Attainment Attainment
NO_2	1 hour Annual Arithmetic Mean	Attainment Attainment	Attainment Attainment
SO_2	1 hour 3 hours 24 hours Annual Arithmetic Mean	Attainment Attainment Attainment Attainment	Attainment -- Attainment --
PM_{10}	24 hours Annual Arithmetic Mean	Attainment --	Non-attainment Non-attainment
$PM_{2.5}$	24 hours Annual Arithmetic Mean	Moderate Non-attainment Attainment	-- Non-attainment

Notes:
-- = No standard has been adopted for this averaging time
Sources: USEPA, 2017a; CARB, 2017b; BAAQMD, 2017a

Regional

The project is located within the jurisdiction of BAAQMD. BAAQMD is the local agency charged with preparing, adopting, and implementing emission control measures and standards for stationary sources of air pollution. Because the project will not involve construction of new stationary sources of criteria pollutants or toxic air contaminants, the project is not subject to BAAQMD permitting regulations. The following analysis of local plans and guidance documents is provided for informational purposes and to assist with CEQA review.

Under the California Clean Air Act, BAAQMD is required to develop an air quality plan to achieve and/or maintain compliance with federal and state non-attainment criteria pollutants within the air district. BAAQMD has taken action and developed plans to achieve and/or maintain compliance with the federal 1-hour ozone standard and the federal CO standard. Additionally, recent monitoring data indicate that $PM_{2.5}$ levels have decreased in the Bay Area since 2008. As a result, CARB submitted a "clean data finding" request to USEPA on behalf of BAAQMD on December 8, 2011. This request was approved by USEPA on January 9, 2013, and suspends key SIP requirements as long as monitoring data continue to show attainment of the standard. Despite this approval, the Bay Area will continue to be designated as non-attainment for the federal $PM_{2.5}$ standard until BAAQMD submits a redesignation request and a $PM_{2.5}$ maintenance plan (BAAQMD, 2017b; BAAQMD, 2017a, respectively).

BAAQMD adopted CEQA Guidelines in December 1999 to assist local jurisdictions and lead agencies in complying with the requirements of CEQA regarding potentially adverse impacts to air quality (BAAQMD, 1999). BAAQMD updated its CEQA Guidelines in June 2010 to reference its newly adopted thresholds of significance. These thresholds of significance were challenged in court but were ultimately upheld by the California Supreme Court. BAAQMD published a revised version of its CEQA Guidelines in May 2017 (BAAQMD, 2017c). Lead agencies may, at their discretion, use BAAQMD's current thresholds of significance to help inform environmental review for development projects in the Bay Area and the current BAAQMD CEQA Guidelines for assistance in calculating air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures (BAAQMD, 2017c; BAAQMD, 2017d).

Lastly, BAAQMD adopted the *2017 Bay Area Clean Air Plan* (CAP) on April 19, 2017. The CAP provides an integrated, multi-pollutant control strategy to reduce emissions and decrease ambient concentrations of harmful pollutants, to safeguard public health by reducing exposure to air pollutants that pose the greatest health risk (with an emphasis on protecting the communities most heavily impacted by air pollution), and to reduce GHG emissions to protect the climate (BAAQMD, 2017e).

Because the project will not involve construction and operation of new stationary combustion sources, such as emergency generators, there are no federal, state, or regional permitting regulations applicable to the project.

Local

No local (city and county) air quality regulations are applicable to this project.

3.3.2.2 Methodology

Short-term construction emissions of CO, SO_2, PM_{10}, and $PM_{2.5}$ were evaluated. Because ozone is formed through chemical reactions in the atmosphere, the ozone precursors NO_x and ROG were also calculated. Detailed construction emissions calculations including assumptions are provided separately to CPUC staff and summarized in Table 3.3-7 in Section 3.3.4.3, Potential Impacts.

Construction emissions were estimated using construction equipment emission factors from the *California Emissions Estimator Model (CalEEMod) User's Guide* (Environ International Corporation, 2016) and vehicle emission factors from EMFAC2014 (version 1.0.7). PM_{10} and $PM_{2.5}$ emissions from vehicle travel on paved roads were estimated using emission factors from

AP-42 Compilation of Air Pollutant Emission Factors (USEPA, 2011), as recommended by the CalEEMod User's Guide (Environ International Corporation, 2016). PM_{10} and $PM_{2.5}$ emissions from material movement, such as truck dumping/loading, grading, and bulldozing, were quantified using the emission factors from the CalEEMod User's Guide (Environ International Corporation, 2016). Where appropriate, control measures were identified to reduce PM_{10} and $PM_{2.5}$ emissions from material movement. These control measures include watering or the application of soil stabilizers, and their reduction efficiencies were obtained from the South Coast Air Quality Management District (SCAQMD) *CEQA Air Quality Analysis Handbook* (SCAQMD, 2007).

Operational emissions associated with inspections and ongoing maintenance activities (primarily associated with periodic maintenance vehicle travel) were not estimated because these activities are part of PG&E's ongoing, baseline operations, and are expected to be infrequent and minimal. Potential operational GHG emissions from circuit breaker leakage are addressed in Section 3.7, Greenhouse Gas Emissions.

3.3.3 ENVIRONMENTAL SETTING

3.3.3.1 Regional Setting

The project is located in San Francisco and San Mateo Counties within the SFBAAB. The SFBAAB is characterized by complex terrain consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind flow patterns. The Coast Range splits, resulting in a western coast gap (the Golden Gate) and an eastern coast gap (the Carquinez Strait), both of which allow air to flow in and out of the SFBAAB and the Central Valley (BAAQMD, 2017c).

The climate in the SFBAAB is dominated by the strength and location of a semi-permanent, subtropical high-pressure cell. During the summer, the Pacific high-pressure cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below to the surface because of the northwesterly flow produces a band of cold water off the California coast. The cool and moisture-laden air approaching the coast from the Pacific Ocean is further cooled by the presence of the cold water band, resulting in condensation and the presence of fog and stratus clouds along the Northern California coast. In the winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms. Weak inversions coupled with moderate winds result in a low air pollution potential (BAAQMD, 2017c).

The SFBAAB is characterized by moderately wet winters and dry summers. Winter rains account for about 75 percent of the average annual rainfall. The amount of annual precipitation can vary greatly from one part of the SFBAAB to another even within short distances. In general, total annual rainfall can reach 40 inches in the mountains, but is often less than 16 inches in sheltered valleys (BAAQMD, 2017c).

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, 2017c).

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-60 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 to low 40s°F on the eastern side of the peninsula and in the low 40s°F on the coast (BAAQMD, 2017c).

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, 2017c).

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 resulting from motor vehicle traffic as well as 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, 2017c).

3.3.3.2 Ambient Air Quality

The primary pollutants of concern in SFBAAB are ozone, PM_{10}, and $PM_{2.5}$ because SFBAAB is designated non-attainment for these pollutants by USEPA and/or CARB. Ozone is not directly emitted but is formed in the atmosphere by complex chemical reactions of various precursors (ROG and NO_x) in the presence of sunlight. The major sources of ozone precursor emissions are combustion processes (including motor vehicle engines); the evaporation of solvents, paints, and fuels; and biogenic sources. Most PM_{10} and $PM_{2.5}$ is caused by combustion, factories, construction, grading, demolition, agricultural activities, and motor vehicles (BAAQMD, 2017c).

CARB maintains an annual emission inventory for each county and air basin in the state. The most recent published inventory data for the SFBAAB is summarized in Table 3.3-4. In the SFBAAB, mobile source emissions account for approximately 30 percent, 80 percent, and 80 percent of the air basin's ROG, CO, and NO_x emissions, respectively. Area sources account for over 80 percent and 60 percent of the air basin's PM_{10} and $PM_{2.5}$ emissions, respectively. Stationary sources account for over 70 percent of the air basin's SO_X emissions.

BAAQMD operates a network of ambient air quality monitoring stations 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 project, the nearest monitoring stations were identified. The nearest monitoring stations are located at 10 Arkansas Street in San Francisco, California, and 1100 21st Street in Oakland, California. Table 3.3-5 presents concentrations of the criteria pollutants measured at these two monitoring stations between 2014 and 2016. Measured $PM_{2.5}$ concentrations in San Francisco have exceeded the federal 24-hour standard but not the federal or state annual standards in the past 3 years. Measured ozone, CO, NO_2, SO_2, and PM_{10} concentrations at these monitoring stations have not exceeded the federal or state standards in the past 3 years (CARB, 2017c; USEPA, 2017b).

As previously noted, serpentinite bedrock may be encountered in the local area. BAAQMD does not monitor ambient air for NOA, but does implement the State-mandated Asbestos 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.

Table 3.3-4. Estimated Annual Average Emissions for the San Francisco Bay Area Air Basin

Source Category	Emissions (tons/day)					
	ROG	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Stationary Sources						
Fuel Combustion	3.3	43.2	47.7	13.0	5.8	5.8
Waste Disposal	35.5	1.9	0.6	0.2	0.1	0.1
Cleaning and Surface Coatings	37.1	0.0	0.0	--	0.0	--
Petroleum Production and Marketing	21.8	0.3	0.7	28.3	1.1	1.0
Industrial Processes	12.0	2.1	4.4	8.7	10.4	6.2
Total Stationary Sources	109.7	47.5	53.4	50.2	17.4	13.0
Stationary Sources Percentage of Total	25.1	3.4	15.9	75.7	7.6	14.9
Areawide Sources						
Solvent Evaporation	74.7	--	--	--	--	--
Miscellaneous Processes	17.2	169.0	17.6	0.6	189.7	56.2
Total Areawide Sources	91.9	169.0	17.6	0.6	189.7	56.2
Areawide Sources Percentage of Total	21.0	12.2	5.2	0.9	82.4	64.3
Mobile Sources						
On-road Motor Vehicles	71.6	630.8	123.8	1.0	9.8	6.6
Other Mobile Sources	57.4	492.7	139.9	14.0	8.3	7.3
Total Mobile Sources	129.0	1,123.4	263.6	15.0	18.1	13.9
Mobile Sources Percentage of Total	29.5	80.9	78.4	22.6	7.8	15.9
Natural Sources						
Natural (Non-anthropogenic) Sources	106.5	49.4	1.6	0.5	5.1	4.3
Total Natural Sources	106.5	49.4	1.6	0.5	5.1	4.3

Table 3.3-4. Estimated Annual Average Emissions for the San Francisco Bay Area Air Basin

Source Category	Emissions (tons/day)					
	ROG	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Natural Sources Percentage of Total	24.4	3.5	0.5	0.8	2.2	4.9
Grand Total	437.0	1,389.3	336.3	66.3	230.3	87.4

Notes:
-- = Emissions negligible
Source: CARB, 2017d

Table 3.3-5. Summary of Maximum Ambient Air Monitoring Data Near the Project

Pollutant	Averaging Time	Units	2014	2015	2016
O_3 [a]	1 hour 8 hours	ppm	0.079 0.069	0.085 0.067	0.070 0.057
Carbon monoxide (CO) [b]	1 hour 8 hours	ppm	1.6 1.2	1.8 1.3	1.7 1.1
Nitrogen dioxide (NO_2) [a]	1 hour Annual Arithmetic Mean	ppm	0.083 0.012	0.070 0.012	0.058 0.011
Sulfur dioxide (SO_2) [c]	1 hour 3 hours 24 hours Annual Arithmetic Mean	ppm	0.016 NM 0.003 0.0005	0.022 NM 0.004 0.0008	0.026 NM 0.003 0.0009
Particulate matter less than 10 microns (PM_{10}) [a]	24 hours Annual Arithmetic Mean	μg/m^3	35.9 16.8	47.0 --	29.0 --
Particulate matter less than 2.5 microns ($PM_{2.5}$) [a]	24 hours Annual Arithmetic Mean	μg/m^3	33.2 7.7	35.4 7.9	19.6 --

[a] Data documented by CARB from the monitoring station located at 10 Arkansas Street, San Francisco, California.
[b] Data documented by USEPA from the monitoring station located at 10 Arkansas Street, San Francisco, California.
[c] Data documented by USEPA from the monitoring station located at 1100 21st Street, Oakland, California.
Sources: CARB, 2017c; USEPA, 2017b

Notes:
-- = Insufficient data available to determine the value
NM = Pollutant averaging time not monitored

3.3.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for air quality impacts derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operational air quality impacts.

3.3.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project-related impacts on air quality were evaluated for each of the criteria listed in Table 3.3-1, as discussed in Section 3.3.4.3.

BAAQMD's CEQA Guidelines (BAAQMD, 2017c) provide quantitative thresholds of significance for evaluating a project's construction and operational criteria pollutant emissions, as shown in Table 3.3-6. Additionally, BAAQMD recommends following current best management practices (BMPs) to control fugitive dust emissions during construction (BAAQMD, 2017c). These BMPs have been included in the project as APMs and are described below.

Table 3.3-6. BAAQMD CEQA Air Quality Thresholds of Significance

Pollutant	Construction-Related	Operational-Related	
	Daily (lb/day)	Daily (lb/day)	Annual (ton/year)
ROG	54	54	10
NO_x	54	54	10
PM_{10}	82 (exhaust only)	82	15
$PM_{2.5}$	54 (exhaust only)	54	10
PM_{10} and $PM_{2.5}$ (fugitive dust)	Best Management Practices	None	None

Note:
lb/day = pound(s) per day
Source: BAAQMD, 2017c

BAAQMD's CEQA Guidelines (BAAQMD, 2017c) also provide thresholds of significance for evaluating a project's construction and operational toxic air contaminant emissions, as related to the resulting health risk impacts. The thresholds are the same for construction and operation, as follows:

- Compliance with a qualified community risk reduction plan, or
- Any of the three following criteria:
  - An increased cancer risk of greater than 10.0 in 1 million
  - An increased noncancer (chronic or acute) risk of greater than 1.0
  - An increase in ambient annual average $PM_{2.5}$ concentrations greater than 0.3 microgram per cubic meter

Additionally, BAAQMD has established toxic air contaminant "trigger levels" in its Regulation 2-5, Table 2-5-1, which suggest the level at which a project will be considered a new or modified source of toxic air contaminants. Although Table 2-5-1 provides trigger levels for DPM and asbestos, which are both toxic air contaminants expected to be emitted during project construction, Regulation 2-5 is only applicable to new or modified sources requiring an Authority to Construct or Permit to Operate. Because the project will not involve construction and operation of new stationary sources of toxic air contaminants, the project will not require an Authority to Construct or Permit to Operate from BAAQMD and, therefore, Regulation 2-5 does not apply to the project.

3.3.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

Construction

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 mph.
- 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, 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, 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:

  <u>For disturbed areas of 1 acre or less:</u>

  - Construction vehicle speed at the work site will be limited to 15 mph 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.

Operation and Maintenance

PG&E will employ standard BMPs—such as minimizing vehicle trips and keeping vehicles and equipment well maintained—during operation of the project. No significant operation and maintenance impacts will occur and no APMs are necessary.

3.3.4.3 Potential Impacts

Project impacts on air quality were evaluated against the CEQA significance criteria, as discussed below. This section evaluates potential project impacts from both the construction phase and operation and maintenance phase.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 lines.

While staging areas will be determined based on availability at the time of construction, as described in Section 2.7.1.1, potential staging areas have been preliminarily identified (Figure 2.7-1). Several staging areas totaling up to approximately 15 acres will be identified for use once a construction contractor is selected. Two potential staging areas are adjacent to the proposed Jefferson-Egbert line along Carter Street, near and at the intersection with Geneva Avenue. Another two potential staging areas are within the existing Martin Substation. Two potential staging areas in San Francisco are in the Port's Southern Waterfront area off Amador Street, a heavily industrial area. Of these potential staging areas, only one is unpaved, such that its use may result in fugitive dust emissions associated with area disturbance. These potential fugitive dust emissions have been included to facilitate a more conservative assessment of potential impacts from PM_{10} and $PM_{2.5}$ emissions associated with the project. Truck travel to and from these potential staging areas was incorporated into the trip distances for material hauling, truck trips, and other construction activities.

Detailed emissions calculations including assumptions were calculated as described in Section 3.3.2.2, Methodology, and are provided separately to CPUC staff and summarized in Table 3.3-7.

Table 3.3-7. Construction Emissions Summary

Construction Period		Average Daily Emissions (lb/day) [a, b]					
		ROG	CO	NO_x	SO_x	PM_{10} [c]	$PM_{2.5}$ [c]
Project Emissions							
Construction Year 2020		3.03	32.55	32.30	0.08	3.52	1.89
Construction Year 2021		2.41	27.48	23.06	0.06	3.10	1.61
Construction Year 2022		0.13	1.45	1.66	0.01	0.47	0.16
Maximum Average Daily Emissions		**3.03**	**32.55**	**32.30**	**0.08**	**3.52**	**1.89**
Maximum Average Daily Emissions [d]		**0.002 ton/ day**	**0.02 ton/ day**	**0.02 ton/ day**	**0.00004 ton/ day**	**0.002 ton/ day**	**0.001 ton/ day**
Construction Activity	**Activity Duration (days)**	**Emissions by Phase (lb/phase) [e]**					
		ROG	**CO**	**NO_x**	**SO_x**	**PM_{10} [c]**	**$PM_{2.5}$ [c]**
Transmission Line Construction							
Installation							
Mobilization	4	1.41	21.67	22.46	0.08	5.69	2.03
Manholes	120	59.54	730.92	648.26	1.90	104.77	45.70
Trenching [f]	300	847.79	9,390.20	7,816.62	17.76	811.01	487.29
Cable Installation and Splicing	130	25.86	189.92	234.23	0.69	63.45	26.67
Inspectors	317	0.22	13.85	1.23	0.05	7.08	1.92
Truck Drivers	160	3.68	47.22	167.13	0.58	14.71	4.54
Trenchless Installation							
Bore Pit Excavation, Stage Equipment and Bore, Pull in Casing and Duct Bundle, Grouting Space Between Casing and Ducts, and Restoration	30	87.98	698.75	893.52	2.11	46.30	35.82
Truck Drivers	20	0.09	1.18	4.18	0.01	0.37	0.11
2020 Transmission Line Construction Total [g]		**547.33**	**5,873.82**	**5,333.72**	**12.83**	**549.03**	**315.09**
2021 Transmission Line Construction Total [g]		**479.24**	**5,219.88**	**4,453.92**	**10.37**	**504.33**	**288.99**
2022 Transmission Line Construction Total [g]		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table 3.3-7. Construction Emissions Summary

Switching Station Construction							
General Construction	440	3.22	173.51	24.38	0.73	89.96	24.67
Civil Site Preparation	25	13.80	163.01	418.29	1.38	50.07	19.15
Building Foundations, Excavation, and Install	60	23.50	274.45	418.26	1.18	41.97	19.30
Remaining Equipment Foundations	40	9.75	113.45	98.38	0.19	11.09	6.94
Ground Grid and Conduits	20	6.05	55.58	56.76	0.09	6.31	4.18
Building Delivery and Erection	60	39.90	283.27	466.53	0.67	31.00	21.52
Set Series and Shunt Reactors on Pads	5	2.58	13.39	30.77	0.04	1.98	1.35
Screen Walls	10	6.43	46.29	74.35	0.10	4.53	3.40
Install GIS Equipment and Wire [h]	127	29.20	542.65	327.39	1.16	85.62	33.05
Install and Test Oil Pump House, Station Service Voltage Transformers	40	1.36	14.41	15.91	0.06	5.39	1.86
Testing and Commissioning	60	2.57	74.43	40.62	0.14	5.48	2.07
Exterior Walls, Final Grading, and Paving	47	10.25	120.33	110.75	0.22	12.29	7.42
Cleaning and Landscaping	20	4.94	58.32	52.88	0.11	6.44	3.72
Truck Drivers	99	1.82	23.37	82.73	0.29	7.28	2.25
Inspectors	440	0.31	19.22	1.71	0.07	9.82	2.67
2020 Switching Station Construction Total [g]		**83.20**	**910.01**	**1,397.80**	**3.95**	**184.65**	**79.12**
2021 Switching Station Construction Total [g]		**72.49**	**1,065.67**	**821.91**	**2.48**	**184.59**	**74.43**
2022 Switching Station Construction Total [g]		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Substation-Remote Ends Construction							
General Construction	100	0.63	32.97	4.96	0.14	17.14	4.71
Martin Series and Shunt Reactor Removal	60	7.07	62.53	83.80	0.21	16.18	6.23

Table 3.3-7. Construction Emissions Summary

Jefferson, Martin, and Embarcadero Indoor Work	40	0.13	8.08	0.73	0.03	3.82	1.04
Inspectors	60	0.02	1.31	0.12	0.01	0.67	0.18
Truck Drivers	40	0.18	2.36	8.36	0.03	0.74	0.23
2020 Substation-Remote Ends Construction Total [g]		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
2021 Substation-Remote Ends Construction Total [g]		**5.45**	**78.20**	**64.83**	**0.30**	**29.13**	**9.19**
2022 Substation-Remote Ends Construction Total [g]		**2.58**	**29.06**	**33.14**	**0.11**	**9.41**	**3.19**

[a] Emissions presented do not account for implementation of APMs or mitigation measures. Even absent APMs AQ-1, 2, and 3, construction emissions are still below BAAQMD's significance thresholds.

[b] To facilitate comparison to BAAQMD's significance thresholds, the 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.

[c] 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.

[d] Maximum average daily emissions are provided in units of ton/day to allow comparison against the regional emissions inventory for the SFBAAB.

[e] Emissions presented are the sum of all emissions occurring within the construction phase, regardless of whether an activity is occurring sequentially or concurrently.

[f] PM_{10} and $PM_{2.5}$ emissions estimates for trenching include fugitive dust emissions associated with grading of an unpaved staging area located on Carter Street in Daly City. Although the use of this potential staging area is only being considered, emissions associated with its area disturbance are conservatively included for completeness.

[g] Emissions were allotted to specific years based on the preliminary construction schedule.

[h] The listing for Install GIS Equipment and Wire includes emissions from the following construction activities: Install GIS Equipment and Wire, Control Room and Battery Room Equipment, 230 kV Bus Work, 230 kV Cable Installation/Tie-in, and Dress/Test/Wire Equipment.

Note:

GIS = Geographic Information System

a) Would the project conflict with or obstruct implementation of the applicable air quality plan? *No Impact.*

Construction and Operation and Maintenance

As discussed in Section 3.3.2.1, BAAQMD has developed plans to achieve and/or maintain compliance with the federal and state air quality standards. The most recent of these plans is the CAP (BAAQMD, 2017e), adopted by BAAQMD's Board of Directors in April 2017, which provides an integrated, multi-pollutant control strategy to reduce emissions of ozone precursors (NOx and ROG), particulates, air toxics, and GHGs. Specifically, the CAP contains control measures for the following sectors: stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, water, and super-GHG pollutants. The project would be consistent with the CAP 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 toxic air contaminant emissions, through reduced idling time of off-road vehicles; and APM AQ-3 contains measures encouraging the reduction of asbestos, which is considered a toxic air contaminant. Control measures for many of the other sectors, like stationary sources, are not applicable to the project given that it will not include any new stationary sources of criteria pollutants or toxic air contaminants. Operation of the project, including the switching station, does 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 project is not expected to emit toxic air contaminants (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 hp. To demonstrate compliance, PG&E will require its contractor use engines that have been registered through PERP 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 hp. 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 will implement APM AQ-2 to reduce tailpipe emissions of criteria and toxic air contaminants 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 will be used during construction, each piece of equipment is not expected to be used for more than one 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, will lie with the rental or leasing company, not PG&E.

Therefore, the project will not conflict with or obstruct implementation of the applicable air quality plan during construction, operation, or maintenance.

b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation? *Less-than-significant Impact.*

Construction

The project's estimated construction emissions, summarized in Table 3.3-8 below, will be temporary and will only occur during limited portions of the 22-month construction period. As shown in Table 3.3-8, average daily emissions are less than the significance thresholds without implementation of APMs. Therefore, construction emissions will have a less-than-significant impact on air quality, and will not violate any air quality standard.

Table 3.3-8. Comparison of Construction Emissions to Significance Thresholds

	Average Daily Emissions (lb/day)					
	ROG	CO	NO_x	SO_x	PM_{10} [a]	$PM_{2.5}$ [a]
Maximum Average Daily Emissions [b, c]	3.03	32.55	32.30	0.08	3.52	1.89
BAAQMD Significance Thresholds	54	N/A	54	N/A	82	54
Significance Threshold Exceeded?	No	N/A	No	N/A	No	No

[a] 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.

[b] Emissions presented do not account for implementation of APMs or mitigation measures. Even absent APMs AQ-1, 2, and 3, construction emissions are still below BAAQMD's significance thresholds.

[c] To facilitate comparison to BAAQMD's significance thresholds, the 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.

Note:
N/A = Not applicable (i.e., a significance threshold does not exist for this pollutant)

Construction emissions will 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 will be less than significant if BMPs, such as those proposed in PG&E's APM AQ-1, are implemented (BAAQMD, 2017c).

Operation and Maintenance

Operation and maintenance of the project will be incorporated into existing PG&E activities such that emissions from project-related operation and maintenance activities will be negligible and, therefore, far less than the thresholds of significance shown in Table 3.3-6. Accordingly, operation and maintenance emissions will have a less-than-significant impact on air quality, and will not violate any air quality standard.

c) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? *Less-than-significant Impact.*

Construction

The project is located in an area that is designated non-attainment for the state and federal ozone and $PM_{2.5}$ ambient air quality standards and state PM_{10} ambient air quality standards. Project construction will not result in a cumulatively considerable net increase in the non-attainment pollutants (PM_{10}, $PM_{2.5}$, and the ozone precursors [NO_x and ROG]) because the emissions will be temporary and the average daily emissions are less than the significance thresholds, as summarized in Table 3.3-8. Therefore, construction emissions will have a less-than-significant impact on air quality and will not result in a cumulatively considerable net increase of non-attainment pollutants. Emissions will be further reduced below the significance thresholds with the implementation of APMs AQ-1 and AQ-2.

Operation and Maintenance

As discussed, operational and maintenance emissions are expected to be negligible and have a less-than-significant impact on air quality because operation and maintenance of the project will be incorporated into existing, ongoing PG&E activities. Therefore, operational and maintenance emissions will not result in a cumulatively considerable net increase of non-attainment pollutants.

d) Would the project expose sensitive receptors to substantial pollutant concentrations? *No Impact.*

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 all examples of sensitive receptors (BAAQMD, 2017c). Land use within 1,000 feet of the project, including identification of sensitive receptors, is presented on Figure 3.10-2 and 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, 2017c).

Hospitals. There are no hospitals located within 1,000 feet of Egbert Switching Station, the existing Martin Substation, nor any of the proposed transmission lines.

Schools. The freeze pit for the proposed Martin-Egbert transmission line is adjacent to the Martin Luther King Jr Academic Middle School, and two other schools are located within 1,000 feet from the freeze pit (Edward Robeson 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 from the existing Martin Substation (Garnet J Robertson Intermediate School and Mt Vernon Christian Academy).

Residences. To the northwest of Egbert Switching Station site is the Portola Place residential community. The closest residence to the switching station within this community is about 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 will occur in both highly industrialized areas and residential areas, with the nearest residential areas being approximately 50 feet away from the work area.

Because the project's construction emissions are short -term and, absent implementation of APMs, do not exceed BAAQMD's significance threshold for any criteria air pollutant, the project will not have a significant impact on the nearby sensitive receptors during construction.

Furthermore, as described in BAAQMD's CEQA Guidelines, the generation of toxic air contaminants would be temporary as a result of the variable nature of construction activities, "especially considering the short amount of time such equipment is typically within an influential distance that would result in the exposure of sensitive receptors to substantial concentrations" (BAAQMD, 2017c).

DPM is the only toxic air contaminant expected to be emitted during construction, in this case as a constituent of construction equipment exhaust. Based on Table 2-5-1 of BAAQMD Regulation 2-5, DPM contributes to cancer and chronic, noncancer risk, but not to acute, noncancer risk. "Current models and methodologies for conducting health risk assessments are associated with longer-term exposure periods of 9, 40, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities" (BAAQMD, 2017c). As a result, cancer and noncancer (chronic and acute) risks were not estimated from project construction. Although several schools and residences are located within 1,000 feet of the project construction areas, construction in a single area is not expected to last more than a few days at a time. In addition, "concentrations of mobile-source DPM emissions are typically reduced by 70 percent at a distance of approximately 500 feet" (BAAQMD, 2017c). It is also expected that implementation of APMs AQ-1 and AQ-2 and compliance with CARB's ATCM for DPM from Portable Engines Rated at 50 hp and Greater, as applicable, will reduce DPM emissions.

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

Operation and Maintenance

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

e) Would the project create objectionable odors affecting a substantial number of people?
No Impact.

Typical odor nuisances include H_2S, ammonia, chlorine, and other sulfide-related emissions. No significant sources of these pollutants will exist during construction. 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 will exist and activities will be short term, typically lasting a few days during construction and less than a day during operation and maintenance, there will be no impacts attributable to odor during construction, operation, or maintenance.

3.3.5 REFERENCES

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3.4 BIOLOGICAL RESOURCES

3.4.1 INTRODUCTION

This section describes biological resources (vegetation, fish, wildlife, and wetlands) in the project area, identifies potential impacts on sensitive habitats and species that could result from the implementation of the project, and concludes that impacts on biological resources will be less than significant. Incorporation of the APMs described in Section 3.4.4.2 will further minimize potential less-than-significant project impacts on biological resources. The project's potential effects on biological resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.4-1 and are discussed in more detail in Section 3.4.4. The technical biological report referenced in this section will be provided separately to CPUC staff.

Table 3.4-1. CEQA Checklist for Biological Resources

Would the project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

Table 3.4-1. CEQA Checklist for Biological Resources

Would the project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

3.4.2 REGULATORY BACKGROUND AND METHODOLOGY

3.4.2.1 Regulatory Background

This section summarizes existing federal, state, and local laws, policies, and regulations that pertain to biological resources.

Federal

Endangered Species Act

The federal ***Endangered Species Act (ESA) of 1973*** (16 United States Code [U.S.C.] 1531–1544)***, as amended,*** protects plants, fish, and wildlife that are listed as endangered or threatened by the U.S. Fish and Wildlife Service (USFWS) or the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries). Section 9 of the 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" (50 Code of Federal Regulations [CFR] 17.3). For plants, this statute prohibits removing, possessing, maliciously damaging, or destroying any listed plant under federal jurisdiction and removing, cutting, digging-up, damaging, or destroying any listed plant in knowing violation of state law (16 U.S.C. 1538).

The ESA allows for issuance of incidental take permits to private parties either in conjunction with a Habitat Conservation Plan (HCP) or as part of a Section 7 consultation (which is discussed in the following paragraph). Under Section 10 of the ESA, a private party may obtain incidental take coverage by preparing an HCP to cover target species within the project area, 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 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 (jeopardy) or adversely modify critical habitat (adverse modification). As part of the biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity, provided that the action will not jeopardize the continued existence of the species or adversely modify designated critical habitat.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. Sections 703–711) protects all migratory birds, including active nests and eggs. Birds protected under the MBTA include all native waterfowl, shorebirds, hawks, eagles, owls, doves, and other common birds such as ravens, crows, sparrows, finches, swallows, and others, including their body parts (for example feathers and plumes), active nests, and eggs. A complete list of protected species can be found in 50 CFR 10.13. Enforcement of the provisions of the federal MBTA is the responsibility of USFWS.

Waters and Wetlands: Clean Water Act Sections 401 and 404

The purpose of the Clean Water Act (CWA) (33 U.S.C. Section 1251 et seq.) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Waters of the United States include rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3).

The U.S. Army Corps of Engineers (USACE) 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 USACE. USEPA also has authority over wetlands and may, under Section 404(c), veto a USACE 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 3.9, Hydrology and Water Quality.

In 2015, the USACE and USEPA issued the Clean Water Rule (2015 Rule), intended to clarify areas under the jurisdiction of the CWA. The 2015 Rule was stayed in court rulings soon afterwards. On February 17, 2017, an Executive Order was issued regarding the 2015 Rule. The Executive Order and the subsequent USEPA and USACE Proposed Rule calls for the 2015 Rule to be reviewed and rescinded or revised per the Executive Order (USEPA, 2017).

State

California Endangered Species Act

Sections 2050–2098 of the California Fish and Game Code (the California Endangered Species Act [CESA]) prohibit the take of state-listed endangered and threatened species unless specifically authorized by the California Department of Fish and Wildlife [CDFW]). The state definition of "take" is to hunt, pursue, catch, capture, or kill a member of a listed species or attempt to do so. CDFW administers CESA and authorizes take through permits or memorandums of understanding issued under Section 2081 of CESA, or through a consistency determination issued under section 2080.1. Section 2090 of CESA requires state agencies to comply with threatened and endangered species protection and recovery and to promote conservation of these species.

Fully Protected Species under the Fish and Game Code

Fish and Game Code designates certain fish and wildlife species as "fully protected" under Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish). Fully protected species may not be taken or possessed at any time, and no permits may be issued to PG&E for incidental take of these species.[3]

Protection for Birds: Fish and Game Code

Fish and Game Code Section 3503 et seq. state that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 makes it unlawful to take, possess, or destroy any birds in the orders of Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird.

Native Plant Protection Act of 1973

The Native Plant Protection Act of 1973 (Fish and Game Code Sections 1900–1913) includes provisions that prohibit the taking of endangered or rare native plants. CDFW administers the Native Plant Protection Act of 1973 and generally regards as rare many plant species included on California Rare Plant Rank (CRPR) 1A, 1B, 2A, and 2B of the California Native Plant Society (CNPS) Inventory of Rare and Endangered Vascular Plants of California. In addition, sometimes CRPR 3 and 4 plants are considered if the population has local significance in the area and is impacted by the project.

Section 1913(b) includes a specific provision to allow for the incidental removal of endangered or rare plant species, if not otherwise salvaged by CDFW, within an ROW to allow a public utility to fulfill its obligation to provide service to the public.

California Species of Special Concern

Species of Special Concern (SSC) is a category conferred by CDFW to fish and wildlife species that meet the state definition of threatened or endangered, but have not been formally listed (e.g., federally or state-listed species), or are considered at risk of qualifying for threatened or endangered status in the future based on known threats. SSC is an administrative classification only, but these species should be considered "special-status" for the purposes of the CEQA analysis (see the Significance Criteria section of this document).

Porter-Cologne Water Quality Control Act

The State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCB) have jurisdiction over all surface water and groundwater in California, including wetlands, headwaters, and riparian areas. The SWRCB or applicable RWQCB must issue waste discharge requirements for any activity that discharges waste that could affect the quality of waters of the state, as described in more detail in Section 3.9, Hydrology and Water Quality.

3 While take of fully protected species may be authorized by CDFW under a Natural Communities Conservation Plan, PG&E activities are not covered by a Natural Communities Conservation Plan so this permitting option is not available.

McAteer-Petris Act of 1965 (CGC §§ 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 specifies goals, objectives, and policies for existing and proposed waterfront land use and other areas under the jurisdiction of BCDC (BCDC, 2011).

Local

This section includes a summary of local or regional plans, policies, or regulations that identify sensitive or special-status species in the project area, as well as local polices or ordinances that protect biological resources. Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary regulations related to biological resources. 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 which 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:

- 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 (Article 16 of the Public Works Code) 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 (2030 General Plan) was adopted in 2013 and contains a Resource Management Element (RME) which provides the framework for management and protection of vegetation and wildlife. The following policies are relevant to the protection of vegetation and wildlife:

- 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 of the City of Brisbane General Plan present a number of policies and programs relating to the protection of the City's natural resources. The General Plan includes policies to preserve 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 Tree Ordinance

Under Title 12, Chapter 12.12 of the City'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. Protected trees are defined by the Municipal Code in Section 12.12.020. Pursuant to Exemption 3 of Section 12.12.040 of the Municipal Code, for existing facilities, PG&E, as a public utility that is 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.

San Bruno Mountain Habitat Conservation Plan

The SBM HCP was adopted in 1983 to protect and improve habitat for several species of endangered species. 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 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 and 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.

3.4.2.2 Methodology

This section summarizes the methods used to identify and analyze potential impacts on special-status species that may occur in the project area. As described below, biologists began their research with database searches and literature reviews to determine which special-status plants, natural communities, and wildlife might have potential to occur in the project area. Using this information, the biologists conducted field surveys of the biological resources survey area, as defined below. A more detailed description of these methods is provided in the project's Biological Resources Technical Report, which will be provided separately to CPUC staff.

Species Considered to be of Special Status

Special-status species include those that are:

- Listed or candidates for listing as rare, threatened or endangered under the federal ESA or CESA
- Plants included in the online version of the CNPS Inventory of Rare and Endangered Plants of California as CRPR 1A, 1B, 2A, or 2B
- Fish or wildlife designated as an SSC or a fully protected species by the CDFW
- Migratory birds with active nests, defined as containing eggs or dependent young

Natural communities were considered to be special-status if they were identified on the most recent CDFW List of Vegetation Alliances and Associations as being highly imperiled.

Database Searches

The following biological databases were queried for records of special-status plants, natural communities, and wildlife that might have potential to occur in the project area:

- USFWS list of federally listed and proposed endangered, threatened, and candidate species and their designated critical habitat (USFWS, 2017a)
- CNPS online Inventory of Rare and Endangered Vascular Plants of California
- California Natural Diversity Database (CNDDB)

A CNDDB database search for special-status species typically includes nine USGS 7.5-minute quadrangle maps for a project located within a single quadrangle—the quadrangle that covers the project area, and the eight quadrangles that surround the project quadrangle. For this project, however, a CNDDB database search was conducted for a 5-mile radius around the project area (defined here as the areas disturbed by project activities) as this records search identified a more appropriate range of species than those identified in a ninequad search (CNDDB, 2017), given the project is within a mile of San Francisco Bay and bay-related species and habitat are not found in the project area. The USFWS database was queried using the USFWS Information Planning and Consultation (IPaC) tool for the project area (USFWS 2017b). The CNPS database was queried for the San Francisco North and San Francisco South quadrangles (CNPS, 2017).

Other information sources consulted to determine which special-status species could potentially occur in the project footprint (areas disturbed by the project including temporary work space) included:

- The Brisbane Baylands EIR (Brisbane, 2015)
- SBM HCP (1983)
- Soil maps (Natural Resources Conservation Service [NRCS], 2017)
- CDFW's List of Vegetation Alliances and Associations
- Aerial photographs

Field Surveys

The biological resources survey area is shown on detailed route maps in the Biological Resources Technical Report (provided separately to CPUC staff) and include a 300-foot-wide corridor centered on the proposed Jefferson-Egbert, Egbert-Embarcadero, and Martin-Egbert transmission lines (Figure 3.4-1). Sites located outside of the 300-foot-wide corridor including potential staging areas and temporary line immobilization pit work locations included a survey radius of at least 50 feet to allow flexibility for minor adjustments during construction. As described below, biologists conducted reconnaissance surveys of all relevant non-developed areas in the biological resources survey area.

Reconnaissance Surveys

General biological reconnaissance surveys entailed windshield surveys in developed areas and walking and meandering surveys in publicly accessible non-developed portions of the biological resources survey area (as defined previously), and surveying areas that appeared to support potential habitat for special-status species as identified in desktop-level reviews. The following tasks were conducted during the reconnaissance-level surveys:

- Plant communities and habitat types were identified in the biological resources survey area and evaluated for special-status plant suitability.
- Baseline data was reviewed for wildlife special-status species. Uplands and aquatic features in the biological resources survey area were evaluated to determine habitat suitability. Potential habitat for various special-status species was observed and recorded.

Likelihood of Presence for Special-Status Species

Using the information generated from literature reviews and field surveys, the list of special-status species with the potential to occur was further refined to reflect the species that may occur within the project area. The likelihood of special-status species occurrence was determined based on natural history parameters, including but not limited to, the species' range, habitat, foraging needs, migration routes, and reproductive requirements, using the following general categories:

- *Present* – Reconnaissance-level surveys documented the occurrence or observation of a species in the project area.
- *Seasonally present* – Individuals were observed in the project area only during certain times of the year.
- *Likely to occur (on site)* – The species has a strong likelihood to be found in the project area prior to or during construction but has not been directly observed to date during project surveys. The likelihood that a species may occur is based on the following considerations: suitable habitat that meets the life history requirements of the species is present on or near the project area; migration routes or corridors are near or within the project area; records of sighting are documented on or near the project area; and there is an absence of invasive predators (e.g., bullfrogs). The main assumption is that records of occurrence have been documented within or near the project area, the project area falls within the range of the species, suitable habitat is present, but it is undetermined whether the habitat is currently occupied.

Insert

Figure 3.4-1 Biological Survey Area

- *Potential to occur* – There is a possibility that the species can be found in the project area prior to or during construction, but has not been directly observed to date. The likelihood that a species may occur is based on the following conditions: suitable habitat that meets the life history requirements of the species is present on or near the project area; migration routes or corridors are near or within the project area; and there is an absence of invasive predators (e.g., bullfrogs). The main assumption is that the project area falls within the range of the species, suitable habitat is present, but no records of sighting are located within or near the project area and it is undetermined whether the habitat is currently occupied.

- *Unlikely to occur* – The species is not likely to occur in the project area based on the following considerations: lack of suitable habitat and features that are required to satisfy the life history requirements of the species (e.g., absence of foraging habitat; lack of reproductive areas, and lack of sheltering areas); presence of barriers to migration/dispersal; presence of predators or invasive species that inhibit survival or occupation (e.g., the presence of bullfrogs or invasive fishes); lack of hibernacula, hibernation areas, or estivation areas on-site.

- *Absent* – Suitable habitat does not exist in the project area, the species is restricted to or known to be present only within a specific area outside of the project area, or focused or protocol-level surveys did not detect the species.

Unless otherwise noted, the methodology and environmental information presented in this section are summarized the Biological Resources Technical Report (provided separately to CPUC staff).

3.4.3 ENVIRONMENTAL SETTING

The project is generally located in an urban area with industrial, commercial, and residential land uses. Portions of the proposed transmission line routes are adjacent to undeveloped areas such as urban parks, San Bruno Mountain, or roadside embankments.

3.4.3.1 Regional Setting

The proposed switching station and transmission lines are located in the generally developed northeastern portion of the San Francisco Peninsula (peninsula), extending from the north flank of San Bruno Mountain roughly three miles to the proposed Egbert Switching Station. San Francisco Bay and its associated shoreline and marshes lie to the east; the project area is located to the west of these resources in developed areas.

San Bruno Mountain, at the south end of the project area, harbors rare plants and butterflies associated with its serpentine soils. The SBM HCP controls management of the mountain area. One transmission line, the Jefferson-Egbert transmission line, would run underground in Carter Road to Guadalupe Canyon Parkway on the north base of the mountain.

Approximately one to three staging areas totaling up to approximately 15 acres will be identified for use once a construction contractor is selected. While staging areas will be determined based on availability at the time of construction as described in Section 2.7.1.1, potential staging areas have been preliminarily identified (Figure 2.7-1). Two potential staging areas are adjacent to the proposed Jefferson-Egbert line along Carter Street (potential Carter Street staging area) near 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 (Port's) Southern Waterfront off Amador Street, a heavily industrialized area.

3.4.3.2 Local Setting

The site for the proposed Egbert Switching Station is located at 1755 Egbert Avenue in San Francisco. This site is heavily disturbed and covered in gravel, and is currently occupied by a lumber staging yard. There is no native vegetation present within this site. The surrounding areas are developed with a blend of industrial, commercial, and residential land uses.

The proposed routes for the Martin-Egbert and Egbert-Embarcadero transmission lines are located entirely within developed and paved surfaces within San Francisco. The proposed Jefferson-Egbert transmission line is located in paved surfaces for the majority of the route and passes through the cities of San Francisco, Daly City, and Brisbane. A portion of this route passes through John McLaren Park and in the vicinity of San Bruno Mountain, undergrounded in paved streets and/or sidewalks. Undeveloped areas found adjacent to portions of the paved route support a mixture of non-native annual grassland, scrub/chaparral habitats, non-native woodland, and closed-cone conifer/coast live oak woodland.

Martin Substation is an existing substation located at 3150 Geneva Avenue in Daly City. This substation is developed and covered in pavement or gravel. There is no native vegetation 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.

The potential staging areas at Martin Substation are within the fenced boundary of the substation. These areas are heavily disturbed, are either covered in gravel or paved, and have multiple buildings located within these areas.

The potential Cow Palace staging area is in a paved parking lot associated with the Cow Palace. The potential Carter Street staging area was previously used as a drive-in movie theater, but this is no longer in operation. This area was covered in gravel and in use as a laydown and staging area at the time the biological reconnaissance surveys were conducted. This potential staging area is bounded by parking lots to the north and east, and a vegetated area ranging in width from 200 to 600 feet is found to the south and west. On the opposite side of this vegetated area are paved roads, residential developments, and golf courses that separate this area from the nearest native plant communities on San Bruno Mountain.

The potential Amador Street staging areas are located in the Southern Waterfront industrial area owned by the Port. 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. These piers are paved and have no natural vegetation. The northern area, the Amador Yard, is also within the Port's Southern Waterfront in an area used by PG&E and approved by the Port and CPUC for the previous Embarcadero-Potrero project. This area is heavily disturbed, has been previously used for staging Port and PG&E projects, and is covered with gravel with only sparse, ruderal vegetation present. It lies west of the BCDC 100-foot shoreline band. The San Francisco Bay and the Pier 94 wetland restoration area are found on the eastern side of the Amador Yard, and industrial uses including a concrete batch plant and materials storage surround the potential staging area on the north, west, and south.

Landcover, Vegetation, and Wildlife Habitats

No natural vegetation community types occur within the areas that will be impacted by the project. The project components are all located in city streets or highly disturbed areas within the cities of San Francisco, Daly City, and Brisbane. The project area is largely urbanized, with biological resources limited to street trees and a very few isolated, extremely disturbed patches of ruderal habitat in the vicinity of the proposed Egbert Switching Station.

The proposed routes for the Martin-Egbert and Egbert-Embarcadero transmission lines, as well as the temporary line immobilization pit work locations required to connect these lines with the existing transmission lines, are all within paved surfaces that are surrounded by highly developed areas.

The proposed route for the Jefferson-Egbert transmission line is under paved street surfaces when passing through San Bruno Mountain State and County Park (Guadalupe Canyon Parkway and Carter Street) and John McLaren Park (Visitacion Avenue). Areas in San Bruno Mountain State and County 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 woodland, and landscaped areas associated with the Gleneagles Golf Course. Portions of the area adjacent to the route have large stands of blue gum eucalyptus (*Eucalyptus globulus*), and Monterey cypress (*Cupressus macrocarpa*), as well as smaller coast live oak (*Quercus agrifolia*), and pine (*Pinus* sp.) trees. The proposed route for the Jefferson-Egbert transmission line in proximity to San Bruno Mountain passes through coastal scrub and chaparral communities that are dominated by coyote brush (*Baccharis pilularis*), California sagebrush (*Artemisia californica*), California coffeeberry (*Rhamnus californica*), and poison oak (*Toxicodendron diversilobum*). Critical habitat for Franciscan manzanita (*Arctostaphylos franciscana*) is also located within John McLaren Park in proximity to the route. These critical habitat areas are shown on Figure 3.4-2.

Vegetation along urbanized portions of the proposed Jefferson-Egbert transmission line route, the parcel immediately south of the proposed Egbert Switching Station, and the potential Cow Palace staging area are limited to ruderal vegetation, landscaping, and street trees including sycamores (*Platanus* sp.), blue gum eucalyptus, acacia (*Acacia* sp.), Chinese elm (*Ulmus parvifolia*), privet (*Lingustrum* sp.), pine (*Pinus* sp.), magnolia (*Magnolia* sp.), and myoporum (*Myoporum laetum*). These areas have a limited potential to support nesting birds seasonally.

Immediately south of the proposed Egbert Switching Station, the proposed route for the Jefferson-Egbert transmission line passes through a parcel that was previously developed, and now has two unoccupied buildings with some paved areas and is otherwise dominated by ruderal vegetation including non-native annual grasses, pampas grass (*Cortaderia selloana*), summer mustard (*Hirschfeldia incana*), and fennel (*Foeniculum vulgare*). Based on review of historic aerial imagery, a large building was removed from this site in early 2016.

Insert

Figure 3.4-2 Critical Habitats

The potential Carter Street staging area was covered in gravel at the time of the biological reconnaissance surveys. The surrounding areas are dominated by blue gum eucalyptus and a blend of invasive scrub and coastal scrub species.

The potential Martin Substation and Amador Street staging areas are covered by a combination of gravel and pavement, and have only sparse ruderal vegetation scattered throughout the sites. This vegetation includes ripgut brome (*Bromus diandrus*), telegraph weed (*Heterotheca grandiflora*), mustard (*Brassica rapa*), fennel (*Foeniculum vulgare*), dove weed (*Croton setigerus),* English plantain (*Plantago lanceolata*), and wild radish (*Raphanus raphanistrum*). Outside of the fenced boundary to the east at the potential Amador Street staging areas is coastal scrub habitat that is dominated by annual grasses, coyote brush, acacia, and California coffeeberry.

Wetlands and Aquatic Resources

There are no wetland features mapped in the USFWS National Wetlands Inventory (NWI) or USGS's National Hydrography Dataset within the project area (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 project's reconnaissance surveys. One of the riverine intermittent streambeds has two arms. The western arm 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 arm flows downslope, passes under Guadalupe Canyon Parkway in a culvert, and upon daylighting flows approximately 300 feet downslope where it connects with a concrete lined ditch. The eastern arm of this 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 Martin Substation, outside the fenced area where work would occur. The wetland feature, identified as a palustrine emergent persistent wetland, is located immediately north of this second riverine intermittent streambed, and is also outside of the fenced area where work would occur (Figure 3.4-3).

Two other NWI and National Hydrography Dataset features are within 600 feet of the project area, outside of the biological resources survey area. These are both riverine intermittent streambeds, one of which is within the Gleneagles golf course in John McLaren Park, and the other is located on the east side of John F. Shelley Drive and originates near where this road intersects with Mansell Street. This feature terminates at John McLaren Park Reservoir.

Special-Status Species

This section describes special-status species observed (present) during project reconnaissance-level field surveys and any species considered to be likely to occur, have potential to occur, or that are seasonally present. Special-status species that are unlikely to be found in the project area are not discussed in this section.

Insert

Figure 3.4-3 National Wetlands Inventory Mapping for the Project Area

The CNDDB, USFWS, and CNPS database searches identified 64 special-status species within the vicinity of the project (Section 3.4.2.2 Methodology). The mapping of CNDDB records of plants and wildlife, database results, and summary of records for special-status plant and wildlife species are provided separately for CPUC staff.

Special-Status Plant Species

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. As all impacts associated with the proposed Egbert Switching Station, proposed transmission line routes, and the potential Amador, Cow Palace, and Martin staging areas are on or under paved surfaces or in ruderal habitat in highly urban areas, there is no potential for special-status plants to occur in the project area.

The potential Carter Street staging area is a mostly graveled area with ruderal vegetation, and was not accessible during biological surveys. During the biological reconnaissance surveys, this site was covered with gravel and in use as a laydown and staging area, and was historically used as a drive-in movie theater. Although the site is highly unlikely to support any rare plants, a pre-construction survey will be conducted should this site be chosen as a work area. Any areas supporting rare plants will be avoided.

Special-Status Wildlife Species

Based on field reconnaissance surveys, the project area does not provide suitable habitat for 20 of the 25 special-status wildlife species, and another 2 of the 25 species are unlikely to occur because of the developed and urban nature of the project area. Three special-status wildlife species could potentially occur in the project area: white-tailed kite (*Elanus leucurus*), American peregrine falcon (*Falco peregrinus anatum*), and American badger (*Taxidea taxus*).

White-tailed kite

The white-tailed kite 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 area; however white-tailed kites are known to occur in the San Francisco Bay region, and may occasionally pass through the project area. 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 area.

American peregrine falcon

The habitat of the American peregrine falcon includes many terrestrial biomes which may include urban and developed areas. Most often, breeding American peregrine falcons utilize habitats containing cliffs and almost always nest near water (Wheeler, 2003; White et al., 2002). Peregrine falcons generally utilize open habitats for foraging, but are also known to forage and occur in densely populated areas. Many artificial habitats like towers, bridges and buildings are also utilized by this species (White et al., 2002). Prey mainly consists of birds ranging from small passerines to mid-sized waterfowl; juveniles primarily feed on large flying insects (Wheeler, 2003). Peregrine falcons are known to nest in San Francisco at various locations including 77 Beale Street and the former Potrero Power Plant. San Bruno Mountain may contain suitable nesting habitat, and this species may forage in the vicinity of the project area.

American badger

American badger 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. A badger will typically have a large home range and spend inactive periods in underground burrows. 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. The nearest documented record in the CNDDB is within Golden Gate Park approximately 5 miles to the northwest, but separated from the project by dense urban development. There is also 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 SBM HCP (SBM HCP, 2017). If this species occurs on San Bruno Mountain, individuals may forage in the vicinity of the project area, and may occasionally cross Carter Street and Guadalupe Canyon Parkway during foraging and dispersal movements.

Other Migratory Birds and Nesting Raptors

Non-listed migratory bird species or raptors can establish nests in suitable habitat in the project area. The nesting season for migratory birds and raptors generally occurs between February 15 and August 31. Because of the street trees, landscaping, and other nesting substrate present in the vicinity of the project area, there is potential for passerine and raptors to nest in or near the project area.

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 (Figure 3.4-4). The project is not seeking coverage under the SBM HCP.

3.4.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for impacts related to biological resources derived from Appendix G of the CEQA Guidelines, provide APMs to reduce impacts, and assess potential project-related construction and operational impacts on biological resources.

3.4.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project-related impacts on biological resources were evaluated for each of the criteria listed in Table 3.4-1, as discussed in Section 3.4.4.3.

Insert

Figure 3.4-4 Guadalupe Hills Planning Area Management Units for the San Bruno Mountain Habitat Conservation Plan

3.4.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

APM Biological Resources (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.

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.

3.4.4.3 Potential Impacts

Potential project impacts on biological resources were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and operation and maintenance phase.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and will extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? *Less-than-significant Impact.*

Temporary construction-related impacts (such as elevated noise, human activity, increased turbidity, and ground vibrations) may have a limited impact on wildlife use of the project area. No direct or indirect impacts to special-status species are anticipated, as no suitable habitat for special-status species will be impacted. There is a limited potential for white-tailed kite, American peregrine falcon, migratory birds, and American badger to be present in the project area while foraging.

Raptors and/or migratory birds, including special-status species such as white-tailed kite and American peregrine falcon, have potential to nest near the project area. Nesting birds may be adversely affected if construction activities occur near active nests during the breeding season. Direct impacts could include nest destruction or removal during vegetation trimming or removal activities to provide construction equipment access. Indirect impacts could include nest abandonment or premature fledging from construction-related activities, noise, and/or vibration (for example, from heavy equipment, vehicles, generators, and human presence). All of the project area is within paved surfaces with the exception of the ruderal habitat immediately south of the proposed Egbert Switching Station, which the proposed Jefferson-Egbert transmission line passes through. As the project area is within paved surfaces or in ruderal habitat that is surrounded by urban areas, there is a limited potential for nesting birds to occur, and the potential for impacts is low. Portions of the proposed Jefferson-Egbert route pass through San Bruno Mountain State and County Park and John McLaren Park, which have suitable habitat for foraging white-tailed kite and American peregrine falcon; construction in already disturbed roads and paved areas would not be excepted to alter foraging. Similarly, work within the Martin Substation boundary would not affect foraging birds. The indirect impact from construction-related noise and vibration will be temporary and will occur only during construction. APM BIO-1 and APM BIO-2 will further reduce the less than significant impact level on raptors and/or migratory birds including special-status species such as white-tailed kite and American peregrine falcon.

American badger has the potential to occur on San Bruno Mountain in the vicinity of the proposed Jefferson-Egbert transmission line. This species is most abundant in drier open stages of shrub, forest, and herbaceous habitats with friable soils that have an abundance of burrowing mammals to prey upon. They often spend inactive periods underground in burrows and dens. As the project area in the vicinity of San Bruno Mountain is on paved surfaces, impacts to American badger are not expected, but this species could potentially pass through the work areas while foraging or dispersing. Implementation of APM BIO-1 will further reduce the less than significant impact level.

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, as all areas that will be impacted are on or under paved surfaces or highly disturbed ruderal areas, with no suitable habitat for rare plants. 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 this staging area is used for the project, surveys will be conducted as described in APM BIO-3 and rare plants will be avoided. This will further reduce the less-than-significant impact.

No impacts to special-status species are expected during operation and maintenance activities, as these will occur within paved or highly disturbed areas with no potential for rare plants.

b) Would the project 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 Game or U.S. Fish and Wildlife Service? *No Impact.*

No riparian habitat or sensitive natural community types are present in the project area, therefore, no construction or operation and maintenance impact will occur. Neither of the arms of the drainage on San Bruno Mountain will be directly affected by the project, as it is anticipated that line will go under or above the culvert in Guadalupe Canyon Parkway, depending on the depth of cover required and the diameter of the culvert. All work activities in proximity will be underground within paved surfaces. No riparian habitat is associated with this drainage. Erosion control measures and the Stormwater Pollution Prevention Plan (SWPPP) that will be implemented (Section 3.9 Hydrology) will minimize any indirect impacts within nearby drainages. No construction or operation and maintenance impact will 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.

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? *No Impact.*

No potential wetlands or other areas defined by Section 404 of the CWA are present within the project area. No removal, filling, or other hydrologic alteration of wetlands or other aquatic resources will occur; therefore, therefore, no construction or operation and maintenance impact will occur.

d) Would the project 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? *No Impact.*

The majority of the project area is highly developed with few opportunities for wildlife movement or migration with the exception of birds. In the vicinity of San Bruno Mountain State and County Park and John McLaren Park, there is potential for limited local wildlife movement, but no migratory movements are expected because of surrounding development. In addition, all construction and operation and maintenance activities in the vicinity of both parks will be within existing paved roads that are heavily traveled. Therefore, the project will not interfere substantially with the movement of any native resident wildlife species, nor impede the use of any wildlife nursery sites. The project will not include any in-water construction and, therefore, will not interfere with the movement of migratory fish. No impact will occur during either the project's construction phase or operation and maintenance phase.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? *No Impact.*

The project's design is compatible with the goals for habitat and biological resources in the General Plans for San Francisco, Daly City, and Brisbane. The project does not conflict with the San Francisco Urban Forestry Ordinance, or City of San Bruno Tree Ordinance. No construction or operation and maintenance impact will occur.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? *No Impact.*

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 management units and no construction or operation and maintenance activities will occur off paved or disturbed surfaces, therefore, no conflicts or impact will occur.

3.4.5 REFERENCES

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3.5 CULTURAL RESOURCES

3.5.1 INTRODUCTION

This section describes existing conditions and potential impacts on cultural and paleontological resources as a result of construction, operation, and maintenance of the project. It presents the methods and results of cultural and paleontological resources studies of the project area. Known cultural resources within the project area of potential effect (APE) include two resources. The analysis concludes that impacts to cultural and paleontological resources will be less than significant with incorporation of the APMs described in Section 3.5.4.2. The project's potential effects on cultural and paleontological resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.5-1 and discussed in more detail in Section 3.5.4. The following summary concerning cultural and paleontological resources is derived from the technical reports (Conserva, 2017; Waechter, 2017) that will be provided separately to the CPUC.

Table 3.5-1. CEQA Checklist for Cultural and Paleontological Resources

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☐	☒	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

3.5.2 REGULATORY BACKGROUND AND METHODOLOGY

3.5.2.1 Regulatory Background

State

California Register of Historical Resources

Under Section 21083.2 of CEQA, an important archaeological or historical resource is an object, artifact, structure, or site that is listed on, or eligible for listing on, the California Register of Historical Resources (CRHR). Eligible resources are those that can be clearly shown to meet any 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 value; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

Automatic listings include properties that are listed on the National Register of Historic Places (NRHP). In addition, Points of Historical Interest nominated from January 1998 onward are to be jointly listed as Points of Historical Interest and in the CRHR.

Resources listed in a local historic register or deemed significant in an historical resources survey, as provided under PRC Section 5024.1(g), are presumed to be historically or culturally significant unless the preponderance of evidence demonstrates that they are not. A resource that is not listed on or determined to be ineligible for listing on the CRHR, not included in a local register of historical resources, or not deemed significant in an historical resources survey may nonetheless be historically significant, as determined by the lead agency (PRC Section 21084.1 and Section 21098.1).

Assembly Bill 52

AB 52 established that Tribal Cultural Resources (TCRs) must be considered under CEQA and also provided for additional Native American consultation requirements for the lead agency. A TCR is a site, feature, place, cultural landscape, sacred place, or object that is considered of cultural value to a California Native American Tribe. A TCR is either:

1. On the CRHR or a local historic register;
2. Eligible for the CRHR or a local historic register; or
3. Determined by the lead agency to meet the register criteria.

A project that has potential to impact a TCR 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. Consultation with the California Native American Heritage Commission (NAHC) and the local Native American community has identified no TCRs in the project APEs.

California Health and Safety Code and Public Resources Code

Broad provisions for the protection of Native American cultural resources are contained in the California Health and Safety Code, Division 7, Part 2, Chapter 5 (Sections 8010 through 8030).

Several provisions of the PRC also govern archaeological finds of human remains and associated objects. Procedures are detailed under PRC Section 5097.98 through 5097.996 for actions to be taken whenever Native American remains are discovered. Furthermore, Section 7050.5 of the California Health and Safety Code states that any person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the PRC. Any person removing human remains without authority of law or written permission of the person or persons having the right to control the remains under PRC Section 7100 has committed a public offense that is punishable by imprisonment.

PRC Chapter 1.7, Section 5097.5/5097.9 (Stats. 1965, c. 1136, p. 2792), entitled Archaeological, Paleontological, and Historical Sites, defines any unauthorized disturbance or removal of a fossil site or remains on public land as a misdemeanor and specifies that state agencies may undertake surveys, excavations, or other operations as necessary on state lands to preserve or record paleontological resources.

Local

Background research indicated that no cultural resources designated for local listing are located in the project area. Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the 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.

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. City Historic Districts are composed of thematically related significant resources. City of San Francisco 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 City Historic Districts, and 6 City 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 also provide legal compliance guidelines with respect to cultural resources (San Francisco Planning Department, 2012).

Daly City General Plan

The RME of the City of Daly City's General Plan (City of Daly City, Department of Economic and Community Development, 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) deals with cultural resources, which it defines as "historical resources, which include structures over 50 years old, and prehistoric resources, generally archeological sites." The General Plan states as follows:

> 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's policies for management of these resources are as follows:

Policy 136 Entourage [sic] 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.

3.5.2.2 Methodology

Cultural Resources

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 mile) of the project area, or study area. The following sources were consulted during the records search:

- NWIC basemaps, USGS 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 area
- California Department of Parks and Recreation's *California Inventory of Historic Resources* (CA-OHP1976a) 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-OHP1976b), and those that are listed in or determined eligible for listing in the NRHP or the CRHR

- Historical General Land Office plats and land grant maps (*diseños*) for the project area

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 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 will be 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 will 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 will involve no ground disturbance and no 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 NAHC on May 18, 2017. The Commission 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.

Paleontological Resources

The Society for Vertebrate Paleontology (SVP) is a scientific organization of professional paleontologists that has established standard guidelines (1996, 2010) for professional practices regarding paleontological resource assessments and surveys; monitoring and mitigation; data and fossil recovery; sampling procedures, specimen preparation, identification, and analysis; and museum curation. These guidelines were developed at an institutional level that is dedicated to scholarship and education rather than resource management. Nevertheless, professional paleontologists generally rely on SVP guidance when complying with federal and state regulations. PG&E assumes that professional paleontologists will follow SVP guidance where applicable; however, in the event of conflicts, the guidelines herein shall supersede SVP protocols on PG&E projects.

Existing Information Review

This analysis was performed by reviewing scientific literature and querying online databases, including the University of California at Berkeley Museum of Paleontology (UCMP, 2017), to identify previous paleontological finds in the project vicinity. In addition, geological maps, 7.5-minute USGS topographic maps, Google Earth imagery, and digital elevation data were reviewed to determine the physiographic and geologic context of the project site and vicinity.

The online and print databases were reviewed for macrofossil (i.e., plant, vertebrate, and invertebrate fossil) localities for San Francisco and San Mateo Counties (Jefferson, 1991; Paleobiology Database, 2017; UCMP, 2017).

Paleontological Significance and Sensitivity

Definitions of significance and sensitivity used are based on the Federal Land Management and Policy Act of 1976 as well as standards developed by agencies and professional societies including the Bureau of Land Management (BLM), SVP, and Caltrans (PG&E, 2014).

Definition of Significance and Significance Criteria

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.

The significance of fossils refers to scientific importance. The Federal Land Management and Policy Act of 1976 defines significant fossils as unique, rare, or particularly well preserved; an unusual assemblage of common fossils; or providing important new data concerning several key research interests in the study of evolution.

PG&E (2014) considers a fossil to be significant if it is identifiable and well preserved, and if it meets one of the following criteria:

- A type specimen (i.e., the individual from which a species or subspecies has been described)
- A member of a rare species
- A species that is part of a diverse assemblage (i.e., a site where more than one fossil has been discovered) wherein other species are also identifiable, and from which important information regarding life histories of individuals can be drawn
- An element different from, or more complete than, those now available for its species
- A complete specimen

More specifically, PG&E uses the following research criteria to determine whether a fossil is significant:

- Taxonomy: fossils that are scientifically judged to be important for representing rare or unknown taxa, such as defining a new species
- Evolution: fossils that are scientifically judged to represent important stages in evolutionary relationships, to fill gaps, or to enhance under-represented intervals in the stratigraphic record
- Biostratigraphy: fossils that are scientifically judged to be important for determining or constraining relative geologic age, or for use in regional to interregional stratigraphic correlation
- Paleoecology: fossils that are scientifically judged to be important for reconstructing ancient organism community structure and interpretation of ancient sedimentary environment
- Taphonomy: fossils that are scientifically judged to be exceptionally well or unusually or uniquely preserved, or are relatively rare in the stratigraphy

Definition of Sensitivity and Sensitivity Criteria

To address what would constitute significant impact to paleontological resources, PG&E uses the Potential Fossil Yield Classification System (PFYC) developed by BLM to assess paleontological sensitivity and level of effort required to manage potential impacts to significant resources (Table 3.5-2). 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), 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.

Table 3.5-2. Paleontological Sensitivity Ratings Employed for the Project

Categories of Paleontological Sensitivity	Definition
Class 1—Very Low	These geologic units are not likely to contain fossil remains. They include the following: • Igneous or metamorphic units • Units Precambrian in age or older • Artificial or imported fill material
Class 2—Low	These sedimentary geologic units are not likely to contain vertebrate or scientifically significant nonvertebrate 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 • Sediments that exhibit significant physical and chemical changes
Class 3—Moderate or Unknown	These are fossiliferous sedimentary geologic units where fossil content varies in significance, abundance, and occurrence; or sedimentary units of unknown fossil potential. These units are broken down into sub-classifications and exhibit the following characteristics: ***Class 3a – Moderate Potential*** • Marine in origin with sporadic occurrences of vertebrate fossils • Vertebrate and scientifically significant invertebrate or plant fossils occur intermittently, with low predictability The potential to impact a significant fossil is relatively low, although there is potential to impact common fossils. ***Class 3b – Unknown Potential*** • Exhibits features and conditions that suggest significant fossils could be present, but is poorly studied and/or poorly documented The potential to impact a significant fossil is unknown. Potential yield cannot be assigned without additional assessment.
Class 4—High	These are geologic units with a high occurrence of significant fossils. Vertebrate fossils or scientifically significant invertebrate or plant fossils are known and have been documented, but may vary in occurrence and predictability. Ground-disturbing activities have the potential to adversely affect resources if present. These units are broken down into sub-classifications and exhibit the following characteristics: ***Class 4a – High Exposed*** • Unit is exposed with little or no soil or vegetative cover • Extensive outcrop areas with exposed bedrock The potential for encountering or disturbing a significant paleontological resource is moderate to high. ***Class 4b – High Buried*** • Bedrock has high potential, but has moderating circumstances • Extensive soil or vegetation cover present; bedrock exposures are limited or not expected to be impacted

Table 3.5-2. Paleontological Sensitivity Ratings Employed for the Project

Categories of Paleontological Sensitivity	Definition
	• Areas of exposed outcrop are smaller than two contiguous acres • Outcrops forming cliffs of sufficient height and slope so that impacts are minimized by topography • Other characteristics are present that lower the vulnerability of known and unidentified paleontological resources The potential for encountering or disturbing a significant paleontological resource is moderate to high, but may be reduced by other environmental factors.
Class 5—Very High	These geologic units consistently and predictably produce vertebrate or scientifically significant invertebrate or plant fossils. Significant fossils are known and can be reasonably expected to occur within the impacted area. Ground-disturbing activities have the potential to adversely affect resources if present. These units are broken down into sub-classifications and exhibit the following characteristics: ***Class 5a – Very High Exposed*** • Unit is exposed with little or no soil or vegetative cover • Extensive outcrop areas with exposed bedrock • Frequent exposure and collection of fossils The potential for encountering or disturbing a significant paleontological resource is high. ***Class 5b – Very High Buried*** • Bedrock has very high potential, but has moderating circumstances • Extensive soil or vegetation cover present; bedrock exposures are limited or not expected to be impacted • Areas of exposed outcrop are smaller than two contiguous acres • Outcrops forming cliffs of sufficient height and slope so that impacts are minimized by topography • Other characteristics are present that lower the vulnerability of known and unidentified paleontological resources. The potential for encountering or disturbing a significant paleontological resource is high, but may be reduced by other environmental factors.

Source: Adapted from BLM's *Informational Memorandum 2008-009* (2008).

Paleontological Survey

No field survey was conducted for paleontological resources.

3.5.3 ENVIRONMENTAL SETTING

3.5.3.1 Natural Environment

The project is located on the eastern side of the San Francisco Peninsula, and crosses the boundaries of the cities of San Francisco (San Francisco County), Daly City, and Brisbane (San Mateo County). Land use in the project vicinity is mostly urbanized. The project is within industrial and commercial zones as well as residential zones. The proposed Jefferson-Egbert 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 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 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 study area and San Bruno Mountain on the southern end (Bonilla, 1998; Brabb et al., 1998). Lower-lying portions of the 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.

3.5.3.2 Prehistory

Archaeological evidence indicates that human occupation of the bay began sometime during the Early Holocene (ca. 11,700 to 8,200 years ago). Relatively few archaeological sites have been found from this period, however, 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, however, 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.

3.5.3.3 Ethnography

The project area 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, multi-family, 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.

3.5.3.4 History

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.

During the 1840s, relations between the United States and Mexico became strained, with Mexico fearing American encroachment into Mexican territories. The political situation became unstable, and war between the two nations broke out in 1846. American attempts to seize control of California quickly ensued, and within 2 months California was taken by the United States. Skirmishes between the two sides continued until California was officially annexed to the United States on February 2, 1848, only a few weeks after the discovery of gold in the Sierra Nevada foothills to the east. It was the subsequent Gold Rush that propelled Yerba Buena from a small coastal settlement into the booming metropolis of San Francisco.

History of the Project Area

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 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 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 area 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.

3.5.3.5 Record Search Results

The records searches identified a large number of previous studies within the study area (0.5-mile-wide records search buffer), most of them linear surveys or small spot-surveys. These studies identified 17 resources, only two 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 3 as unevaluated (Baker, 2017). The eligible features are within the substation footprint but are not in the potential staging area or equipment removal area. Table 3.5-3 summarizes the previous studies within the study area; Table 3.5-4 lists the known cultural resources in the study area.

Table 3.5-3. 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	Fies, Robin	2015	Records/Literature Search	No

Table 3.5-3. Previous Studies within the Project Study Area

Report Reference	Title	Author(s)	Year	Type	Intersects APE?
PM 31228153	Cultural Resources Constraints Report; Gas Main Bayview, San Francisco, San Francisco County	Turner, Angie	2016	Archaeological Survey	Yes
PM 31068895	Cultural Resources Constraints Report: Gas Main Fitzgerald, City and County of San Francisco	Hammerle, Esme	2015	Archaeological Survey	No
PM 31025229	Cultural Resources Constraints Report for Gas Main Leland, City and County of San Francisco	Hammerle, Esme	2016	Records/Literature Search	No
-	Cultural Resources Constraints Report; Gas Main Raymond, City and County of San Francisco	Hammerle, Esme	2016	Archaeological Survey	No
PM 31228154	Cultural Resources Constraints Report; Gas Main Gilman Avenue, San Francisco, San Francisco County	Turner, Angie	2017	Archaeological Survey	No
PM 31017734	Cultural Resources Constraints Report; GPRP Replacement Cast Iron Subs, City and County of San Francisco	Harper, Caprice	2014	Archaeological Survey	Yes
PM 31183624	Cultural Resources Constraints Report; GPRP Sunnydale, City and County of San Francisco;	Hammerle, Esme	2016	Archaeological Survey	Yes
T-018-12	Cultural Resources Constraints Analysis for Gas Hydrotesting at T-018-12	Far Western Anthro. Rsrch.	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	Thomas, Jennifer	2013	Archaeological Survey	No
-	Gas Lines 132 and 109 Replacement Study	-	1991	Archaeological Survey	Yes
-	Draft: Overview Proposal; Potrero Power Plant 230 kV 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

Table 3.5-3. Previous Studies within the Project Study Area

Report Reference	Title	Author(s)	Year	Type	Intersects APE?
30669061	Cultural Resources Constraints Report; R-20A Geneva Avenue Daly City, San Mateo and San Francisco Counties	Cox, Beatrice, and Darryl Dang	2013	Archaeological Survey	No
S-10469	Archaeological Field Inspection of the Castro Heights Project Area, Daly City, San Mateo County, California (letter report)	Holman, Miley Paul	1988	Archaeological Survey	No
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	Solari, Elaine-Maryse	1992	Records/Literature Search	Yes
S-21196	Preliminary Cultural Resources Literature Review/Initial Architectural Field Review, Geneva Drive-In, Daly City (letter report)	Busby, Colin I.	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	Hupman, Jan, and David Chavez	2001	Management Plan	No
S-25045	Archaeological Resources Investigations for the Bayview-Hunters Point Redevelopment Plan, San Francisco, California	Hupman, Jan M & David Chavez	2001	Archaeological Survey	Yes

Table 3.5-3. Previous Studies within the Project Study Area

Report Reference	Title	Author(s)	Year	Type	Intersects APE?
S-25225	Historic Architectural Survey Report, AT&T Wireless Services Site ID# 887, Cow Palace, 2500 Geneva, Daly City, San Mateo County, California	Windmiller, Ric	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	Carrico, Richard, Theodore Cooley, and William 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	Hupman, Jan M., and David Chavez	2004	Archaeological Survey	Yes
S-29657	Archaeological Inventory for the Caltrain Electrification Program Alternative in San Francisco, San Mateo, and Santa Clara Counties, California	Nelson, Wendy	2002	Archaeological Survey	No
S-30669	-	-	-	-	No
S-31222	-	-	-	-	No
S-32606	Third Street Light Rail Project, San Francisco, California: Historic Property Survey Report	Corbett, Michael R., Denise 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	Sikes, Nancy et al.	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	Mates, Julia	2009	Evaluation	No
S-37458	-	-	-	-	No

Table 3.5-3. Previous Studies within the Project Study Area

Report Reference	Title	Author(s)	Year	Type	Intersects APE?
S-38298	Archaeological Sensitivity Assessment for the Sunnydale-Velasco Hope, San Francisco Redevelopment Project, City of San Francisco, California	Byrd, Brian F., Rebecca Allen, and Jack Meyer	2011	Sensitivity Assessment	Yes
S-39561	Collocation Submission Packet, Cow Palace, CNU0887, 2500-2600 Geneva Avenue, Daly City	Billat, Lorna	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	Bunse, Meta	2003	Historical Survey	No
S-44996	Section 106 Federal Compliance for Land and Water Conservation Fund Project, McLaren Park Connector Trail	Moran, Toni	2013	Archaeological Survey	Yes
S-45493	-	-	-	-	No
S-45811	-	-	-	-	No
S-46177	-	-	-	-	Yes
S-47650	-	-	-	-	No
S-47839	-	-	-	-	No
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	Byrd, Brian F., Philip Kaijankoski, Matthew A. Russel, and Rebecca 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	Holman, Miley Paul	1974	Archaeological Survey	Yes
S-6160	The Prehistory of San Francisco	Rudo, Mark Ogden	1982	Thesis	Yes
-	Cultural Resources Constraints Report; X-1112 Capacity (Circuit No.: X-1112), City and County of San Francisco; PM 30982911	Hammerle, Esme	2015	Archaeological Survey	Yes

Table 3.5-3. Previous Studies within the Project Study Area

Report Reference	Title	Author(s)	Year	Type	Intersects APE?
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	Maniery, Mary L., and Cindy L. Baker	2008	Archaeological Survey	Yes
-	Addendum Cultural Resources Study for the PG&E Martin Cross-Tie Project	Thomas, Jennifer	2012	Archaeological Survey	Yes
S-38806	Cultural Resources Study for the Lomita Park, Martin, and Sullivan Regulator Stations Rebuild Project, San Mateo County, California	Thomas, Jennifer, M.A., and Cindy Baker, M.A.	2012	Archaeological Survey	Yes
S-27930	Cultural Resource Assessment of Alternative Routes for PG&E's Jefferson-Martin Transmission Line, San Mateo County, California	Brown, Kyle, 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	Pastron, Allen G.	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	Maniery, Mary L., and Cindy 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	Cox, Beatrice, and Esme Hammerle	2013	Archaeological Survey	Yes
S-39265	Cultural Resources Study for the Martin Cross- Tie Project in the Cities of Brisbane and Daly City, San Mateo County, California	Thomas, Jennifer	2012	Archaeological Survey	Yes

Table 3.5-4. Known Cultural Resources within the Project Study Area

Primary Number	Description	Reports (NWIC#)	In APE
P-38-004276	Hunters Point Power Station		No (Demolished)
P-38-004323	Industrial building	S-027717, S-030669, S-039730, S-047599, S-047956	No
P-38-004339	Religious building	-	No
P-38-004354	1- to 3-story commercial building	S-024854, S-031222, S-037458	No
P-38-004574	Single-family property	-	No
P-38-004672	Well/Cistern; Water Conveyance System	-	No
P-38-004944	Overpass/Bridge	-	No
P-38-005460	Overpass/Bridge	-	No
P-41-002059	Civic Auditorium	-	No
P-41-002163	Red brick manhole	-	No
P-41-002205	Martin Substation Transformer Handling House	S-35093	No
P-41-002206	Martin Substation Pump House	S-35093	No
-	Martin Substation structure, bus structures, and transformers	S-35093	No
P-41-002307	Warehouse and public utility building	S-038806	Yes (potential staging area)
P-41-002317	Underground utility vault and manhole	-	Yes (potential staging area)

*Source: Reports on file at NWIC

3.5.3.6 Results of Native American Coordination

As noted, the NAHC responded to the data request for the project and indicated that it had found no sites within the study area listed on the Sacred Lands Inventory. The NAHC did provide a list of local Native American representatives who may have an interest in the proposed project. Informational letters were sent to each of the tribal representatives advising them about the project and soliciting their input. These letters were followed by telephone calls to each of the identified representatives. Table 3.5-5 summarizes efforts to contact Native American representatives identified by the NAHC, and their responses.

Table 3.5-5. Details of Native American Coordination

Name/Affiliation Contact Information	Type of Contact	Date	Action/Response
California Native American Heritage Commission	Email	5/18/2017	Requested Sacred Lands Search and Contact List; received Contact List 5/24/2017.
Chairperson Valentin Lopez Amah Mutsun Tribal Band PO Box 5272 Galt, CA 95632 vlopez@amahmutsun.org (916) 743-5833	Letter	5/25/2017	Sent contact letter describing project and records search results, and requested input about spiritual places or traditional values.
	Phone	6/8/2017	Mr. Lopez stated that the project is outside of their territory; therefore, he had no comment.
Chairperson Irenne Zwierlein Amah Mutsun Tribal Band of Mission San Juan Bautista 789 Canada Road Woodside, CA 94062 amahmutsuntribal@gmail.com (650) 851-7489 cell (650) 851-7747 office (650) 332-1526 fax	Letter	5/25/2017	Sent contact letter describing project and records search results, and requested input about spiritual places or traditional values.
	Phone	6/8/2017	Chairperson Zwierlein was unavailable. Ms. Michelle Zimmer said that Andrew Galvan knows the area best, and they will support his concerns and recommendations.
Chairperson Katherine Erolinda Perez North Valley Yokuts Tribe PO Box 717 Linden, CA 95236 canutes@verizon.net (209) 887-3415	Letter	5/25/2017	Sent contact letter describing project and records search results, and requested input about spiritual places or traditional values.
	Phone	6/8/2017	No answer; no answering machine available to receive voicemail.
Chairperson Rosemary Cambra Muwekma Ohlone Indian Tribe of the San Francisco Bay Area PO Box 360791 Milpitas, CA 95036 muwekma@muwekma.org (408) 314-1898 (510) 581-5194	Letter	5/25/2017	Sent contact letter describing project and records search results, and requested input about spiritual places or traditional values.
	Phone	6/8/2017	Left voicemail with Christophe Descantes' contact information for any information or specific concerns about the project.
Mr. Andrew Galvan The Ohlone Indian Tribe PO Box 3152	Letter	5/25/2017	Sent contact letter describing project and records search results, and requested input about spiritual places or traditional values.

Table 3.5-5. Details of Native American Coordination

Name/Affiliation Contact Information	Type of Contact	Date	Action/Response
Fremont, CA 94539 chochenyo@AOL.com (510) 882-0527 cell (510) 687-9393 fax	Phone	6/8/2017	Mr. Galvan asked to be contacted by email when recommendations have been formulated, and at that time he would also like more information about the project, specifically details about ground disturbance. His request for information has been forwarded to the PG&E Cultural Resources Specialist (CRS). Mr. Galvan also inquired about the other Native American contacts listed by the NAHC, and was happy to hear that the new list (being revised with the NAHC) is being used.
Chairperson Ann Marie Sayers Indian Canyon Mutsun Band of Costanoan PO Box 28 Hollister, CA 95024 ams@indiancanyon.org (831) 637-4238	Letter	5/25/2017	Sent contact letter describing project and records search results, and requested input about spiritual places or traditional values.
	Phone	6/8/2017	Chairperson Sayers asked about the previously recorded resources in the area, and after being told that they are all historic-era, she said she had no concerns about the project.

3.5.3.7 Results of Buried-Sites Sensitivity Analysis

This analysis determined that the highest sensitivity for subsurface/buried prehistoric resources occurs in those areas with Holocene-age soils (low-lying valleys and fans) and at the nearshore lower contact of the bay deposits. The majority of the proposed project lines have a Low to Lowest potential to contain subsurface/buried cultural resources; a small portion has a moderate potential for such resources; and portions along Egbert Avenue, at the existing Martin Substation, and in the vicinity of the proposed Egbert Switching Station site are estimated to have a High to Highest potential (Tables 3.5-6 through 3.5-8). Maps showing these areas are provided separately to CPUC staff (Waechter et al., 2017).

Table 3.5-6. Estimated Buried Site Sensitivity by Project Line

Sensitivity	Meters	% of Total Meters
Proposed Egbert-Embarcadero 230 kV Line		
Lowest	19.7	0.4
High	122.4	2.0
Highest	426.3	7.1
Subtotal	**568.4**	**9.5**

Table 3.5-6. Estimated Buried Site Sensitivity by Project Line

Sensitivity	Meters	% of Total Meters
Proposed Jefferson-Egbert 230 kV Line		
Lowest	4,326.7	72.0
Low	191.7	3.2
Moderate	158.6	2.6
High	163.9	2.7
Highest	110.4	1.8
Subtotal	**4,951.3**	**82.3**
Proposed Martin-Egbert 230 kV Line		
Lowest	15.2	0.3
High	83.4	1.4
Highest	392.6	6.5
Subtotal	**491.2**	**8.2**
Total	**6,010.9**	**100.0**

Table 3.5-7. Summary of Estimated Buried Site Sensitivity for Project Lines

Sensitivity	Meters	% of Total Meters
Lowest	4,361.6	72.7
Low	191.7	3.2
Moderate	158.6	2.6
High	369.7	6.1
Highest	929.3	15.4
Total	**6,010.9**	**100.0**

Table 3.5-8. Estimated Buried Site Sensitivity for Martin Substation

Sensitivity	Acres	% Acres
Lowest	0.2	11.8
Highest	1.5	88.2
Total	**1.7**	**100.0**

3.5.3.8 Results of Field Inventory

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 USGS 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, LLP, 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, LLP, 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 will be completely avoided during project construction.

There is also an historic-era structure at 400 Paul Avenue (formerly identified as 320 Paul Avenue). The following information is from the Mitigated Negative Declaration for the 320-400 Paul Avenue Internet Services Exchange (San Francisco Planning Department, 2014):

> …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 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.

Since 2014, the rear structure ("400 Paul Avenue") has been demolished. The California Register-eligible building at "320 Paul Avenue" is still standing; however, the project will completely avoid any impacts to the building.

3.5.3.9 Paleontological Resources

Geologic Units and Paleontological Sensitivity

An inventory of geologic units by Bonilla (1998) was used to determine the underlying geology for each of the project components. The characteristics of geologic formations cited in this section are discussed in Section 3.6, Geology. The PFYC criteria presented in Section 3.5.2.2 were applied to the geologic units in the study area (within 0.25 mile of the project components). In Table 3.5-9, the geologic age of each unit is indicated in Column 1, the sensitivity rating is listed in Column 3, and the basis for the rating using the PFYC criteria is shown in Column 4. The proposed Egbert Switching Station, Egbert-Embarcadero line, and Martin-Egbert line are underlain by Pleistocene sediments. The proposed Jefferson-Egbert line is in areas of Holocene, Pleistocene and Cretaceous and Jurassic (Franciscan Complex) geologic units as described in Table 3.5-9 and as shown on Figure 3.6-1. This section focuses on geologic units with paleontological sensitivity.

Table 3.5-9. Paleontological Sensitivity of Geologic Units within the Project Study Area

Geologic Age	Geologic Region	Paleontological Sensitivity – PFYC Category	Basis for Sensitivity Rating
Holocene	Artificial Fill (Qaf and Qaf/tf)	1: Very low	Consists of artificial fill.
	Dune Sand (Qd)	2: Low	Recent aeolian deposits; less than 10,000 years old.
	Landslide Deposits (Ql)	2: Low	Fossils are rare at shallow depths; no adjacent fossiliferous units; less than 10,000 years old.
Pleistocene	Sedimentary Deposits (Qu)	3a: Moderate	Fossils are rare at shallow depths.
	Slope Debris and Ravine Fill (Qsr)	2: Low	Slope debris coming out of slopes where fossils are rare; subaerial deposition.
Cretaceous and Jurassic (Franciscan Complex)	Sandstone and shale (KJs and KJsk)	2: Low	Fossils are rare.
	Greenstone (KJg)	1: Very low	Metamorphic unit.
	Chert (KJc)	2: Low	Fossils are rare.
	Sheared Rocks (KJu)	1: Very low	Mechanically altered.
	Metamorphic Rocks (KJm)	1: Very low	Metamorphic unit.
	Serpentine (sp)	1: Very low	Metamorphic unit.

As indicated in the table, Holocene units in the study area are determined to be of very low to low sensitivity. Most Holocene sediment in the 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 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. These factors make fossil preservation in sand dunes unlikely.

The 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 3.5-9, 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 (PG&E, 2014).

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, and Twin Peaks Tunnel, as well as construction of an office building on Pacific Street and construction of the Southeast Sewage Treatment Plant. The Islais Creek channel is approximately 1.25 miles from the study area. This site yielded a sparse Rancholabrean-age fossil fauna (Radbruch and Schlocker, 1958). 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 mile northeast of the study area. Two localities in South San Francisco (UCMP localities V-6203 and V-6319) have also produced Rancholabrean faunas, including bison and elk or moose.

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 study area (Rodda and Baghai, 1993; UCMP, 2017). Fossils in undifferentiated sediment such as Qu are rarely encountered at shallow depths (less than 20 feet below ground surface [bgs]). Excavations associated with the project in Qu are expected to be at a maximum of 15 feet bgs. As discussed previously, 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.

Fossils have been found in the Franciscan Complex in the greater bay area, but they are not very common. 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.

Results of Records Searches

In terms of Holocene sediment, in San Francisco County there are 84 records for "recent" age invertebrate fossils. Location information is given only for about half of them. The only fossil locality that was determined to be near the project site is Islais Creek, approximately 1.25 miles north of the study area. In San Mateo County, there are 305 records for "recent" fossil localities. The locations of all but 13 locations of these are identified, and they are not located anywhere near the study area. Most of these Holocene-age fossils are invertebrates from the coastal Pacific side of the San Francisco Peninsula.

The UCMP has 15 records of Pleistocene epoch fossil localities in San Francisco County. Of these, 10 records were found in named formations not mapped anywhere near the study area. Of the remaining five localities, only the Islais Creek locality was found within 4 miles of the study area. This locality was also reported in Jefferson (1991) and the Paleobiology Database (2017). San Mateo County has 24 records of Pleistocene epoch fossil localities. Of these, all but four records can be ruled out as being from locations that are far away from the study area or are from named formations that do not occur near the study area. Of the remaining four records, three do not have location or formation information, and the remaining locality is labeled as being from South San Francisco, which is 2 to 3 miles from the study area.

Only one fossil locality each in San Francisco and San Mateo Counties is recorded as from the Franciscan Complex. The exact locations of these fossil localities have not been recorded, and the Franciscan Complex is widespread throughout the San Francisco Peninsula; therefore, there is no evidence that the fossils were found in or near the study area.

3.5.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for impacts related to cultural and paleontological resources derived from Appendix G of the CEQA Guidelines, provide APMs to reduce impacts, and assess potential project-related construction and operational impacts on cultural and paleontological resources.

3.5.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts to cultural and paleontological resources were evaluated for each of the criteria listed in Table 3.5-1, as discussed in Section 3.5.4.3.

3.5.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

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: 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 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 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 below 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: 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).

APM Paleontological Resources (PR)-1: Worker's Environmental 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.

3.5.4.3 Potential Impacts

Potential project impacts related to cultural and paleontological resources were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line (construction completed in 1980) will be bisected and extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Several potential staging areas for project construction have been preliminarily identified as follows: adjacent to the proposed Jefferson-Egbert line along Carter Street, at the Cow Palace, within the existing Martin Substation, and along Amador Street in the Port's Southern Waterfront heavy industrial port area. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

The work at the existing Martin Substation to remove the Jefferson-Martin line terminal equipment (line construction completed in 2006) will remove the concrete foundations to 3 feet; no soil disturbance is expected. There are two unevaluated historic-era resources in a potential staging area: a standing warehouse structure (P-41-2307) and an underground utility vault and covered manhole constructed in the early twentieth century (P-41-2317). There will be no ground disturbance during use of the potential staging area and no impacts to the two recorded resources.

Project impacts on paleontological resources were evaluated based on an assessment of the paleontological sensitivity of identified geologic formations in relation to the proposed project activities. In accordance with Appendix G of the CEQA Guidelines, project impacts on paleontological resources were considered significant if the project would directly or indirectly destroy a unique paleontological resource or site. Sensitivity ratings were employed to assess the likelihood and/or severity of project impacts. The sensitivity ratings provided in Table 3.5-2, which combine a number of relevant considerations, are considered in light of the nature of subsurface disturbance associated with the project, and the significance of impacts is determined based on that information.

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 (PRC 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.

a) Would the project cause a substantial adverse change in the significance of an historical resource as defined in Section 15064.5? *Less-than-significant Impact.*

At present there are no known historical resources (i.e., a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR; or a resource included in a local register of historical resources, as defined in Section 5020.1(k) of the PRC or identified as significant in an historical resource survey meeting the requirements in Section 5024.1(g) of the PRC; or an object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant) in the project APE. Should such a resource be identified during surveys of previously inaccessible areas, as a result of exploratory trenching/coring, or as an inadvertent discovery during construction, implementation of APM

CR-1 through CR-5 will reduce the impact to a less-than-significant level for the potential to cause a substantial adverse change in the significance of an historical resource as defined in Section 15064.5.

Project operation and maintenance will not be ground disturbing, and will occur within city streets or facilities and as such will not cause a substantial adverse change in the significance of an historical resource as defined in Section 15064.5; no impact will occur.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5? *Less-than-significant Impact.*

Archaeological resources may be present in areas where pavement and other obstacles precluded survey. In addition, a study of known prehistoric site locations, historical shoreline maps, and historical land development has resulted in the identification of some areas of high sensitivity for buried or subsurface resources. Implementation of APMs CR-1 through CR-5 will reduce impacts to a less-than-significant level for the potential to cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5.

Project operation and maintenance will not be ground disturbing, and will occur within city streets or facilities and as such will not cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5; no impact will occur.

c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? *Less-than-significant Impact.*

The project does not occur near or on a unique geologic feature. 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 line are within areas with Pleistocene sediments, which have a moderate paleontological sensitivity. It is possible that paleontological resources could be impacted during activities; however, the excavation depths are unlikely to impact paleontological resources given that fossils in Pleistocene sediments are rare at shallow depths. The remainder of the proposed Jefferson-Egbert line is within areas having very low to low paleontological sensitivity. Potential impacts to paleontological resources will be less than significant, and potential impacts will be further reduced with the implementation of APMs PR-1 and PR-2 during construction of the project.

The operation and maintenance phase activities of the project will occur within city streets or the proposed switching station site, and will therefore not directly or indirectly impact a unique paleontological resource or site or unique geologic feature; no impact will occur.

d) Would the project disturb any human remains, including those interred outside of formal cemeteries? *Less-than-significant Impact.*

The proposed project will not impact any known graves during construction or operation and maintenance. However, there is the potential to encounter human remains during construction, particularly in those areas identified as having high sensitivity for buried or subsurface resources. If human remains are discovered, PG&E will implement APM CR-5. Potential impacts to human remains during construction or operation and maintenance, including those interred outside of formal cemeteries, will be less than significant with the implementation of APM CR-5.

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3.6 GEOLOGY AND SOILS

3.6.1 INTRODUCTION

This section describes the existing geological and soil conditions, and potential geologic and geotechnical hazards at the project site and surrounding areas, and concludes that any impacts will be less than significant. Potential geologic hazards along the project include fault-surface rupture, ground shaking, landsliding, liquefaction, and other ground-failure mechanisms. The implementation of APMs described in Section 3.6.4.2 will further reduce less-than-significant impacts on geology and soils. The project's potential effects on geology and soils were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.6-1 and discussed in more detail in Section 3.6.4.

Table 3.6-1. CEQA Checklist for Geology and Soils

Would the project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Section 1802.3.2 of the California Building Code (2007 or 2010) creating substantial risks to life or property?	☐	☐	☒	☐
e) 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?	☐	☐	☐	☒

3.6.2 REGULATORY BACKGROUND AND METHODOLOGY

3.6.2.1 Regulatory Background

Federal

No federal regulations related to geology, soils, and seismicity are applicable to the project.

State

Alquist-Priolo Earthquake Fault Zoning Act

California enacted the Alquist-Priolo Special Studies Zones Act in 1972, which was renamed the Alquist-Priolo Earthquake Fault Zoning Act in 1994. Also known as the Alquist-Priolo Act, it requires the establishment of "earthquake fault zones" along known active faults in California. Regulations on development within these zones are enforced to reduce the potential for damage resulting from fault displacement. Information on earthquake fault zones is provided for public information purposes (see Section 3.6.3.4, Seismicity, for further discussion).

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 addresses earthquake hazards other than fault rupture, including liquefaction and seismically induced landslides. Seismic hazard zones are to be mapped by the State Geologist to assist local governments in land use planning. The Seismic Hazards Mapping Act states that "it is necessary to identify and map seismic hazard zones in order for cities and counties to adequately prepare the safety element of their general plans and to encourage land use management policies and regulations to reduce and mitigate those hazards to protect public health and safety."

California Building Standards Code

The California Building Standards Commission is responsible for coordinating, managing, adopting, and approving building codes in California. The state of California provides minimum standards for building design through the 2010 California Building Code (CBC) (CCR, Title 24). Chapter 18 of the CBC regulates the excavation of building foundations and retaining walls, and specifies required geological reports. Appendix J of the 2010 CBC regulates grading activities, including drainage and erosion control and construction on unstable soils, such as expansive soils and areas subject to liquefaction.

Local

Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary regulations. PG&E will obtain a building permit or other required ministerial permits for construction of the Egbert Switching Station building and equipment foundations.

3.6.2.2 Methodology

Potential geologic hazards pertinent to the project site were evaluated by Langan Engineering and Environmental Services, Inc. (Langan) based on interpretation of historic aerial photographs and review of published geologic maps and reports, as well as geotechnical engineering reports for other sites in the project vicinity. The evaluation included assessment of the potential for fault rupture, seismic ground shaking from local and regional sources, liquefaction, and other seismic-related ground deformation processes. Evaluation of the project susceptibility to these hazards is based on review of mapped faults, liquefaction and landslide susceptibility zones, and earthquake shaking potential.

Information on the geology and soils was compiled from published literature, maps, and examination of aerial photographs. Geologic units and structural features were obtained from maps published by the California Geological Survey and USGS. Soil descriptions were obtained from mapping by the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS).

The geologic hazard and feasibility evaluation prepared by Langan to inform the design of the project will be provided separately to CPUC staff.

3.6.3 ENVIRONMENTAL SETTING

3.6.3.1 Regional Setting

The project area 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. The geologic setting of the San Francisco Bay region is dominated by features associated with the active San Andreas Fault system. Physiographic features of the San Francisco Bay region include open water and tidal marshes, hills and mountains, marine terraces, and alluvial lowlands and valley bottoms (Helley and Lajoie, 1979).

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 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 about 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 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 study area and San Bruno Mountain on the southern end (Bonilla, 1998; Brabb et al., 1998). Lower-lying portions of the 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, there are about 60 to 64 million years represented by no 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.

3.6.3.2 Stratigraphic Units

Stratigraphic units in the vicinity of the project, as mapped on the Preliminary Geologic Map of the San Francisco South 7.5' Quadrangle and Part of the Hunters Point 7.5' Quadrangle, San Francisco bay Area, California (Bonilla, 1998), can be divided into three age groups and are presented chronologically from youngest to oldest. A geologic map showing the project components and underlying stratigraphic units is included as Figure 3.6-1.

Holocene (10,000 years ago to Present)

Low-lying portions in the study area that are covered by the most recent sediment, including artificial fill, are included in this category. This sediment is considered to be less than 10,000 years old, which is less than the minimum age widely considered as fossil-bearing rock (PG&E, 2014), and consists of the following:

- Artificial Fill (Qaf and Qaf/tf): material imported from other areas and placed by humans. As discussed above, the eastern shoreline of the San Francisco Peninsula has been pushed eastward in many locations, including a portion of the study area, by using fill to create more land. The fill may include clay, silt, sand, rock fragments, organic matter, and human-made debris. In area marked Qaf/tf, the fill was placed on tidal flats. Areas marked Qafs designate Native American shell mounds.

- Dune Sand (Qd): mostly loose, well-sorted, fine-grained sand. The sand is mostly gray in color but is orange to reddish brown in some places. Lower depths extend into the Pleistocene.

- Landslide Deposits (Ql): sediment deposited in this location as the result of landslides. The composition and structure of the sediment depends on that of the geologic unit involved in the landslide.

Pleistocene (2.4 million to 10,000 years ago)

The majority of the project footprint lies on older sediment determined to be from the Pleistocene epoch that includes the time period from 2.4 million years ago to 10,000 years ago (Bonilla, 1998), as follows:

- Sedimentary Deposits (Qu): sediments mapped as undifferentiated sedimentary deposits of Pleistocene age (Bonilla, 1998).

Insert

Figure 3.6-1 Geologic Site Plan

- Slope Debris and Ravine Fill (Qsr): stony silty-to-sandy clay, or locally silty to clayey sand or gravel. These deposits are yellowish-orange to medium gray, and are unstratified or poorly stratified.

Jurassic and Cretaceous (200 million to 65 million years ago)

The oldest geologic units in the study area, Cretaceous and Jurassic rocks associated with the Franciscan Complex, are from 200 million to 65 million years in age. These geologic units probably originated as oceanic crust and pelagic deposits overlain by Late Jurassic to Late Cretaceous turbidites (Brabb et al., 1998). They are generally considered low-grade metamorphic rocks, and contain high-pressure, low-temperature metamorphic minerals. The Franciscan Complex in the study area consists of the following geologic units:

- Sandstone and Shale 1 (KJs): interbedded sandstone and shale that is hard where freshly exposed or intact, and is soft where weathered or sheared. These rocks are commonly medium dark gray where freshly exposed, olive gray to yellowish brown where moderately weathered, and yellowish orange to yellowish gray where highly weathered.

- Sandstone and Shale 2 (KJsk): sandstone and shale as described above for KJs but containing more than 2 percent potassium feldspar.

- Greenstone (KJg): altered volcanic rocks that are fine grained and mostly basalt. Greenstone is hard and grayish olive to olive gray in color where freshly exposed. Where weathered, it is soft and dark yellowish orange to light brown.

- Chert (KJc): 2- to 3-inch-thick chert layers that are interbedded with shale layers less than 1 inch thick, generally grayish red.

- Sheared Rocks (KJu): small to large fragments of hard rock matrix of sheared rock. Derived mostly from shale and sandstone of Franciscan Complex and serpentine that are fractured and faulted attributable to mechanical stress.

- Metamorphic Rocks (KJm): hard to firm, fine to coarse grained schistose, gneissose, or granulose.

- Serpentine (sp): hard to soft rock that is greenish gray and contains small bodies of gabbro and diabase.

3.6.3.3 Soils

The USDA NRCS compiles soil data from across the country and makes the data available through the Web Soil Survey (USDA, 1999). The project site surface soils are predominantly mapped as Urban Land or Orthent, with smaller areas of Candlestick-Kron-Buriburi complex and Pits and Dumps. Descriptions of the mapped soil units along the proposed project routes and switching station are presented below (NRCS, 2012).

Candlestick-Kron-Buriburi complex, 30 to 75 percent slopes

This unit, which is present along 0.86 mile of the proposed Jefferson-Egbert line, is 40 percent Candlestick fine sandy loam, 25 percent Kron sandy loam, and 20 percent Buriburi gravelly loam. Shrink-swell potential of this unit is low.

Orthents, cut and fill, 0 to 15 percent slopes

This unit, which is present along approximately 0.15 mile of the proposed Jefferson-Egbert line, consists of soils that have been cut and filled for recreational development, such as the construction of 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. Shrink-swell potential of the Orthents is low.

Orthents, cut and fill-Urban land complex, 0 to 5 percent slopes

This unit present along approximately 0.27 mile of the proposed Martin-Egbert line, 0.61 mile of the Jefferson-Embarcadero line, and at the proposed Egbert Switching Station. The unit is 55 percent Orthents, cut and fill, and 35 percent Urban land. The Orthents consist of soils that have been cut and filled for urban development, such as the construction of roads and buildings. These soils are poorly drained to well drained and are nearly level to gently sloping. They dominantly are deep and very deep and are 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. Shrink-swell potential of the Orthents is low shrink-swell potential of Urban land is unrated.

Orthents, cut and fill-Urban land complex, 5 to 75 percent slopes

This unit is present along approximately 0.06 miles of the proposed Jefferson-Egbert line. These very shallow to very deep, well drained soils are on uplands. The soils formed in residuum derived dominantly from sandstone. This unit consists of soils that have been cut and filled for urban development. The soils are moderately steep to very steep. They 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 commonly is exposed. The areas of fill generally have slopes of less than 30 percent. Shrink-swell potential of the Orthents is low shrink-swell potential of Urban land is unrated.

125-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 Brisbane. Sanitary landfills are in 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.

Urban land

This map unit consists of areas where more than 85 percent of the surface is covered by asphalt, concrete, buildings, and other structures. Slope generally is 0 to 5 percent, but it ranges from 0 to 30 percent.

Urban land-Orthents, cut and fill complex, 0 to 5 percent slopes

This unit is 50 percent Urban land and 45 percent Orthents, cut and fill. Urban land consists of areas that are covered by asphalt, concrete, buildings, and other structures. The material covered by these structures consists of soils that are similar to the Orthents. The Orthents consist of soils that have been cut and filled for urban development, such as the construction of roads and buildings. These soils are deep and are 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. 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 percent slopes

This unit is 50 percent Urban land and 40 percent Orthents, cut and fill. Urban land consists of areas that are covered by asphalt, concrete, buildings, and other structures. The material covered by these structures consists of soils that are similar to the Orthents. The Orthents consist of soils that have been cut and filled for homesite 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; they are used as building foundations and road bases and to control runoff. Shrink-swell potential of the Orthents is low shrink-swell potential of Urban land is unrated.

3.6.3.4 Seismicity

The Alquist-Priolo Act requires the establishment of "earthquake fault zones" along known active faults in California. Primary faults zoned under the Alquist-Priolo Act through 2007 located within approximately 30 miles (48 kilometers [km]) of the project include the Green Valley and Concord, Calaveras, Hayward, Rodgers Creek-Healdsburg, San Andreas, and San Gregorio faults (Bryant and Hart, 2007). A regional fault map showing faults in the San Francisco Bay Area and the project vicinity is included as Figure 3.6-2. The project area does not fall within an Alquist-Priolo designated fault zone thus there is no fault rupture hazard for the project.

The magnitude, or size, of an earthquake is measured by a number of methods. Several of these (including the Richter [ML], surface wave [Ms], and body wave [Mb]) methods, evaluate the magnitude of an earthquake by measuring the amplitude of seismic waves as recorded by a seismograph. Because of the instrumental properties of seismographs, these methods provide inconsistent results above or below a certain range of magnitudes. A more robust measure of magnitude is moment magnitude (Mw). Evaluation of Mw is based on the seismic moment of an earthquake, which can be described as the leverage of forces across the area of fault slip. Because it is directly related to the area of the fault ruptured during an earthquake, Mw is a consistent measurement of size from the smallest to the largest events.

Insert

Figure 3.6-2 Fault Map

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 km) 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 Mw of 7.9, a 1957 offshore quake (Mw 5.7), and the 1989 Loma Prieta earthquake (Mw 6.9).

The USGS evaluated the Bay Area seismicity through a study by the Working Group on California Earthquake Probabilities (WGCEP) using the Uniform California Earthquake Rupture Forecast (UCERF3) model (WGCEP, 2015). WGCEP estimated a 6.4 percent chance of one or more earthquakes of Mw 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 percent chance that a Mw 6.7 or greater earthquake will occur on the Hayward Fault, located approximately 12.5 miles (20 km) east of the project, within the same time period. The 30-year probability of a 6.7 Mw earthquake occurring in the San Francisco region was modeled at 72 percent.

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 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 (Langan, 2017).

The seismicity of active and potentially active regional faults presented by Langan (2017) are summarized in Table 3.6-2 for the proposed Egbert Switching Station site.

Table 3.6-2. Regional Faults and Seismicity

Regional Faults and Seismicity Fault Segment	Approximate Distance from the proposed Egbert Switching Station (miles [km])	Direction from the proposed Egbert Switching Station	Mean Characteristic Moment Magnitude [a]
N. San Andreas – Peninsula	5.5 (9)	West	7.23
N. San Andreas (1906 rupture)	5.5 (9)	West	8.05
San Gregorio Connected	10.5 (17)	West	7.50
N. San Andreas – North Coast	10.5 (17)	West	7.51
Total Hayward	12.5 (20)	Northeast	7.00
Total Hayward-Rodgers Creek	12.5 (20)	Northeast	7.33
Monte Vista-Shannon	22 (35)	Southeast	6.50
Total Calaveras	22.5 (36)	East	7.03
Mount Diablo Thrust	22.5 (36)	East	6.70
Rodgers Creek	25 (40)	North	7.07
Green Valley Connected	25.5 (41)	East	6.80
Point Reyes	28 (45)	West	6.90

[a] This magnitude represents the average theoretical Mw for future earthquakes on the given segment or combination of segments.

3.6.3.5 Landslides

The project is located within an area of known seismic activity. Earthquake-induced landslides can be a source of earthquake-related damage. Landslides occur where the internal shear strength of a material is compromised. This can be caused by the presence of water in pore spaces, earthquake shaking, or other factors including human activities such as grading or the removal of vegetation. A debris flow is a form of mass wasting characterized by the mobilization of shallow-seated solid material that acts like a fluid when sufficiently mobilized and generally follows preexisting channels. Debris flows are relatively short-lived, but have the potential to be destructive because of their high speed and density. Approximately 0.27 mile of the proposed Jefferson-Egbert line crosses a mapped potential debris flow source area near the intersection of Carter Street and Guadalupe Canyon Road (Figure 3.6-3). However, at least some portion of this area has been subject to human modification associated with urban development of adjacent commercial and residential properties.

Insert

Figure 3.6-3 Seismic Hazards

3.6.3.6 Erosion

Erosion is the process by which rock and soil are transported from one location to another, typically by gravity or water. Erosion can be controlled by slope, vegetation, wind and rain, human activity, organic matter, and vegetation cover. Soft or loose soils, or areas of increased slope, can be increasingly susceptible to erosion.

A soil's susceptibility to erosion varies and is a function of its characteristics, such as soil texture, soil structure, topography, amount of vegetative cover, and climate. Erosion from water mainly occurs in loose soils on moderate to steep slopes, particularly during high-intensity storm events. Preexisting urbanization and paving limits the susceptibility of underlying soil to erosion. Because the proposed project is predominantly in urbanized and paved areas, erosion potential is low.

3.6.3.7 Liquefaction

Liquefaction occurs when sufficiently saturated sandy soil is subject to disturbance such as seismic shaking, which causes pore water to move vertically through the soil, resulting in a sudden loss of shear strength. 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. Sediment cohesion is another controlling factor of liquefaction in that non-cohesive soils are more susceptible to liquefaction (California Division of Mines and Geology, 2001). Potential staging areas along Amador Street in the Port's Southern Waterfront heavy industrial port area are within a mapped liquefaction hazard zone (Figure 3.6-3). The proposed Jefferson-Egbert line is adjacent to a mapped liquefaction hazard zone along Geneva Avenue and then crosses the mapped liquefaction hazard zone at Velasco and Geneva Avenues (Figure 3.6-3). Langan (2017) estimates that approximately 1 to 4 inches of liquefaction-induced settlement may occur in this portion of the alignment. Settlement attributable to liquefaction can be erratic, and differential settlement could likely occur; additional review is recommended (Langan, 2017).

Langan concludes that the area of the proposed Egbert Switching Station, the proposed Martin-Egbert and Egbert-Embarcadero lines and approximately 0.20 mile of the proposed Jefferson-Egbert line south of the switching station site is underlain by potentially liquefiable material, and settlement of several inches could occur during a major seismic event. Boring identified layers of loose to medium dense sand and silty sand as shallow as approximately 4 feet below the ground surface to a depth of approximately 50 feet in the vicinity of the proposed switching station site. Langan recommends that at-grade structures be supported on mat foundations constructed over improved soil or deep foundation that extends to competent material below the potentially liquefiable soil layers. During final design, PG&E may use deep foundations for structures and equipment that do not tolerate differential settlement or design system components to accommodate settlements.

3.6.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for impacts related to geology and soils derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operational geologic impacts.

3.6.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts related to geology and soils were evaluated for each of the criteria listed in Table 3.6-1, as discussed in Section 3.6.4.3.

3.6.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs (see Section 3.9, Hydrology and Water Quality, for APMs related to erosion control):

APM Geology and Soils (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
- Overexcavating 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

3.6.4.3 Potential Impacts

Potential project impacts related to geology and soils were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

The 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

project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Several potential staging areas for project construction have been preliminarily identified as follows: adjacent to the proposed Jefferson-Egbert line along Carter Street, at the Cow Palace, within the existing Martin Substation, and along Amador Street in the Port's Southern Waterfront heavy industrial port area. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

a) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault as 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, strong seismic ground shaking, seismic-related ground failure, including liquefaction, or landslides?

i) Rupture of a known earthquake? *No Impact.*

No known sufficiently active faults underlie the project; therefore, the project would not expose people or structures to potential substantial adverse effects from rupture of a known fault during either construction or operation and maintenance.

ii) Strong seismic ground shaking? *Less-than-significant Impact.*

As the area of the proposed project is within a seismically active region, it is likely that the project will be exposed to an earthquake that produces moderately strong to strong seismic ground shaking. PG&E will implement APM GS-1 and GS-2 to address potential impacts of seismic-related ground shaking resulting in a less than significant impact for exposing people or structures to potential substantial adverse effects from strong seismic ground shaking during construction or operation and maintenance.

iii) Seismic-related ground failure, including liquefaction? *Less-than-significant Impact.*

The potential staging areas along Amador Street are within a mapped liquefaction hazards zone but will not include structures as they would be used for equipment and material staging. These level, existing staging areas not susceptible to damage from this type of liquefaction and would therefore not expose people or structures to potential substantial adverse effects. Where the proposed Jefferson-Egbert line crosses a mapped zone of potential liquefaction, PG&E will implement APM GS-1 and APM-GS-2 to perform design studies and select design measures that will reduce potential impacts from seismic-related ground failure, including liquefaction to a less-than-significant level during construction and operation and maintenance phases.

iv) Landslides? *Less-than-significant Impact.*

Where the proposed Jefferson-Egbert line crosses a mapped debris flow source area, PG&E will implement APM GS-1, to perform design studies and select design measures that will reduce potential impacts from landslides to a less-than-significant level during construction and operation and maintenance phases.

b) Would the project result in substantial soil erosion or the loss of topsoil? *Less-than-significant Impact.*

The potential for increased erosion exists with surface-disturbing activities during construction activities. Erosion will be limited because the proposed switching station site is relatively flat and because the transmission lines will be mostly installed in existing streets beneath pavement and the potential staging areas are paved or graveled. APMs WQ-1 and WQ-2 will be implemented during construction activities to develop and implement an SWPPP that will further reduce the less than significant impact of substantial soil erosion or loss of topsoil. Operation and maintenance activities are not expected to include ground-disturbing activities; therefore, no impact will occur during this phase.

c) 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? *Less-than-significant Impact.*

The potential staging areas along Amador Street are within a mapped liquefaction hazards zone but will not expose people or structures to potential substantial adverse effects as previously discussed. Langan (2017) found that the proposed Egbert Switching Station, the proposed Martin-Egbert, Egbert-Embarcadero lines and approximately 0.20 mile of the proposed Jefferson-Egbert line south of the switching station site is underlain by potentially liquefiable material, which could cause several inches of settlement. Where the project is within a mapped area of potential liquefaction, PG&E will implement APM GS-1 and GS-2 to perform design studies and select design measures to reduce liquefaction impacts to less than significant.

d) Would the project be located on expansive soil, as defined in Section 1802.3.2 of the California Building Code (2007 or 2010) creating substantial risks to life or property? *Less-than-significant Impact.*

Expansive soils are those that contain significant amounts of clays that expand when wet and can cause damage to foundations if moisture collects beneath structures. According to NRCS data, soils within the project site generally do not contain significant amounts of clay and, where rated, have low shrink-swell potential; however, at the proposed Egbert Switching Station, PG&E will implement APM GS-2, to perform design studies and select design measures that will further reduce potential impacts during construction or operation and maintenance.

e) 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? *No Impact.*

The project type does not include a waste disposal system; therefore, no impact will occur during construction or operation and maintenance.

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3.7 GREENHOUSE GAS EMISSIONS

3.7.1 INTRODUCTION

This section discusses potential GHG emissions associated with the project construction, operation, and maintenance, and concludes that impacts will be less than significant. GHG emissions were calculated and reported in carbon dioxide (CO_2) equivalents (CO_2e) for CO_2, nitrous oxide (N_2O), and methane (CH_4) emissions from on-road and off-road construction equipment and vehicles. Additionally, operational emissions of sulfur hexafluoride (SF_6) associated with potential leakage from gas-insulated switchgear at the switching station are also estimated. The implementation of the APMs described in Section 3.7.4.2, as well as those described in Section 3.3, Air Quality, will further reduce less-than-significant impacts.

The project's potential effects on GHG emissions were evaluated using the criteria set forth in Appendix G of the CEQA Guidelines (Office of Planning and Research, 2012). The conclusions are summarized in Table 3.7-1 and discussed in more detail in Section 3.7.4.

Table 3.7-1. CEQA Checklist for Greenhouse Gas Emissions

Would the project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

3.7.2 REGULATORY BACKGROUND AND METHODOLOGY

3.7.2.1 Regulatory Background

Federal

The Supreme Court decision in Massachusetts et al. v. U.S. Environmental Protection Agency et al. (Supreme Court Case 05-1120) found that USEPA has the authority to list GHGs as pollutants and to regulate emissions of GHGs under the federal CAA. On April 17, 2009, USEPA found that CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6 may contribute to air pollution and may endanger public health and welfare (USEPA, 2017a). USEPA has established reporting regulations that require specific facilities and industries to report their GHG emissions annually (USEPA, 2017b).

40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule. This rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tons of CO_2e emissions per year (USEPA, 2013).

40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule. Historically, the USEPA has mandated that Prevention of Significant Deterioration (PSD) and Title V requirements apply to facilities whose stationary source CO_2e emissions exceed 100,000 tons per year (USEPA, 2014). However, the Supreme Court decision in Utility Air Regulatory Group v. USEPA et al. (Supreme Court Case 12-1146) found that the USEPA does not have the authority to require PSD and Title V permitting for facilities based solely on GHG emissions. Additionally, the Supreme Court found that the USEPA can regulate GHG emissions from sources which are already subject to PSD and Title V requirements due to emissions of other pollutants.

This project is not impacted by these regulations. Additionally, because the project will not involve construction and operation of new stationary combustion sources, such as emergency generators, there are no permitting regulations relevant to the project.

State

In 2006, the California State Legislature signed the Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32), which provides the framework for regulating GHG emissions in California. This law requires the CARB to design and implement emission limits, regulations, and other measures such that statewide GHG emissions are reduced in a technologically feasible and cost-effective manner to 1990 levels by 2020. The statewide 2020 emissions limit is 427 million metric tons CO_2e (CARB, 2007).

State Executive Order S-3-05 established GHG reductions targets for the state of California. The targets called for a reduction of GHG emissions to 2000 levels by 2010; a reduction of GHG emissions to 1990 levels by 2020; and a reduction of GHG emissions to 80 percent below 1990 levels by 2050 (Office of the Governor, 2005). The California Environmental Protection Agency (Cal/EPA) secretary is required to coordinate development and implementation of strategies to achieve the GHG reduction targets.

Part of CARB's direction under AB 32 was to develop a scoping plan that contains the main strategies California will use to reduce GHG emissions that cause climate change. The scoping plan includes a range of GHG reduction actions, which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 cost of implementation fee regulation to fund the program (CARB, 2008a and CARB, 2017b). The CARB is currently in the process of updating the scoping plan to address the near-term 2030 target established by Senate Bill 32, which is to reduce statewide GHG emissions by 40 percent below 1990 levels by 2030.

CARB's Regulation for the Mandatory Reporting of Greenhouse Gas Emissions came into effect in January 2009 (CARB, 2017c). However, this project is not impacted by these regulations and does not require mandatory reporting.

CARB published a Preliminary Draft Staff Proposal titled Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act in October 2008 that included a proposal that non-transportation-related sources with

GHG emissions less than 7,000 metric tons of CO_2e per year should be presumed to have a less than significant impact (CARB, 2008b).

On December 30, 2009, the California Natural Resources Agency adopted amendments to the CEQA guidelines to include analysis of GHG emissions in CEQA documents, deferring significance thresholds to the lead agency. The amendments became effective on March 18, 2010 (California Natural Resources Agency, 2009).

A Regulation for Reducing SF_6 Emissions from Gas Insulated Switchgear was implemented as part of AB 32, mandating utility-wide reduction of SF_6 emissions to a 1 percent leak rate by 2020 (CARB, 2017d).

In an effort to best support reduction of GHG emissions consistent with AB 32, CARB has released the Short-Lived Climate Pollutant Reduction Strategy. This plan, required by Senate Bill 605, establishes targets for statewide reductions in Short-Lived Climate Pollutant emissions of 40 percent below 2013 levels by 2030 for CH_4 and hydrofluorocarbons and 50 percent below 2013 levels by 2030 for anthropogenic black carbon. It is expected that this strategy will be integrated into the next version of the scoping plan (CARB, 2017a).

Regional

The California Air Pollution Control Officer's Association has established the Greenhouse Gas Reduction Exchange for GHG emission credits in California. Credits listed on the Greenhouse Gas Reduction Exchange come from voluntary emission reduction projects and can be purchased to offset GHG emissions.

Local air districts act under state law and their discretionary requirements apply to PG&E utility projects.

As discussed in Section 3.3.2.1, the project is located within the jurisdiction of the BAAQMD. The BAAQMD is the local agency charged with preparing, adopting, and implementing emission control measures and standards for stationary sources of air pollution. Because the project will not involve construction of new stationary sources, there are no permitting regulations relevant to the project. Additionally, because CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary GHG regulations. The local plans and guidance documents referenced in Section 3.3.2.1 (i.e., the *California Environmental Quality Act Air Quality Guidelines* [BAAQMD, 2017a] and the *2017 Bay Area Clean Air Plan* [BAAQMD, 2017b]) are also relevant to analyses used to evaluate the project's GHG emissions.

Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the project is not subject to local (i.e., city and county) discretionary regulations.

3.7.2.2 Methodology

Short-term construction emissions of CO_2e were evaluated using detailed construction emissions calculations. Construction emissions were estimated using construction equipment emission factors from the *California Emissions Estimator Model (CalEEMod) User's Guide* (Environ International Corporation, 2016) and vehicle emission factors from EMFAC2014 (version 1.0.7).

Long-term operational emissions of CO_2e were also evaluated. These emissions are a result of leakage from SF_6-insulated circuit breakers. Operational emissions associated with inspections and ongoing maintenance activities (primarily associated with periodic maintenance vehicle travel) were not estimated because these activities are part of PG&E's ongoing operations and are expected to be infrequent and minimal.

GHG emission calculations in this document were based on worst-case estimates of emissions to ensure presentation of a conservative environmental analysis. This analysis may be revised as needed to reflect changes to the project plans.

3.7.3 ENVIRONMENTAL SETTING

3.7.3.1 Regional

GHGs are global concerns, unlike criteria air pollutants or toxic air contaminants that are of regional and/or local concern. Scientific research indicates that observed climate change is most likely a result of increased GHG emissions associated with human activity (Intergovernmental Panel on Climate Change, 2007). Global climate change describes a collection of phenomena, such as increasing temperatures and rising sea levels, occurring across the globe due to increasing anthropogenic emissions of GHGs (USEPA, 2009). GHGs contribute to climate change by allowing ultraviolet radiation to enter the atmosphere and warm the Earth's surface, but also prevent some infrared radiation from the earth from escaping back into space. The largest anthropogenic source of GHGs is the combustion of fossil fuels, which result primarily in CO_2 emissions.

As defined in AB 32, "greenhouse gas" or "greenhouse gases" include, but are not limited to, CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6. California is a substantial contributor to global GHG emissions. It is the second largest contributor in the United States and the 16th largest in the world (California Energy Commission [CEC], 2006).

3.7.3.2 Local

The BAAQMD assesses a GHG emissions fee for permitted facilities under BAAQMD Regulation 3, Schedule T, but currently has no other GHG emissions regulations. The BAAQMD did, however, establish a climate protection program in 2005 to explicitly acknowledge the link between climate change and air quality. The BAAQMD regularly prepares inventories of criteria and air toxic pollutants to support planning, regulatory, and other programs. Similarly, the BAAQMD has prepared a GHG emissions inventory, based on the standards for criteria pollutant inventories, to support the BAAQMD's climate protection activities. Table 3.7-2 presents the 2011 GHG emissions inventory for the Bay Area, which is the most recently available inventory (BAAQMD, 2015).

This GHG emissions inventory includes direct and indirect GHG emissions attributable to human activities. The emissions are estimated for industrial, commercial, transportation, residential, forestry, and agricultural activities in the SFBAAB. Both direct GHG emissions from locally generated electricity in the Bay Area and indirect emissions from out-of-region generated electricity for consumption in the region are reported. As shown in Table 3.7-2, fossil fuel consumption in the transportation sector was the single largest source of the SFBAAB's GHG emissions in 2011 (BAAQMD, 2015).

CO_2 emissions in the Bay Area represented about 90.3 percent 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 percent 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 percent 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 global warming potential gases such as hydrofluorocarbons, perfluorocarbons, and SF_6 made up about 4.9 percent 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 3.7-2. Bay Area 2011 GHG 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**

Notes:
MMT/year = million metric ton(s) per year
Source: BAAQMD, 2015

3.7.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for GHG emission impacts derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operational air quality impacts.

3.7.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area

affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. CEQA allows for significance criteria established by the applicable air pollution control district(s) to be used to assess the impact of a project related to GHG emissions, at the discretion of the CEQA Lead Agency.

Some California air districts (such as BAAQMD, Monterey Bay Unified, San Luis Obispo County, Ventura County, South Coast, and San Diego County) have adopted, or have recommended for adoption, a significance threshold of 10,000 metric tons CO_2e per year for stationary source projects (Monterey Bay Unified Air Pollution Control District, 2013). This threshold was derived from emissions data from the four largest air districts in California and is based on the Executive Order S-3-05 GHG emissions reductions goal of 80 percent below 1990 levels by 2050, which is roughly equivalent to 90 percent below current levels by 2050. This emissions reduction goal goes beyond the AB 32 emissions reduction goal established for 2020. The emissions data suggests that approximately 1 percent of all stationary sources emit greater than 10,000 metric tons CO_2e per year and are responsible for 90 percent of GHG emissions. This significance threshold represents a capture rate of 90 percent of all new and modified stationary source-related projects. A 90 percent emissions capture rate means that 90 percent of the total emissions from all new or modified stationary source projects would be subject to analysis in an EIR prepared pursuant to CEQA, including analysis of feasible alternatives and imposition of feasible mitigation measures (SCAQMD, 2008).

As noted, this GHG significance threshold is intended for long-term operational GHG emissions associated with stationary sources; none of the air districts mentioned have adopted or have recommended GHG significance thresholds for construction emissions. Therefore, in recent CEQA documents, the CPUC has elected to use an approach to the determination of significance of GHG construction emissions based on guidance developed by the SCAQMD. For construction-related GHGs, SCAQMD recommends that total emissions from construction be amortized over 30 years and added to operational emissions and then be compared to the operation-based significance threshold of 10,000 metric tons CO_2e per year (SCAQMD, 2008).

Per Appendix G of the CEQA Guidelines, the potential significance of the project's GHG emissions was evaluated for each of the criteria listed in Table 3.7-1, as discussed in Section 3.7.4.3.

3.7.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

Construction

APM Greenhouse Gas (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.

Operation and Maintenance

Operation and maintenance of the project will have less than significant GHG-related impacts. PG&E will employ standard BMPs—such as minimizing vehicle trips and keeping vehicles and equipment well maintained—during operations, and will comply with CARB Early Action Measures (CARB, 2017e) as these policies become effective. PG&E will also implement the following APM that is specifically related to avoidance and minimizing potential SF_6 emissions.

APM GHG-2: Minimize SF_6 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 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 USEPA'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.

3.7.4.3 Potential Impacts

Potential project impacts related to GHG emissions were evaluated against the CEQA significance criteria and are discussed in further detail in the following paragraphs. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase. Similar to the SCAQMD's recommended approach for construction emissions, this analysis amortizes the construction emissions over a 30-year project lifetime then compares those emissions to the significance threshold of 10,000 metric tons CO_2e per year.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 lines.

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? *Less-than-significant Impact.*

GHG emissions directly generated during construction will result in a less-than-significant, short-term impact to climate change. GHG construction emissions will be further reduced with implementation of APM GHG-1. As shown in Table 3.7-3, the GHG emissions from construction of the project, even without APM GHG-1, will be well below SCAQMD's recommended threshold of 10,000 metric tons of CO_2e per year.

Table 3.7-3. GHG Emissions from Project Construction

Construction Year	CO_2e Emissions without APM GHG-1 (metric tons/year) [e]	CO_2e Emissions with APM GHG-1 (metric tons/year) [e]
Construction Year 2020 [a]	811.82	634.58
Construction Year 2021 [b]	615.50	460.32
Construction Year 2022 [c]	5.52	5.04
30-Year Amortized Construction Emissions with Operation Emissions [d]	174	100
SCAQMD Significance Threshold	10,000	

Notes:

[a] As presented in Table 5 of supporting emissions calculation spreadsheets provided separately to CPUC staff , 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] As presented in Table 5 of supporting emissions calculation spreadsheets provided separately to CPUC staff , 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 GIS Equipment and Wire; Control Room and Battery Room Equipment; 230 kV Bus Work; 230 kV Cable Installation/Tie-in; Dress/Test/Wire Equipment; Install and Test Oil Pump House, Station Service Voltage Transformers; Testing and Commissioning; Exterior Walls, Final Grading, and Paving; Cleaning and Landscaping;

Table 3.7-3. GHG Emissions from Project Construction

Construction Year	CO_2e Emissions without APM GHG-1 (metric tons/year) [e]	CO_2e Emissions with APM GHG-1 (metric tons/year) [e]

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] As presented in Table 5 of supporting emissions calculation spreadsheets provided separately to CPUC staff, 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] To facilitate comparison to the SCAQMD's significance threshold, the project's total construction emissions were divided by 30 years and added to the project's stationary source GHG emissions, which are presented in Table 3.7-4.

[e] Emissions values rounded to whole numbers.

As noted, operational emissions associated with inspections and ongoing maintenance activities (primarily associated with periodic maintenance vehicle travel) will 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 percent, and are presented in Table 3.7-4. With implementation of APM GHG-2, these less-than-significant potential SF_6 emissions will be further reduced. As shown in Table 3.7-4, the GHG emissions from the operation phase of the project, even without APM GHG-2, will be well below BAAQMD's recommended threshold of 10,000 metric tons of CO_2e per year.

Table 3.7-4. Stationary Source GHG Emissions

Applicable APM	Number of Circuit Breakers	Leakage Rate	SF_6 Emissions (metric tons/year) [a]	CO_2e Emissions (metric tons/year) [b]
Without APM GHG-2	7	1%	0.0056	126.69
With APM GHG-2		0.5%	0.0028	63.34
BAAQMD Significance Threshold				10,000

Notes:
[a] Assumed each circuit breaker would contain 175 lb of SF_6.
[b] A global warming potential of 22,800 was used to estimate CO_2e emissions per 40 CFR 98, Subpart A.

The impact during operation and maintenance will be less than significant.

b) Would the project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases? *No Impact.*

The project will not conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions. The minimal short-term construction GHG emissions will not interfere with the long-term goal of AB 32 to reduce GHG emissions to 1990 levels by 2020. Operation and maintenance of the project is 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 this project. While Egbert Switching Station circuit breakers may emit a minor amount of SF_6 attributable to leakage during project operations, these emissions will be tracked annually per CARB's Regulation for Reducing SF_6 Emissions from Gas Insulated Switchgear, and will generate a minor and insignificant amount of CO_2e emissions. Therefore, the project will not conflict with plans, policies, or regulations intended to reduce GHGs; no impact will occur during construction, operations, or maintenance.

3.7.5 References

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3.8 HAZARDS AND HAZARDOUS MATERIALS

3.8.1 INTRODUCTION

This section describes existing conditions and potential impacts related to hazards and hazardous materials associated with construction, operation, and maintenance of the project. The analysis concludes that impacts related to hazards and hazardous materials will be less than significant with the incorporation of the APMs. The project's potential effects associated with hazards and hazardous materials were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.8-1 and discussed in more detail in Section 3.8.4.

Table 3.8-1. CEQA Checklist for Hazards and Hazardous Materials

Would the project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

3.8.2 REGULATORY BACKGROUND AND METHODOLOGY

3.8.2.1 Regulatory Background

The following paragraphs contain an overview of regulations related to the use of hazardous materials and the disposal of hazardous wastes.

Federal

Resource Conservation and Recovery Act

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 (HWCL), in 1992.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA; 42 U.S.C. Chapter 103) and associated Superfund Amendments provide the USEPA with the authority to identify hazardous sites, to require site remediation, and to recover the costs of site remediation from polluters. CERCLA also enabled the revision of the National Oil and Hazardous Substances Pollution Contingency Plan, also known as the National Contingency Plan, which provides the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants.

U.S. Department of Transportation Hazardous Materials Regulations

The U.S. Department of Transportation Hazardous Materials Regulations (Title 49 CFR Parts 100–185) cover all aspects of hazardous materials packaging, handling, and transportation.

State

Hazardous Waste Control Law

The HWCL (California Health and Safety Code Chapter 6.5 Section 25100 et seq.) authorizes Cal/EPA and the California Department of Toxic Substances Control (DTSC), a department within Cal/EPA, to regulate the generation, transportation, treatment, storage, and disposal of hazardous wastes. DTSC can also delegate enforcement responsibilities to local jurisdictions that enter into agreements with DTSC for the generation, transport, and disposal of hazardous materials under the authority of HWCL.

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 CERCLA. 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 responding to hazardous materials transportation emergencies, are the California Highway Patrol and Caltrans, respectively.

Occupational Health and Safety

The California Division of Occupational Safety and Health assumes primary responsibility for developing and enforcing workplace safety regulations within the state (Title 8 of the CCR). California Division of Occupational Safety and Health standards are more stringent than federal Occupational Safety and Health Administration regulations and take precedence.

Hazardous Materials Management

The California Office of Emergency Services is the state office responsible for establishing emergency response and spill notification plans related to hazardous materials accidents. Title 26 of the CCR is a compilation of the chapters or titles of the CCR that are applicable to hazardous materials management.

Porter-Cologne Water Quality Control Act

As discussed in more detail in Section 3.9, Hydrology and Water Quality, the Porter-Cologne Water Quality Control Act (California Water Code, Division 7) is the provision of the California Water Code that regulates water quality in California and authorizes SWRCB and nine RWQCBs to implement and enforce the regulations. The RWQCBs regulate discharges under Porter-Cologne primarily through the issuance of waste discharge requirements. Anyone discharging or proposing to discharge materials that could affect water quality must file a report of waste discharge. The SWRCB and the RWQCBs can make their own investigations or may require dischargers to carry out water quality investigations and report on water quality issues. Porter-Cologne provides several means of enforcement, including cease and desist orders, cleanup and abatement orders, administrative civil liability orders, civil court actions, and criminal prosecution. The project area is under the jurisdiction of the San Francisco Bay RWQCB.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

The Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program) (CCR Title 27) was mandated by the State of California in 1993. The Unified Program was created to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities for six hazardous materials programs. The program has six elements, including:

Hazardous Waste Generators and Hazardous Waste On-site Treatment

- Underground Storage Tanks
- Aboveground Petroleum Storage Act
- Hazardous Materials Release Response Plans and Inventories
- California Accidental Release Prevention
- Uniform Fire Code Hazardous Materials Management Plans and Hazardous Materials Inventory Statements

At the local level, this is accomplished by identifying a Certified Unified Program Agency that coordinates all of these activities to streamline the process for local businesses. The San Francisco County Department of Public Health (SFDPH) Environmental Health Section and San Mateo County Environmental Health Department are approved by Cal/EPA as the Certified Unified Program Agencies for the city and county of San Francisco and the county of San Mateo, respectively.

Rules for Overhead Electric Line Construction

Under Section 35 of General Order 95, the CPUC regulates all aspects of design, construction, operation, and maintenance of electrical power lines and fire safety hazards for utilities subject to their jurisdiction.

Fire Prevention Standards for Electric Utilities

The Fire Prevention Standards for Electric Utilities (CCR Title 14, Sections 1250-1258) provide definitions, maps, specifications, and clearance standards for projects under the jurisdiction of PRC Sections 4292 and 4293 in State Responsibility Areas (SRAs).

California Fire Code

The California Fire Code 2010 (CCR Title 24, Part 9) is based on the International Fire Code from the International Code Council and contains consensus standards related to establishing good practices to safeguard the public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new or existing buildings, structures, and premises.

Local

Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the 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

A two-tier Airport Influence Area (AIA) has been established for airport land use compatibility planning near the San Francisco International Airport (City/County Association of Governments of San Mateo County [C/CAG], 2012). Area A, the larger of the two areas and encompassing all of San Mateo County, 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 Community Noise Equivalent Level (CNEL) 65 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 area in San Mateo County is located within Area A, but no portions of the project are located within Area B.

Adopted Emergency Response Plans/Evacuation Plans

Emergency plans in effect in the project area are as follows:

The City and County of San Francisco (CCSF) Emergency Management Program is part of a jurisdiction-wide system that provides emergency management guidance related to prevention, preparedness, response, and recovery. The CCSF's Emergency Response Plan utilizes an all-hazards approach to emergency planning and, therefore, encompasses all hazards that are applicable to the city and county, both natural and man-made, ranging from planned events to large-scale disasters (CCSF, 2010). The plan describes the coordination, roles, and responsibilities of responding agencies and how the CCSF 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 (SFPD) in collaboration with the San Francisco Department of Public Works, San Francisco Municipal Transportation Authority, Caltrans, and California Highway Patrol (CCSF, 2010).

The County of San Mateo Emergency Operations Plan (EOP) is the base plan that governs the roles and responsibilities of San Mateo County 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 emergency management structure regarding how and when the Emergency Operations Center staff is 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). The Maher Area encompasses the area of San Francisco bayward of a historic, pre-1906 earthquake high tide line (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 (cy) of soil are to be disturbed and the project is on fill or is at a location designated for investigation by the SFDPH, then applicants for building permits must, among other things, analyze the site's soil for hazardous materials.

3.8.2.2 Methodology

The methodology for analyzing impacts from hazards and hazardous materials includes identifying general types of hazardous materials and activities used during project construction, operation, and maintenance. Potential impacts on the environment and public health from hazards and hazardous materials were further evaluated using information on the existing uses of the project site and adjacent properties, historical uses, and known contamination to determine the likelihood of encountering hazardous materials.

A regulatory agency database report was obtained from Environmental Data Resources Inc. (EDR) (EDR, 2017) and was reviewed to screen for hazardous waste sites in the proposed project area. The EDR report, provided separately to CPUC staff, includes (1) information on sites identified in federal, state, and local databases related to hazardous materials and wastes that are located within 0.25 mile of the proposed Egbert-Embarcadero, Martin-Egbert, and Jefferson-Egbert 230 kV lines and the proposed switching station; and (2) a map showing the locations of these sites (Figure 3.8-1). The database search process reviews multiple lists for properties with active or historic documented hazardous materials releases and businesses that use, generate, or dispose of hazardous materials or petroleum products in their operation. In addition, the EDR search reviews lists of active contaminated sites that are currently undergoing monitoring and remediation.

As specified by CEQA significance criterion (Table 3.8-1), the EDR report was used to identify sites along the project routes that are included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 ("Cortese List"). Because the Cortese List is no longer specifically updated by the State, those requesting a copy of the Cortese "list" are now referred directly to the appropriate information resources contained on the Internet websites of the boards or departments that are referenced in the Cortese List statute. Therefore, review of the Cortese List sites contained in the EDR report was supplemented by reviewing the following:

- Sites listed on DTSC's EnviroStor database (DTSC, 2017)
- Sites listed on the SWRCB's GeoTracker database (SWRCB, 2017)
- SWRCB lists of sites (1) with reported waste constituents above hazardous waste levels outside the waste management unit; (2) with active Cease and Desist Orders and Cleanup and Abatement Orders for hazardous wastes; or (3) identified by DTSC as subject to corrective action pursuant to Section 25187.4 of the California Health and Safety Code

The EDR report was also used to screen for nearby hazardous waste sites that could potentially affect the project based on the significance criteria summarized in Table 3.8-1.

The potential for project activities that could pose fire hazards was evaluated through review of state fire hazard maps (California Department of Forestry and Fire Protection [CAL FIRE], 2007a, 2007b, 2008).

3.8.3 ENVIRONMENTAL SETTING

The project area is located in urbanized areas of San Francisco, Daly City, and Brisbane consisting of a mix of residential, commercial, public, industrial, and open space uses. The proposed Egbert Switching Station site will be constructed on approximately 1.7 acres, and approximately 3.7 miles of new underground transmission lines are proposed to be installed as

Insert

Figure 3.8-1 Potential Hazardous Material Sites

extensions to two existing transmission lines to connect to the new switching station. The proposed Egbert-Embarcadero and Martin-Egbert 230 kV lines will extend from points along an existing Martin-Embarcadero 230 kV line southeast to the proposed Egbert Switching Station. The proposed Jefferson-Egbert 230 kV line will extend north, northeast from the existing Jefferson-Martin 230 kV line to the proposed Egbert Switching Station. Land uses along the proposed Egbert-Embarcadero and Martin-Egbert 230 kV lines consist of residential, public, and light industrial (San Francisco Planning Department, 2017). Planned land use at the proposed Egbert Switching Station site is light industrial; and the property is currently occupied by DLD Lumber. Land uses along the southern portion of the proposed Jefferson-Egbert 230 kV line in the cities of Brisbane and Daly City consist of low density residential, retail and office commercial, planned development, and open space preservation (City of Brisbane, 2003; City of Daly City, 2015). Land uses along the central and northern portions of the proposed Jefferson-Egbert 230 kV line in the city and county of San Francisco consist of residential; light industrial; public; and neighborhood commercial cluster and shopping center (San Francisco Planning Department, 2017).

Six potential project staging areas have been identified (Figures 3.8-1 and 3.10-2h). Two potential staging areas within the fenced boundary of Martin Substation are located in public facilities and manufacturing district land use areas (City of Brisbane, 2003; City of Daly City, 2015). Two potential staging areas in San Francisco are in the Port's Southern Waterfront off Amador Street, a heavily industrialized area (San Francisco Planning Department, 2017). A potential staging area within a paved parking lot at the Cow Palace has a public facilities land use, and a potential staging area in a graveled area off Carter Street has a retail and office land use but is currently being used for construction staging (City of Daly City, 2015).

The site of the proposed Egbert Switching Station, portions of the proposed Egbert-Embarcadero and Martin-Egbert 230 kV lines, and portions of the northeastern section of the proposed Jefferson-Egbert 230 kV line are within the mapped boundary of areas in the city of San Francisco subject to the city's Maher Ordinance (San Francisco Public Works Code, Article 22A) (San Francisco Planning Department, 2015). The Maher Ordinance covers areas of the city where there is an assumed potential to encounter hazardous materials in the subsurface based on the land use history of a site or the surrounding area, such as 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 in close proximity to freeways. Historic bay fill is a heterogeneous combination of man-made debris, sand, silt, and clay. In some cases, the fill material contains contaminants, including predominantly petroleum-based chemicals and heavy metals.

One section of the proposed Jefferson-Egbert 230 kV line approximately 300 feet in length along Visitacion Avenue directly west of Campbell Avenue will cross an area mapped as serpentine bedrock. Serpentine rock can be a source of NOA (Figure 3.6-1).

3.8.3.1 Airports

No public airports or private airstrips are located within 2 miles of the project site (Google Maps, 2017).

3.8.3.2 Schools

There are 13 schools within 0.25 mile of the project (Table 3.14-3), 10 schools in San Francisco and 3 schools in Daly City. There are no Brisbane schools within 0.25 mile of the project. In addition, there are 11 preschools and daycare centers within 0.25 mile of the project in San Francisco. There are no preschools or daycare centers within 0.25 mile of the project in Brisbane or Daly City.

3.8.3.3 Existing Hazardous Materials Sites

The EDR report for the project (EDR, 2017) identified numerous sites located along or within 0.25 mile of the proposed project routes. As previously indicated, these sites are listed in regulatory agency databases based on past or current hazardous materials use, hazardous waste generation, spills of hazardous chemicals, or the presence of petroleum hydrocarbon tanks, including both current and former tanks, aboveground and underground tanks, and tanks with and without reported releases into the environment. For RWQCB and DTSC sites listed in the EDR report, further review was performed of information contained in the GeoTracker and EnviroStor databases, respectively. In addition, the EnviroStor and GeoTracker databases were reviewed to identify listed sites within 0.25 mile of the proposed staging areas and the Jefferson-Martin line termination equipment within Martin Substation, which were not included in the EDR report.

The GeoTracker database identified one active contamination site located within 0.25 mile of the project area. In addition, 24 Leaking Underground Storage Tank (LUST) Cleanup Sites were identified within this area that have undergone regulatory closure under the RWQCB and local agencies, 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 area that are active or certified with operation and maintenance of remedial measures, as well as two sites that have undergone regulatory closure.

Cortese List Sites

PG&E's Martin Service Center (731 Schwerin Street, Daly City; see Figure 3.8-1) is a 49-acre EnviroStor-listed State Response Site (EnviroStor IDs 41360100, 41360093, and 41360101) that is certified with land use controls and ongoing operation and maintenance of remedial measures. It is located to the west and south of Martin Substation, where terminal equipment for the Jefferson-Martin 230 kV line will be removed as part of the proposed project. Martin Service Center is also the location of two potential staging areas for project construction. A manufactured gas plant (MGP) 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. Former MGP wastes consisted of tars and lampblack (a powdered carbon), with associated polynuclear aromatic hydrocarbons, phenol, volatile organic compounds, 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 MGP 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 Levinson North Parcel have also been identified as a potential project staging area. 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 site 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 at OU-1 and storage of material, equipment, and records; parking; and wetlands preservation at OU-2. 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.

Other Sites under DTSC or RWQCB Oversight

The 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 (GeoTracker ID L10008948177; see site 16 on Figure 3.8-1). 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 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 3.8-1), 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 conditions4 and being included in the SWRCB's GeoTracker or DTSC's EnviroStor databases are shown on Figure 3.8-1 and described below:

- Metten and Gebhard, 1775 Egbert Avenue, San Francisco (site 1 on Figure 3.8-1). The site is listed in the EnviroStor database as a State Response site under the oversight of the DTSC (EnviroStor ID 38310001). Chromium was identified as a chemical of concern and the site was remediated by removal of soils and sediments and steam cleaning the concrete sub-floor. The site was certified in 1984 as closed and recommended again for no further action in

4 A historical recognized environmental condition is a past release of any hazardous substances or petroleum products that has occurred in connection with a property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls) (American Society for Testing and Materials, 2013).

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, Geneva Avenue, and Santos Street, Daly City (site 2 on Figure 3.8-1). 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 (EnviroStor ID 41070008). 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 potential Cow Palace and Carter Street staging areas.

- Cow Palace, Geneva Avenue, Daly City (site 3 on Figure 3.8-1). 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 Local Oversight Program (LOP) (GeoTracker ID T0608100352). 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 potential Cow Palace and Carter Street staging areas.

- Hillside Village (also known as Schindel Property), Carter Street at Martin Street, San Francisco (site 4 on Figure 3.8-1). 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 (GeoTracker ID T0608130089). 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.

- S.F. Public Housing Authority, 1815 Egbert Avenue, San Francisco (site 5 on Figure 3.8-1). 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 (GeoTracker ID T0607500262). 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, 400 Mansell Street, San Francisco (site 6 on Figure 3.8-1). 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 (GeoTracker ID T0607500578). 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.

The EDR report also identified one spill incident of note (spill location, site 7, on Figure 3.8-1) at 607 Carter Street, San Francisco, which 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 [polychlorinated biphenyl] 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.

In addition to these known historic conditions adjacent to the proposed routes and switching station, the EDR report identified six potential historic gas station/filling station/service station sites and two historical dry cleaner or laundry facilities adjacent to the proposed project. There are no documented records of releases of hazardous materials or investigations at these sites. However, historic auto service stations are commonly associated with leaks from fuel or waste oil USTs, and historic 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 summarized in Table 3.8-2 and shown on Figure 3.8-1. Besides these sites located adjacent to the proposed routes and switching station, the EDR report identified 53 additional historic auto service sites and 44 additional current or historic dry cleaner sites located within 0.25 mile of the project alignment.

No Superfund sites are located within 0.25 mile of the project routes or switching station.

Table 3.8-2. Historic Auto Service and Dry Cleaner Sites Adjacent to the Proposed Routes and Switching Station

Site ID (Owner)	Address	Historic Use (Date)
Site 8 (Frank Arata)	1290 Bayshore Boulevard, San Francisco	Gasoline and oil service station (1935)
Site 9 (C&M Associated Service)	1295 Bayshore Boulevard, San Francisco	Gasoline station (1958)
Site 10 (F. A. Arata)	1298 Bayshore Boulevard, San Francisco	Gasoline and oil service station (1940)
Site 11 (Charlie S. Richfield Service)	2145 Geneva Avenue, San Francisco	Gasoline station (1958 to 1971)

Table 3.8-2. Historic Auto Service and Dry Cleaner Sites Adjacent to the Proposed Routes and Switching Station

Site ID (Owner)	Address	Historic Use (Date)
Site 12 (Cow Palace Chevron Service)	2201 Geneva Avenue, San Francisco	Gasoline station (1958 to 1971)
Site 13 (620 Carter Street)	620 Carter Street, San Francisco	Automotive and repair shop (1999 to 2012)
Site 14 (JAS Bozios)	75 Crane Street, San Francisco	Clothes presser and cleaner (1930)
Site 15 (Sunny Cleaners)	1436 Sunnydale Avenue, San Francisco	Cleaner and dyer (1949 to 1982)

3.8.3.4 Wildland Fire Hazards

As defined by CAL FIRE, the portion of the project area within San Francisco County is located within a Local Responsibility Area (LRA). Within the LRA, the project area is located in fire hazard severity zones with the following designations (CAL FIRE, 2007a):

- Unzoned: All of the proposed Egbert-Embarcadero and Martin-Egbert 230 kV lines, the proposed Egbert Switching Station, and the portion of the proposed Jefferson-Egbert 230 kV line north of Geneva Avenue.

- High Fire Hazard Severity Zone: An approximately 750-foot section of the proposed Jefferson-Egbert 230 kV line along Geneva Avenue and Carter Street within San Francisco County.

The portion of the project area within San Mateo County is divided between an LRA and a SRA with the following designations:

- LRA: Most of the proposed Jefferson-Egbert 230 kV line within San Mateo County along Carter Street is located within an LRA designated as a Non-Very High Fire Hazard Severity Zone (CAL FIRE, 2008).

- SRA: The southernmost approximately 700-foot section of the proposed Jefferson-Egbert 230 kV line within San Mateo County along Carter Street is located within an SRA designated as a High Fire Hazard Severity Zone (CAL FIRE, 2007b). The approximately 350-foot section of the line along Guadalupe Canyon Parkway is directly adjacent to the SRA.

Fire protection services and equipment near the project alignment are discussed in detail in Section 3.14, Public Services.

3.8.4 Applicant-Proposed Measures and Potential Impacts

The following sections describe significance criteria for impacts related to hazards and hazardous materials derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operational impacts related to hazards and hazardous materials.

3.8.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts related to hazards and hazardous materials were evaluated for each of the criteria listed in Table 3.8-1, as discussed in Section 3.8.4.3.

3.8.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

APM Hazardous Materials (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 SWPPP (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 (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 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 (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.

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 (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.

3.8.4.3 Potential Impacts

Project impacts related to hazards and hazardous materials were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero- lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

a) Will the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? ***Less-than-significant Impact.***

Construction

Other than substances associated with construction vehicles and equipment, use of lubricants for cable pulling, management of dielectric fluid during construction splicing activities of the proposed Egbert-Embarcadero and Martin-Egbert 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, no hazardous materials are associated with the routine activities of project construction. 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 will be less than significant with implementation of APMs HM-1, HM-2, and HM-3.

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 will be used for inspection of the new facilities, no hazardous materials are associated with maintenance and operation of the project. As described under APM HM-1, existing PG&E operation and maintenance policies addressing hazardous materials use will be updated prior to completion of project construction. These operation and maintenance policies will minimize the possibility of significant hazard to the public or the environment through routine activities; therefore, any impact will be less than significant. As discussed in Section 3.9, Hydrology and Water Quality, a new site-specific SPCC Plan will be prepared for the proposed Egbert Switching Station.

b) Will the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? *Less-than-significant Impact.*

Construction

Project construction will require the use of vehicles and motorized equipment. During construction activities, there is a potential for an accidental release of fluids from a vehicle or motorized piece of equipment. Any impacts associated with such an accidental release will be reduced to a less than significant level by implementation of APMs HM-1 and HM-2. If underground tanks, contaminated soil, or contaminated groundwater are encountered during project construction, any impacts will be less than significant with implementation of APM HM-1.

Operation and Maintenance

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 will be updated as needed prior to completion of project construction. Any impacts associated with such an accidental release will be less than significant with implementation of APMs HM-1 and HM-2.

c) Will 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? *Less-than-significant Impact.*

Thirteen schools are located within 0.25 mile of the project routes (Section 3.14, Public Services). No acutely hazardous materials or waste would be used or would be generated by the project. Construction impacts would be associated with the use of equipment with hydraulic fluids and fuels that could create a hazard in the event of a spill. However, implementation of APMs HM-1 and HM-2 would reduce that potential impact to less than significant. During operation and maintenance, the project will not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one quarter mile of an existing or proposed school; no impact will occur.

d) Will 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? *No Impact.*

The proposed transmission lines, switching station, and work within Martin Substation are not located in sites listed pursuant to Section 65962.5, as described in Section 3.8.3.3. However, potential staging area within Martin Substation may be located on a listed site. No impact will occur because project construction will not occur on listed properties, and no disturbance of the subsurface will occur in staging areas. Potential staging areas are paved, graveled, and/or covered by pavement caps. Implementation of APM HM-3 will further ensure that human health and the environment are protected. The operation and maintenance associated with the project is not expected to include disturbance of subsurface materials and no impact will occur during this phase.

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

The southern portion of the project area in San Mateo County is located within a real estate disclosure area, AIA Area A, of the airport land use compatibility plan for the San Francisco International Airport (C/CAG, 2012). However, no portions of the project are located within the area subject to land use policy action reviews, AIA Area B. No new structures associated with the project will require FAA notification. Therefore, the project would not result in a safety hazard for people residing or working in the project area during either the construction or the operation and maintenance phases and no impact will occur.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? *No Impact.*

The project area is not in the vicinity of a private airstrip; therefore, the project would not result in a safety hazard for people residing or working in the project area during either the construction or the operation and maintenance phases and no impact will occur.

g) Will the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? *Less-than-significant Impact.*

Work will occur in roadways during construction and operation and maintenance. Road closures, if necessary, will occur in accordance with regulations and will not result in a significant impact to emergency response or emergency evacuation. The project will not impair the implementation of or physically interfere with an adopted emergency response or emergency evacuation plan; therefore, the impact is less than significant during construction; during operation and maintenance no impact will occur.

h) Will the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? *Less-than-significant Impact.*

The project has limited areas (about 1,800 feet total) within or adjacent to wildlands. Sections of the proposed Jefferson-Egbert 230 kV line for approximately 1,500 feet along Carter and Geneva Streets are within a high fire hazard severity zone, and a section of the line along Guadalupe Canyon Parkway (approximately 300 feet) is adjacent to a high fire hazard severity zone.

Construction and operation and maintenance activities will occur within the roadway or paved shoulder. Once the project is constructed, underground transmission line infrastructure will be present in these areas. The project will not expose people or structures to a significant risk involving wildland fires. The impact is less than significant during construction and operation and maintenance.

3.8.5 References

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3.9 HYDROLOGY AND WATER QUALITY

3.9.1 INTRODUCTION

This section describes existing conditions and potential impacts to hydrological resources, water quality, and flood control as a result of construction, operation, and maintenance of the project. The analysis concludes that impacts will be less than significant in these areas; the implementation of APMs described in Section 3.9.4 will further reduce less-than-significant impacts. The project's potential effects on hydrology, water quality, and flood control were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.9-1 and discussed in more detail in Section 3.9.4.

Table 3.9-1. CEQA Checklist for Hydrology and Water Quality

Would the project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☒
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate of amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☐	☒
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☐	☒
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒

Table 3.9-1. CEQA Checklist for Hydrology and Water Quality

Would the project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐

3.9.2 REGULATORY BACKGROUND AND METHODOLOGY

3.9.2.1 Regulatory Background

Federal

National Flood Insurance Program

The Federal Emergency Management Agency (FEMA) is responsible for determining flood elevations and floodplain boundaries based on USACE studies. FEMA is also responsible for distributing the Flood Insurance Rate Maps used in the National Flood Insurance Program (NFIP) (42 U.S.C. Ch. 50, Section 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." Federal regulations governing development in a floodplain are set forth in CFR Title 44, Part 60, enabling the FEMA to require municipalities that participate in the NFIP to adopt certain flood hazard reduction standards for construction and development in 100-year floodplains.

Section 10 of the Rivers and Harbors Appropriation Act of 1899

This federal law (33 U.S.C. Section 401, et seq.) makes it unlawful to obstruct or alter a navigable river or other navigable water of the U.S. Construction, excavation, or deposition of materials in, over, or under such waters, or any work that would affect the course, location, condition, or capacity of those waters requires a Section 10 permit and approval from the USACE.

Clean Water Act Section 303(d)

CWA Section 303(d) (33 U.S.C. Section 1313) requires states, territories, and authorized Tribes to develop a list of waters within its boundaries that do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law further requires that these jurisdictions establish priority rankings for water on the lists and develop action plans, called Total Maximum Daily Loads, to improve water quality (San Francisco Bay RWQCB, 2017a). The RWQCBs and SWRCB implement this federal regulation in California.

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 (total aggregate capacity of aboveground oil storage containers is greater than 1,320 gallons or completely buried storage tanks is greater than 42,000). 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 SPCC Plans and establishes procedures, methods, and equipment requirements.

State

Clean Water Act Section 401

CWA Section 401 (33 U.S.C. Section 1251 et seq.) requires states to certify whether projects subject to federal permits meet state water quality standards. In California, the RWQCBs and SWRCB issue such certifications. The project is under the jurisdiction of the San Francisco Bay RWQCB. If the project requires a USACE permit, a Water Quality Certification will be required.

Clean Water Act Section 402

Under CWA Section 402 (33 U.S.C. Section 1251 et seq.), the National Pollutant Discharge Elimination System (NPDES) controls water pollution by regulating point sources of pollution to waters of the U.S. The SWRCB administers the NPDES permit program in California. Projects that disturb 1 or more acres of soil are required to obtain coverage under the state NPDES General Permit for Discharges of Storm Water Associated with Construction Activity. A SWPPP must be developed and implemented for each project covered by the general permit. The SWPPP must include BMPs that are designed to reduce potential impacts to surface water quality during project construction and operation.

Porter-Cologne Water Quality Control Act (California Water Code, Division 7)

Under this state law, the SWRCB has authority over state waters and water quality. "Waters of the state" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code Section 13050[e]). Examples include, but are not limited to rivers, streams, lakes, bays, marshes, mudflats, unvegetated and seasonally ponded areas, drainage swales, sloughs, wet meadows, natural ponds, vernal pools, diked baylands, seasonal wetlands, and riparian woodlands. The RWQCBs have local and regional authority. The San Francisco Bay RWQCB has authority in the project area. The RWQCBs prepare and periodically update Basin Plans (water quality control plans), which establish:

- beneficial uses of water designated for each protected water body;
- water quality standards for both surface water and groundwater; and
- actions necessary to maintain these water quality standards.

Projects that will discharge waste to waters of the state must file a report of waste discharge with the appropriate RWQCB, if the discharge could affect the quality of waters of the state (Article 4, Section 13260). The RWQCB will issue waste discharge requirements or a waiver of the waste discharge requirements for the project. The requirements will implement any relevant water quality control plans that have been adopted, and must take into consideration the beneficial uses to be protected and the water quality objectives reasonably required for that purpose (Article 4, Section 13263).

Fish and Game Code Section 1602

This section of California law protects the natural flow, bed, channel, and bank of any river, stream, or lake under the jurisdiction of the CDFW. Project plans must be submitted to CDFW that are sufficient to indicate the nature of a project for construction if the project would:

- substantially divert, or obstruct the natural flow of a jurisdictional river, stream, or lake;
- substantially change or use material from the bed, channel, or bank; or
- result in the disposal or deposition of debris, waste, or other material containing crumbed, flaked, or ground pavement where it can flow into a river, stream, or lake.

For projects substantially impacting the bed, bank, or flow of a water under CDFW jurisdiction, applicants must submit a Notification of Lake or Streambed Alteration to the CDFW so that the department may issue an agreement if staff determines that the activity may substantially adversely affect fish and wildlife resources.

Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the project is not subject to local discretionary regulations. PG&E will secure ministerial permits, as required.

The City and County of San Francisco Department of Building Inspection requires and enforces standards contained in the CBC related to grading and construction, including those that may directly or indirectly affect surface water quality by contributing to erosion or siltation or alter 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.

3.9.2.2 Methodology

Information on surface water and groundwater in the project area was obtained from available maps and published reports completed by and for state, county, and local water agencies. Additional information from city, county, regional, and state water agencies was obtained as necessary. Site-specific surveys were not conducted by specialists to determine the water quality for the project area because existing available information was sufficient to address potential project impacts.

Areas of existing soil and water quality degradation were identified by searching federal and state regulatory-agency databases that track sites with known, suspected, or potential hazardous-substance contamination (e.g., USTs or landfills). The results of the database search are provided in Section 3.8, Hazards and Hazardous Materials.

3.9.3 ENVIRONMENTAL SETTING

3.9.3.1 Regional Setting

The project is located within the San Francisco Bay Hydrologic Basin of California. The project is located in urbanized areas in the cities of San Francisco, Daly City, and Brisbane. Urban development in some areas has included construction of underground drains to replace creeks; filling areas of tidal marshes, lakes, and the bay; and construction of artificial lakes and reservoirs. San Francisco is subdivided into several historic watersheds, each of which drains to a common part of the Pacific Ocean or Bay during wet weather. The proposed Egbert Switching Station, Egbert-Embarcadero and Martin-Egbert lines, and northern portion of the proposed Jefferson-Egbert line (i.e., along Mansell Street and to the north) are located in the Yosemite Creek Watershed (Figure 3.9-1), which drains toward the historic tidal marshes of Yosemite Creek into South Basin. The potential Amador Street staging areas are located along the bayside periphery of the Islais Creek watershed near India Basin. The central portions of the proposed Jefferson-Egbert 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 (Figure 3.9-1), which is pumped northward into the San Francisco combined sanitary/stormwater sewers. Most of the southernmost portion of the proposed Jefferson-Egbert 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 (Figure 3.9-1), which drains by gravity to San Francisco Bay via Brisbane. A limited section of the proposed Jefferson-Egbert line along the southernmost 150 feet of Carter Street and along Guadalupe Canyon Parkway is located in the Guadalupe Valley Watershed (Figure 3.9-1), which drains toward the historic tidal marshes of Guadalupe Valley Creek and into San Francisco Bay.

Most of the time, San Francisco's present-day drainage system in the project area collects municipal sewage and stormwater runoff from the eastern side of the peninsula together in a combined storm drain system, and routes flow through large transport/storage structures extending along the shoreline to the Southeast Treatment Plant, located on the southern side of Islais Creek Channel near 3rd and Evans Streets (Section 3-17, Utilities). The project area located within Daly City drains to San Francisco Bay via the city's stormwater drainage system. A storm drain was observed on-site near the entrance of the proposed Egbert Switching Station. The existing Martin Substation and the proposed project transmission line routes are mostly covered by impervious surfaces, whereas most of the proposed Egbert Switching Station site is currently unpaved.

The surface topography of the northern project area (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 area (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 area (i.e., generally south of Sunnydale Avenue)

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Figure 3.9-1 Watersheds in the Project Area

slopes from south to north and from west to east. The site of the proposed Egbert Switching Station slopes gently from approximately an elevation of 35 feet above mean sea level along the southern boundary to 30 feet at the northern boundary.

3.9.3.2 Climate

The project area 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 (CAL FIRE, 2000). Surface water flows in the region are highly seasonal, with more than 90 percent of the annual runoff occurring during the winter rainy season between October and April. Many streams go dry during the middle or late summer (RWQCB, 2017b).

3.9.3.3 Surface Water

Regional development has increased the amount of impervious surface and the rates of runoff. Local creeks in the urbanized project area (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 (Figure 3.9-1). The nearest surface water bodies to the project are McNab Lake (located in John McLaren Park about 1,300 feet northwest of the proposed Jefferson-Egbert 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 line at Raymond Avenue) (Figure 3.9-1). Yosemite Slough is located about 2,900 feet east of the proposed Egbert Switching Station (Figure 3.9-1).

3.9.3.4 Groundwater

The project area is located over three groundwater basins within the San Francisco Bay Hydrologic Region. The proposed Egbert-Embarcadero and Martin-Egbert lines, proposed Egbert Switching Station, and northern portion of the proposed Jefferson-Egbert Line (i.e., from approximately Mansell Street north) are located in the South San Francisco Groundwater Basin (Figure 3.9-2). 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. San Francisco Bay forms the basin boundary along its entire eastern extent. Geologically, the basin can be broadly classified as unconsolidated sediment and bedrock (USGS, 1993, as cited in California Department of Water Resources [DWR], 2004a). The primary water-bearing strata are unconsolidated sediments, including dune sand, the Colma Formation, bay mud and clay, and artificial fill (USGS, 1993, as cited in DWR, 2004a).

The central and southern portions of the proposed Jefferson-Egbert Line (i.e., south of Mansell Street), the existing Martin Substation, and the potential Cow Palace, Carter Street and Martin Substation staging areas are located in the Visitacion Valley Groundwater Basin (Figure 3.9-2). The Visitacion Valley Groundwater Basin is a roughly triangular-shaped basin bounded by the San Bruno Mountains on the southwest, Islais Valley Groundwater Basin to the northwest, and South San Francisco Groundwater Basin to the northeast. It is separated from the adjacent groundwater basins by bedrock topographic highs. San Francisco Bay forms the basin boundary along its eastern extent (Phillips et al., 1993, as cited in DWR, 2004b). Geologically, the basin

Insert

Figure 3.9-2 Groundwater Basins in the Project Area

can be broadly classified as unconsolidated sediment and bedrock (Phillips et al., 1993, as cited in DWR, 2004b). The primary water-bearing strata are unconsolidated sediments, including dune sand, the Colma Formation, bay mud and clay, and artificial fill (Phillips et al., 1993, as cited in DWR, 2004b).

The potential Amador Street staging areas are located in the Islais Valley Groundwater Basin (Figure 3.9-2). The Islais Valley Groundwater Basin is separated from the Downtown San Francisco Groundwater Basin to the north and the Visitacion Valley and South San Francisco Groundwater Basins to the south by bedrock topographic highs. As with the other groundwater basins, San Francisco Bay forms the basin boundary along its entire eastern extent. Geologically, the basin is broadly classified as bedrock and unconsolidated sediment (USGS, 1993, as cited in DWR, 2004c). The primary water-bearing strata is unconsolidated material consisting of dune sand, the Colma Formation, bay mud and clay, and artificial fill (USGS, 1993, as cited in DWR, 2004c).

Shallow groundwater is present in the project area. Groundwater depths reported in the Environmental Data Resources Inc. (EDR) Well Search Report (EDR, 2017) for three USGS wells within 0.25 mile of the project alignment ranged from 3.7 to 54 feet bgs from 1988 to 1993. The California Statewide Groundwater Elevation Monitoring Online System maintains groundwater depth data for one well in the project area, which had water levels ranging from 0.3 to 3.4 feet bgs from 2011 to 2016 (DWR, 2017). Groundwater depths reported for 10 LUST cleanup sites identified on the SWRCB GeoTracker website (SWRCB, 2017) located within 0.25 mile of the project alignment ranged from 4 to 37 feet bgs.

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 is planned (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 area 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 3.8, Hazards and Hazardous Materials).

3.9.3.5 Flood Potential

NFIP, which is managed by FEMA, provides flood insurance at affordable rates. To support NFIP, FEMA publishes Flood Insurance Rate Maps, which show Special Flood Hazard Areas, defined as areas subject to inundation during a flood having a 1 percent 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 FIRM for San Mateo County indicate that the proposed Egbert Switching Station, Egbert-Embarcadero line, Martin-Egbert line, Jefferson-Egbert 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 of San Francisco, 2015; County of San Mateo, 2012). However, two sets of potential staging areas are within flood zones: (1) some portions of the southern potential Amador Street staging area are in Special Flood Hazard Areas with 1 percent and 0.2 percent annual chances of flood hazard, according to Preliminary FEMA Flood Zone maps (City of San Francisco, 2015) (Figure 3.9-3); 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-percent-annual-chance flood event determined using approximate methodologies) (County of San Mateo, 2012; FEMA, 2017) (Figure 3.9-3).

The San Francisco Water Department owns aboveground reservoirs and tanks within 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 area 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 3.9-3). 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 [BSE]-2 level). The University Mound Reservoir is under the jurisdiction of DWR, Division of Safety of Dams (DSOD) and is not currently subject to any DSOD restrictions. The portion of the project area in San Mateo County 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 area and potential staging areas are not located within a tsunami inundation zone as currently delineated by the California Emergency Management Agency (California Emergency Management Agency, California Geological Survey, and University of Southern California, 2009a, 2009b). However, some portions of the southern potential Amador Street staging area are in a tsunami inundation zone (California Emergency Management Agency, California Geological Survey, and University of Southern California, 2009a) (Figure 3.9-3).

A seiche is the resonant oscillation of water generated in an enclosed body of water, such as 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 four inches high. The Bay Area has not been adversely affected by seiches during its history within this seismically active region of California (USACE San Francisco District, Port of Oakland, 2000).

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Figure 3.9-3 Potential Flood Zones, Inundation Areas Due to Reservoir Failure, and Tsunami Areas

3.9.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for hydrology and water quality impacts derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operational hydrology and water quality impacts.

3.9.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts related to hydrology and water quality were evaluated for each of the criteria listed in Table 3.9-1, as discussed in Section 3.9.4.3.

3.9.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

APM Water Quality (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 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.

3.9.4.3 Potential Impacts

Project impacts related to hydrology and water quality were evaluated against the CEQA significance criteria, as discussed below. This section evaluates potential project impacts from the construction phase and the operation and maintenance phase.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Several potential staging areas for project construction have been preliminarily identified as follows: adjacent to the proposed Jefferson-Egbert line along Carter Street, at the Cow Palace, within the existing Martin Substation, and along Amador Street in the Port's Southern Waterfront heavy industrial port area. Operation and maintenance activities will 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 lines.

a) Would the project violate any water quality standards or waste discharge requirements?
Less-than-significant Impact.

Construction

The following construction activities have the potential to degrade water quality, including the potential for violating water quality standards or waste discharge requirements.

Known or potential contaminated sites are located along or near the proposed project alignment (Section 3.8, Hazards and Hazardous Materials). In addition, unknown sites of contaminated soil or groundwater could be present. Water quality could be affected if pre-existing contaminated groundwater is exposed and comes in contact with uncontaminated soil and/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 spoils).

Implementation of the soil, groundwater, underground tank, and wastewater characterization procedures described in APM HM-4, as well as the worker environmental awareness program described in APM WQ-2, will reduce the likelihood of cross-contamination and restrict contaminant mobility, and further reduce this less-than-significant impact.

Potential impacts to surface water quality could result from increased erosion and contaminated runoff as a result of construction activities. However, potential impacts would be temporary and limited by the scale of construction activities, and any less-than-significant impact would be further reduced with implementation of the SWPPP as outlined in APM WQ-1, the worker environmental awareness program as described in APM WQ-2, and the site restoration activities in APM WQ-3.

Operation and Maintenance

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. Activities along the transmission lines are not expected to impact water quality. With implementation of the SPCC plan described in

APM WQ-4, an accidental release during operation and/or maintenance of the project is unlikely to occur; therefore, impacts would be less than significant.

b) Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? *No Impact.*

Where localized shallow groundwater is encountered, active and/or passive dewatering systems may be installed in trenches and excavations as appropriate to allow construction under dry conditions. Dewatering activities during construction, and possibly vault dewatering during operation and maintenance, may have temporary and very localized effects on groundwater levels. There would be no impact on the groundwater table level beyond this very localized and minor effect.

If the installation of grounding rods or foundations deeper than currently planned are required, it will have no potential to substantially deplete groundwater supplies or interfere with groundwater recharge.

The underground portions of the project will 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.

Operation and maintenance activities will not be ground-disturbing. Project construction and operation and maintenance activities will not result in a net deficit in aquifer volume or a lowering of the local groundwater table level; no impact will occur.

c) 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, in a manner which would result in substantial erosion or siltation on- or off-site? *No Impact.*

During both construction and operation and maintenance phases of the project, no alteration to existing drainage patterns or stream or rivers will occur that will result in substantial erosion or siltation on- or off-site. Therefore, no impact will occur during construction or operation and maintenance.

d) 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 substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? *No Impact.*

During both construction and operation and maintenance phases of the project, no alteration to existing drainage patterns or stream or rivers will occur that will result in on- or off-site flooding. Therefore, no impact will occur during construction or operation and maintenance.

e) Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? ***Less-than-significant Impact.***

Construction

Grading and/or excavation activities will be required for the new transmission lines and the proposed Egbert Switching Station. In addition, staging areas may require improvement that includes blading the surface of the area, compacting soil, and/or applying gravel. Scraping and grading during preparation of the switching station site and staging areas may disturb the soil surface, which will result in a temporary reduction in the infiltration and absorption capacity of the localized affected area. Localized compaction of soil from construction activities, including the use of heavy equipment, could also diminish the stormwater infiltration capacity at the proposed Egbert Switching Station site. However, this impact is considered less than significant because the site is already compacted from its current use as a lumber storage yard, and effects will be minor and localized during construction.

Stormwater runoff in the project area is currently directed to San Francisco's combined stormwater and sanitary sewer collection and treatment system and to the Daly City stormwater drainage system, which have sufficient capacity to accept stormwater from the project area. Project construction will not create or contribute runoff water that would exceed capacity of existing or planned stormwater drainage systems; therefore, the impact will be less than significant.

Construction activities 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. Project activities will have a less-than-significant impact to existing or planned stormwater drainage systems including the potential for providing substantial additional sources of polluted runoff given the activities are temporary and limited by the scale of construction activities. Potential impacts would be further reduced with implementation of the SWPPP as outlined in APM WQ-1, the worker environmental awareness program as described 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.

Operation and Maintenance

Operation and maintenance activities will not create or contribute runoff water that will exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. During operation (APM WQ-5) a Stormwater Control Plan will be implemented to manage stormwater 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. No impact will occur during operation and maintenance.

f) Would the project otherwise substantially degrade water quality? *No Impact.*

No additional impacts to water quality beyond those previously described are anticipated. Therefore, the project will not substantially degrade water quality, and no impact will occur during construction or operation and maintenance phases.

g) Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? *No Impact.*

The project will not involve housing construction; therefore, no impact will occur during construction or operation and maintenance phases.

h) Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows? *No Impact.*

Most of the project area and potential staging areas are not located within 100-year flood hazard areas. Two sets of potential staging areas are located within flood zones: (1) portions of the potential Amador Street staging area are in Special Flood Hazard Areas with 1 and 0.2 percent annual chances of flood hazard, and (2) some portions of the potential Martin Substation staging areas are in FEMA Flood Zone A (i.e., areas subject to inundation by the 1-percent-annual-chance flood event determined using approximate methodologies) (City of San Francisco, 2015; County of San Mateo, 2012; FEMA, 2017) (Figure 3.9-3). Staging of equipment in temporary work areas would not result in impediments or redirections of floodwaters. Therefore, no impact will occur during construction or operation and maintenance phases.

i) Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? *Less-than-significant Impact.*

Water reservoirs and tanks represent a potential flooding hazard attributable to failure caused by ground shaking during earthquakes. Two portions of the project area are located within potential inundation areas identified by the San Francisco Water Department (San Francisco Planning Department, 2012): (1) areas east of the University Mound Reservoir (potentially including Egbert Switching Station and the proposed Egbert-Embarcadero and Martin-Egbert lines) and (2) areas southeast of the McLaren Park tanks (potentially including a section of the proposed Jefferson-Egbert line) (Figure 3.9-3). Seismic upgrades of the McLaren Park tanks and University Mound Reservoir North Basin have occurred within the past 10 years, and DSOD has no restrictions in place on the University Mound Reservoir at the time of this writing. No underground transmission line segments within San Mateo County are located within a reservoir or dam failure inundation area (County of San Mateo, 2005).

No aboveground structures will 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 will obtain a building permit from the City of San Francisco that will address local building standards for flood potential. Construction and operation and maintenance personnel presence at the switching station and transmission lines within the potential inundations areas would be temporary during construction and limited and infrequent during operation and maintenance but could expose people to a risk of injury or death involving flooding attributable to failure of the reservoir. The impact is less than significant during construction and operation and maintenance to expose people or structure to a significant risk of loss, injury of death involving flooding, including flooding as a result of the failure of a levee or dam.

j) Would the project result in inundation by seiche, tsunami, or mudflow? ***Less-than-significant Impact.***

Most of the project area 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 (California Emergency Management Agency, California Geological Survey, and University of Southern California, 2009a) (Figure 3.9-3). However, devastating tsunamis have not occurred in historic times in the San Francisco Bay Area, and the likelihood of such an event occurring is considered remote. Therefore, this impact is less than significant for the construction and operation and maintenance phases.

The largest seiche wave ever measured in the San Francisco Bay, following the 1906 earthquake, was four inches high. The Bay Area has not been adversely affected by seiches during its history within this seismically active region of California (USACE San Francisco District, Port of Oakland, 2000). Moreover, the project is not located within a tsunami inundation zone. The project will not result in inundation by a seiche; no impact will occur during construction or operation and maintenance phases.

Approximately 0.27 mile of the proposed Jefferson-Egbert line crosses a mapped potential debris flow source area, at least some of which has been subject to human modification associated with urban development (Section 3.6.3.5). Where the project route crosses a mapped debris flow source area, PG&E will implement appropriate soil stability design measures in APM GS-1, which will further reduce potential landslide and mudflow less-than-significant impact. The potential for inundation by mudflow from project during construction and operation and maintenance will be less than significant.

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3.10 LAND USE AND PLANNING

3.10.1 INTRODUCTION

This section describes existing land use in the vicinity of the project and assesses potential project-related impacts on land use and planning, including an analysis of project compatibility with land use and/or habitat plans. The analysis concludes that no impacts related to land use and planning will occur as a result of construction, operation, and maintenance of the project and no APMs are needed to address impacts. To further reduce short-term disturbance to the surrounding neighborhoods during construction, PG&E will implement the APMs described in Section 3.10.4.2. The project's potential effects on land use and planning were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.10-1 and discussed in more detail in Section 3.10.4.

Table 3.10-1. CEQA Checklist for Land Use and Planning

Would the project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

3.10.2 REGULATORY BACKGROUND AND METHODOLOGY

3.10.2.1 Regulatory Background

Federal

<u>*San Bruno Mountain Habitat Conservation Plan*</u>

Section 10 of the federal ESA allows for the creation of HCPs to protect listed and candidate species in connection with the issuance of an Incidental Take Permit for federally-listed species. USFWS provides oversight of the San Mateo County Parks Department's HCP for San Bruno Mountain, located within San Bruno Mountain State and County Park. The proposed Jefferson-Egbert line interconnects with the existing Jefferson-Martin 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 (north side) with the Dairy & Wax Myrtle Ravines Management Unit (south side). The 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 (Figure 3.4-3). As the proposed Jefferson-Egbert 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 Daly City.

No other federal regulations related to land use and planning are applicable to the project.

State

California Public Utilities Commission

The CPUC has exclusive jurisdiction over the design, siting, installation, operation, maintenance, and repair of electric transmission facilities, pursuant to Article XII, Section 8 of the California Constitution. The CPUC is the Lead Agency for CEQA review for this project and has authority over the discretionary project approval.

California Department of Parks and Recreation

San Bruno Mountain State and County Park is located off Guadalupe Canyon Parkway in Brisbane. The park is an estimated 2,063 acres and is composed of State- and County-owned lands. The park borders several cities, including Daly City, South San Francisco, Colma, and 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 line begins on Guadalupe Canyon Parkway inside the park, but since the line would be in the road, does 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 Division 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 line on Guadalupe Canyon Parkway in Brisbane.

McAteer-Petris Act of 1965 (CGC §§ 66650-66661)

The McAteer-Petris Act created the 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 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.

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

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the 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 CEQA review.

As shown on Figure 2.3-1, the project area 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. The General Plans contain certain policies that, consistent with CPUC jurisdiction over the project, PG&E will consider with respect to the project.

Although PG&E is not subject to local discretionary permitting, ministerial permits will be secured, as required. Section 2.11: Required Approvals (in Chapter 2.0, Project Description) lists the authorizations that may be required for project construction.

3.10.2.2 Methodology

Analysis of land use and planning documents included a review of the following plans and policies:

- SBM HCP
- San Bruno Mountain State and County Park Plan
- San Francisco General Plan
- San Francisco Special Use District (SUD) Maps and associated City Planning Code
- Brisbane General Plan
- 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 staging of the project with local government departments of planning and public works, and agency officials and other stakeholders including landowners; Cities of San Francisco, Daly City, and Brisbane; Caltrain; California High-Speed Rail Authority; and Universal Paragon (Brisbane Baylands developer).

3.10.3 ENVIRONMENTAL SETTING

3.10.3.1 Regional Setting

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 line located in San Mateo County within the cities of Brisbane and Daly City. The proposed Egbert Switching Station will 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 and County 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. 101 corridor, and a mix of residential with light industrial development in the area surrounding the proposed switching station (Figures 3.10-1, 3.10-2a-h, and 3.10-3). Approximately one to three staging areas totaling up to approximately 15 acres will be identified for use once a construction contractor is selected. Two potential staging areas in San Francisco are in the Southern Waterfront industrial area owned by the Port. The portion of the proposed Jefferson-Egbert 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 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 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 percent) is located within San Bruno Mountain State and County 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.

3.10.3.2 Local Land Use Setting (Existing Land Use)

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 lines; the proposed Jefferson-Egbert line, from the interconnection with the existing Jefferson-Martin 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 mile of the project are illustrated on Figure 3.10-1 and Figure 3.10-2a-h.

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 3.10-1, and parcels immediately

Insert

Figure 3.10-1 Egbert Switching Station Existing Land Use (a-g)

Insert

Figure 3.10-2 Existing Land Use

3.10-2a

Insert

Figure 3.10-2b Existing Land Use

Insert

Figure 3.10-2c Existing Land Use

Insert

Figure 3.10-2dExisting Land Use

Insert

Figure 3.10-2e Existing Land Use

Insert

Figure 3.10-2f Existing Land Use

Insert

Figure 3.10-2gExisting Land Use

Insert

Figure 3.10-2hExisting Land Use

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. UPRR 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 UPRR tracks, the main tracks to San Francisco, separate the switching station from 3rd Street, which is to the east of the project area. Interspersed with the light industrial and residential uses along 3rd Street include 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 Lines

Existing land uses surrounding the proposed Egbert-Embarcadero and Martin-Egbert lines are shown on Figure 3.10-2a and summarized below.

The proposed Martin-Egbert and Egbert-Embarcadero 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 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.

Crossing west under U.S. 101, Egbert Avenue changes to Bacon Street and crosses San Bruno Avenue, which is a commercial corridor. Many of the buildings along San Bruno Avenue are mixed uses, with commercial on the ground floor and residences above. As the line continues along Bacon Street west and past San Bruno Avenue, residential uses are found on both sides of the street. At the proposed temporary freeze pit work location for the HZ-1 line, the western-most work area for this line, residences are found on the south side of Bacon Street, with the teachers' parking lot associated with Dr. Martin Luther King Jr. Academic Middle School on the north side. The main entrance to the school is located at 350 Girard Street and the entire south side of the school along Bacon Street is fenced, with the exception of access to the teachers' parking lot.

Proposed Jefferson-Egbert Line

The proposed Jefferson-Egbert line connects the existing Jefferson-Martin line in Brisbane on Guadalupe Parkway terminating at the proposed Egbert Switching Station, heading north through Daly City into San Francisco (Figures 3.10-2a, b, c, e, and g). The line begins at an interconnection point at an existing Jefferson-Martin line vault in Guadalupe Canyon in San Bruno Mountain State and County Park (Figure 3.10-2g). Just outside of the park boundaries is a Brisbane residential area called The Ridge, which does not have direct access to Guadalupe Canyon Parkway.

The line leaves Brisbane and enters the city limits of Daly City within 0.1 mile 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 mile, 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 3-10.2e). 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 southwest 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 line follows Santos Street through residential areas until it turns east on Sunnydale Avenue, where it continues through residential neighborhoods and passes the Girls and Boys Club of San Francisco – Sunnydale Clubhouse (entrance at 1654 Sunnydale Avenue). The line turns north onto Hahn Street with residences to either side with a grocery store at the northeast corner of Sunnydale Avenue and Hahn Street. Shortly after the route enters Hahn Street, it passes by John McLaren Park to the west, with residential areas to the east (Figure 3.10-2c). The line enters 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 line continues east along Mansell Street through residential areas to San Bruno Avenue (Figure 3.10-2b). 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 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 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 3.10-2a and b). 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. Multi-story 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 and multi-story residences.

The 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 3.10-2d, f). 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 Elementary School and one block further west is the Mt. Vernon Christian Academy. One block south of the substation on Martin Street is the Robertson Intermediate School (Figure 3.10-2f). 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 line on Carter Street. 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 will be determined based on availability at the time of construction as described in Section 2.7.1.1, potential staging areas have been preliminarily identified (Figure 2.7-1). Approximately one to three staging areas totaling up to approximately 15 acres will 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 line or within the existing Martin Substation (Figure 3.10-2d, e, and f). 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 (Figure 3.10-2h). 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 (SFPD 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.

Zoning and General Plan Land Use Designations

The project is located within the cities of San Francisco, Daly City, and Brisbane. Figures 3.10-3 and 3.10-4 illustrate the zoning in the project area. Public utility facilities regulated by the 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 I-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* (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 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 3.10-3 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 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 area are listed in Table 3.10-2, Zoning and Existing Land Use Adjacent to Proposed Facilities.

Insert

Figure 3.10-3 City of San Francisco Zoning

Insert

Figure 3.10-4 Cities of Daly City and Brisbane Zoning

Table 3.10-2. 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 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 line/ Railroad tracks	M-1	• Active railroad corridor
San Francisco: Proposed Jefferson-Egbert line/ Crane Street	RH-1 P RM-1	• Residential, Mixed (Houses and Apartments)
San Francisco: Proposed Jefferson-Egbert line/ next to Bayshore Boulevard	RM-1	• Residential, Mixed (Houses and Apartments) • Commercial
San Francisco: Proposed Jefferson-Egbert line/ Mansell Street	RH-1	• Residential houses
San Francisco: Proposed Jefferson-Egbert 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 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 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 line on Carter Street along San Bruno Mountain State and County Park	P	• Public (San Bruno Mountain State and County Park) • Residential
Daly/City Brisbane: Martin Substation (including Potential Staging Area)	M (Daly City) M-1 (Brisbane)	• Existing PG&E Substation
Brisbane: Proposed Jefferson-Egbert line/ Guadalupe Canyon Parkway	TC-1	• Residential

3.10.3.3 Local Plans and Policies

As previously stated, the project is not subject to local agency regulations. However, PG&E has considered the following local plans and policies in its design of the proposed project, see Table 3.10-3, Area Plans and Planned Improvements.

San Bruno Mountain Master Plan

San Bruno Mountain State and County Park is surrounded by the surrounding 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 Habitat Conservation Plan

The SBM HCP was reviewed for land use policies that would assist with the environmental review. A portion of the proposed Jefferson-Egbert 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 habitat conservation requirements of the HCP. 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 (Figure 3.4-4). The Guadalupe Hills portion of the HCP supports endangered butterflies, as well as rare and endemic plants.

San Francisco General Plan

The San Francisco General Plan was reviewed for land use and zoning maps, in addition to policies that would assist with the environmental review of the project (Figures 3.10-3 and 3.10-4). The proposed Egbert Switching Station site and portions of the project's transmission lines are located within one 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 City of Daly City General Plan was adopted in 2013 and contains specific policies and guidelines for 13 planning areas within Daly City. The proposed Jefferson-Egbert transmission line is routed within the Bayshore Planning Area (No. 13). While Daly City is predominantly residential, the Bayshore Planning Area contains the Geneva Avenue commercial corridor, as well as the Cow Palace. The City's only industrial area is primarily located in the Bayshore neighborhood, north of Mac Donald Avenue.

Redevelopment of the Cow Palace is noted in the General Plan to be one of the major opportunities in this planning area. Daly City has sought to acquire the Cow Palace from the State of California for purposes of redevelopment; however, no bill providing for the sale has been signed into law. City officials stated in 2008 that the Cow Palace space could serve the Bayshore neighborhood, which "needs a grocery store, bank, pharmacy, post office, and K-8 school" (Mercury News, 2008). Adjacent to the Cow Palace is Geneva Avenue, which is also a focus of the 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'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 City of Brisbane General Plan was adopted in 1994 and contains specific policies and guidelines for 13 subareas within Brisbane. The proposed Jefferson-Egbert line is routed between the Northeast Ridge and Northwest Bayshore subareas.

The City has been in the process of a General Plan Update, with completion to occur following an EIR and decisions on the potential build-out of the Baylands Subarea, which is unrelated to the project. The Baylands Subarea is located directly across Bayshore Boulevard from Martin Substation. The Brisbane Planning Department approved Resolution No. GP-1-06/GP-02/10/SP-01-06, which recommends to the Brisbane City Council that the Baylands Subarea be subdivided into specific zoning areas. The resolution proposes a re-zoning of retail within the Roundhouse Area to the east of Martin Substation; a transit-oriented development area to the north east (across Geneva Avenue and Bayshore from Martin Substation), to include a research and development/tech campus; and light industrial to the southeast. At the time of this writing, the Brisbane City Council has not made a determination regarding the re-zoning proposal.

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 generally bounded by 25th Street on the north, Illinois Street on the west, and Cargo Way on the south. The strategy plan discusses both 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 3.10-3. 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 of San Francisco	Special Use Districts	**Design and Development SUD:** Promote design activities, including architectural, graphic, interior, product, and industrial design.
City of San Francisco	Green Connections	**Green Path Routes No. 10 (Yosemite Creek along Paul Avenue), No. 12 (Lake Merced to Candlestick), and No. 23 (Crosstown Trail along Visitacion Ave through McLaren Park):[a]** Increase access to parks, open spaces, and waterfront within the City of San Francisco.
Port of San Francisco	Piers 80-96 Maritime Eco-Industrial Strategy	**Maritime Eco-Industrial Center:** Co-location of 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 the constraints identified in the General Plan to improve the Bayshore neighborhood and achieve the 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 Parks Department	Habitat Conservation Plan	**San Bruno Mountain State and County Park:** Preserve and enhance habitat for endangered species.

[a] Section 3.15.3.2, Recreation – Local Setting, discusses the Green Connection Routes in relation to the project.

3.10.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for land use impacts derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operational land use impacts. Because the project will have no impact on land use, APMs have not been included for this section.

3.10.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area

affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on land use and planning were evaluated for each of the criteria listed in Table 3.10-1, as discussed in Section 3.10.4.3.

3.10.4.2 Applicant-Proposed Measures

The project will have no impact on land use and planning; however, to further reduce short-term disturbance to the surrounding neighborhoods during construction, PG&E is proposing the following APMs.

APM Land Use (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.

3.10.4.3 Potential Impacts

Project impacts related to land use were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase. An analysis of impacts to adjacent land uses during construction and operation of the project is included in other sections of the PEA, including Aesthetics, Air Quality, Hazards and Hazardous Materials, Noise, Recreation, and Transportation and Traffic.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and will extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

a) Would the project physically divide an established community? ***No Impact.***

Implementation of the proposed underground transmission lines and new switching station project will not physically divide an established community. No impact will occur.

b) Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? ***No Impact.***

As explained above, local agencies do not have jurisdiction over the project, and no state or federal land use plans, policies, or regulations are applicable. Nonetheless, an evaluation was performed, and the impact analysis demonstrates that the project is compatible with the General Plans adopted by the surrounding cities. Installation of the new lines will occur primarily within PG&E's franchise area in city streets and will not have an impact on plans or policies. The new Egbert Switching Station site will be located on PDR-2 zoned land, which specifically permits utility and infrastructure uses. 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 only be used as a staging area 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 project and no impact to resources within BCDC's jurisdiction would occur.

Therefore, there will be no impact to land use and the project will not conflict with any applicable land use plans or regulation of an agency with jurisdiction over the project.

Operation and maintenance personnel will visit the project periodically for routine inspection and maintenance procedures. This infrequent activity will have no impact on land use. Any minor impacts to traffic associated with working in the vaults would be addressed through PG&E's existing processes to coordinate work in streets.

c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan? ***No Impact.***

The SBM HCP extends along the southern portion of the proposed Jefferson-Egbert line. Construction and operation and maintenance of the project will be confined entirely underground within franchise along Carter Street and Guadalupe Canyon Parkway, and therefore, there is no conflict with the HCP.

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3.11 MINERAL RESOURCES

3.11.1 INTRODUCTION

This section describes existing conditions and potential impacts on mineral resources as a result of construction, operation, and maintenance of the project. The analysis concludes that the project will have no impact. The project's potential effects on mineral resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.11-1 and discussed in more detail in Section 3.11.4.

Table 3.11-1. CEQA Checklist for Mineral Resources

Would the project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource classified MRZ-2 by the State Geologist that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

3.11.2 REGULATORY BACKGROUND AND METHODOLOGY

3.11.2.1 Regulatory Background

Federal

No federal regulations related to mineral resources are applicable to the project.

State

The California Surface Mining and Reclamation Act of 1975 requires that the State Geologist classify land into mineral resource zones (MRZ) according to the known or inferred mineral potential of the land (PRC Sections 2710-2796). MRZ are defined as the following (Stinson et al., 1987):

MRZ-1: Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.

MRZ-2: Areas where adequate information indicates that significant deposits are present, or where it is judged that a high likelihood for their presence exists. The guidelines set forth two requirements to be used to determine if land should be classified MRZ-2:

- The deposit must be composed of material that is suitable as a marketable commodity. The deposit must meet threshold value.

- The projected value (gross selling price) of the deposit, based on the value of the first marketable product, must be at least $5 million (1978 dollars).

- Although not specified in the guidelines, the following criteria were applied to each deposit to test its suitability for inclusion in an MRZ-2 zone:

  - The presence of an operating quarry within the deposit is considered proof that Condition 1 has been met.

  - An average value of $2.00 per ton (all aggregate types) and a conversion factor of 2,500 tons per acre-foot of material (0.065 ton per cubic foot with 10 percent waste) require a minimum amount of 1,000 acre-feet of material within the deposit, exclusive of overburden and fill material, to meet suggested threshold value.

  - A deposit of aggregate material must have an overburden-to-ore ratio of less than 1 to 1 in order for mining to become economic at the present time.

MRZ-3: Contain mineral deposits, but their significance cannot be evaluated from available data.

MRZ-4: Areas where available information is inadequate for assignment to any other MRZ category.

SZ: Areas containing unique or rare occurrence of rocks, minerals, or fossils that are of outstanding scientific significance shall be classified in this zone.

Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the project is not subject to local discretionary regulations. This section includes a brief summary of information on locally important mineral resources from the Brisbane, Daly City, and San Francisco General Plans and supporting documents for informational purposes and to assist with the CEQA review process.

The Brisbane General Plan (City of Brisbane, 1994) does not include a section on mineral resources. However, the plan designates a subarea titled "The Quarry" as Planned Development (PD)-Trade Commercial. The Quarry is located approximately 4,000 feet south of the southern terminus of the proposed Jefferson-Egbert line. The plan outlines a number of mixed uses for development of The Quarry subarea, including open space, health care and educational facilities, commercial recreation, trade commercial, and research and development, while specifically precluding single-family housing.

The Daly City General Plan (City of Daly City, Department of Economic and Community Development, 2013) does not include a section on mineral resources in its list of resource management policies, goals, or tasks.

The San Francisco General Plan states that mineral resources are not found in San Francisco to an appreciable extent (City and County of San Francisco Planning Department, 1995 and 2004), and are omitted from the General Plan.

3.11.2.2 Methodology

This analysis included the review and evaluation of available maps and publications presenting information on mineral resources in or near the project area. Impacts to mineral resources that could result from the project were evaluated qualitatively based on site conditions; expected construction practices; materials, locations, and duration of project construction; and operational and maintenance activities.

3.11.3 ENVIRONMENTAL SETTING

The project is generally located in areas underlain by marine and nonmarine mud, sand, and gravel or in Franciscan Complex bedrock (Bailey and Harden, 1975). The project is variously located within three distinct areas designated as MRZ-1, MRZ-2(a), and MRZ-4 on the Mineral Land Classification Map of San Mateo and San Francisco Counties as shown on Figure 3.11-1 (Stinson, et.al., 1982).

Approximately 0.2 mile of the proposed Jefferson-Egbert line falls within MRZ-2(a) when routed within Guadalupe Canyon Parkway and Carter Street in Brisbane and Daly City to approximately the intersection of Carter Street at Alexis Circle. Residential developments are adjacent to most sections of these roads where the line is proposed in this area. Existing urbanization is stated to preclude the development of a quarry and the extraction of aggregate or other minerals in MRZ-2(a) areas (Stinson et al., 1987).

As the line continues to the proposed Egbert Switching Station, it is located within MRZ-1 for approximately 1.4 miles until just before Visitacion Valley Middle School along Visitacion Avenue. From this area, the line falls within MRZ-4 for approximately 0.3 mile to the intersection of Mansell Avenue with Colby Street. The line is again within MRZ-1 for the remaining 1.4 miles as it continues to the proposed switching station. The proposed Egbert Switching Station site is located within MRZ-1. The entirety of the proposed Egbert-Embarcadero and Martin-Egbert lines, as well as the potential staging areas, fall within MRZ-1.

The nearest active mineral resource, the Guadalupe Valley Quarry (also known as Evans Brothers, Incorporated), produces crushed aggregate for construction (Kohler-Antablin, 1996). The quarry is located approximately 0.75 mile due south of the proposed Jefferson-Egbert construction work area near the intersection of Guadalupe Canyon Parkway and Carter Street.

3.11.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for impacts on mineral resources derived from Appendix G of the CEQA Guidelines and assess potential project-related construction and operational impacts. Because the project will have no impact on mineral resources, APMs have not been included for this section.

Insert

Figure 3.11-1 Mineral Resource Zone Map

3.11.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on mineral resources were evaluated for each of the criteria listed in Table 3.11-1, as discussed in Section 3.11.4.3.

3.11.4.2 Applicant-Proposed Measures

The project will have no impact on mineral resources, and no APMs are proposed.

3.11.4.3 Potential Impacts

Project impacts related to mineral resources were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and residents of the state? *No Impact.*

The segment of the proposed Jefferson-Egbert line within a MRZ-2(a) designation area will be in an urbanized area (existing roadways with adjacent existing residential use), which precludes the development of new mineral resource extraction. All other portions of the project will be constructed in MRZ-1. Therefore, loss of availability of a known mineral resource of value to the region and state will not occur; no construction or operation and maintenance impacts will occur.

b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan? *No Impact.*

The project would not result in the loss of availability of a locally important mineral resource recovery site; therefore, no construction or operation and maintenance impact will occur.

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3.12 NOISE

3.12.1 INTRODUCTION

This section describes noise sensitive receptors and identifies potential noise impacts associated with construction, operation, and maintenance of the project, and concludes that with incorporation of the APMs, impacts related to temporary construction noise will be less than significant, and noise and groundborne vibration associated with project operations will be less than significant. The project's potential noise-related effects were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.12-1 and discussed in more detail in Section 3.12.4.

Table 3.12-1. CEQA Checklist for Noise

Would the project result in:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

3.12.1.1 Fundamentals of Noise

Noise is generally defined as unwanted sound. Airborne sound is the fluctuation of air pressure above and below atmospheric pressure. Several ways exist to measure sound, depending on the source, receiver, and reason for the measurement.

Community sound levels are generally presented in terms of A-weighted decibels (dBA). The A-weighting network measures sound in a similar fashion to how a person perceives or hears sound, thus achieving a strong correlation with how people perceive acceptable and unacceptable sound levels. Table 3.12-2, Typical Sound Levels Measured in the Environment and Industry, presents A-weighted sound levels and the general subjective responses associated with common sources of noise in the physical environment.

A-weighted sound levels are typically measured or presented as the equivalent sound pressure level (L_{eq}), which is defined as the average noise level on an equal-energy basis for a stated period of time and commonly is used to measure steady-state sound that is usually dominant. Statistical methods are used to capture the dynamics of a changing acoustical environment. Statistical measurements are typically denoted by L_n, where "n" represents the percentile of time that the sound level is exceeded. Therefore, L90 represents the noise level that is exceeded during 90 percent of the measurement period, which typically represents a continuous noise source. Similarly, L10 represents the noise level exceeded for 10 percent of the measurement period.

Another metric used in determining the impact of environmental noise is the differences in response that people have to daytime and nighttime noise levels. During the evening and at night, exterior background noises generally are lower than daytime levels. However, most household noise also decreases at night, and exterior noise becomes more noticeable. Furthermore, most people sleep at night and are sensitive to intrusive noises. To account for human sensitivity to evening and nighttime noise levels, the day-night sound level (L_{dn}) (also referred to as DNL) and the CNEL were developed. The L_{dn} is a noise metric that accounts for the greater annoyance of noise during the nighttime hours (10 p.m. to 7 a.m.). The CNEL is a noise index that accounts for the greater annoyance of noise during both the evening hours (7 p.m. to 10 p.m.) and nighttime hours.

Table 3.12-2. 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 foot)	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

Table 3.12-2. Typical Sound Levels Measured in the Environment and Industry

Noise Source at a Given Distance	Sound Level in A-weighted Decibels (dBA)	Qualitative Description
Living room Bedroom	40	
Library Soft whisper (5 feet)	30	Very quiet
Broadcasting/Recording studio	20	
	10	Just audible

Source:
Adapted from Table E, "Assessing and Mitigating Noise Impacts" (New York Department of Environmental Conservation, 2001).

L_{dn} values are calculated by averaging hourly L_{eq} sound levels for a continuous 24-hour period on an energy basis, applying a weighting factor of 10 decibels to the nighttime values. CNEL values are calculated similarly, except that a 5-dB weighting factor also is added to evening L_{eq} values. The applicable adjustments, which reflect the increased sensitivity to noise during evening and nighttime hours, are applied to each hourly L_{eq} sound level for the calculation of L_{dn} and CNEL. For the purposes of assessing noise, the 24-hour day is divided into three time periods, with the following adjustments:

- Daytime hours: 7 a.m. to 7 p.m. (12 hours)—adjustment of 0 dBA
- Evening hours (for CNEL only): 7 p.m. to 10 p.m. (3 hours)—adjustment of +5 dBA
- Nighttime hours (for both CNEL and L_{dn}): 10 p.m. to 7 a.m. (9 hours)—adjustment of +10 dBA

The hourly adjusted time-period noise levels are then averaged (on an energy basis) to compute the overall L_{dn} or CNEL value. For a continuous noise source, the L_{dn} value can be computed by adding 6.4 dBA to the overall 24-hour noise level (L_{eq}). For example, if the expected continuous noise level from a noise source is 60.0 dBA, the resulting L_{dn} from the source will be 66.4 dBA. Similarly, the CNEL for a continuous noise source is computed by adding 6.7 dBA to the overall 24-hour L_{eq}.

The general human response to changes in noise levels that are similar in frequency content (such as comparing increases in continuous (L_{eq}) traffic noise levels) are summarized as follows:

- A 3-dB change in sound level is considered to be a barely noticeable difference
- A 5-dB change in sound level typically is noticeable
- A 10-dB increase is considered to be a doubling in loudness

Corona Noise

Corona generates audible noise during operation of high-voltage transmission lines. Under certain conditions, the localized electric field near an energized conductor can be sufficiently concentrated to produce a tiny electric discharge that can ionize air close to the conductors. This partial discharge of electrical energy is called corona discharge, or corona. Several factors, including conductor voltage, shape and diameter, and surface irregularities such as scratches, nicks, dust, or water drops, can affect a conductor's electrical surface gradient and its corona performance. Corona is the physical manifestation of energy loss, and can transform discharge energy into very small amounts of sound, radio noise, heat, and chemical reactions of the air components.

Transmission lines can generate a small amount of sound energy during corona activity. This audible noise from the line can barely be heard in fair weather conditions on higher voltage lines. During wet weather conditions (such as rain or fog), water drops collect on the conductor and increase corona activity so that a crackling or humming sound may be heard near the line. This noise is caused by small electrical discharges from the water drops. However, during heavy rain, the ambient noise generated by the falling raindrops will typically be greater than the noise generated by corona. Corona noise is generally more noticeable on high-voltage lines, and is usually not a design issue for power lines rated at 230 kV and lower nor when located underground.

Vibration

Generally speaking, vibration is energy transmitted in waves through the ground. Because energy is lost during the transfer of energy from one particle to another, vibratory energy is reduced with increasing distance from the source. Vibration attenuates at a rate of approximately 50 percent for each doubling of distance from the source. This approach only takes into consideration the attenuation from geometric spreading. Because additional factors reduce vibration over distance (e.g., damping from soil condition), this approach tends to provide for a conservative assessment of vibration level at the receiver. Vibration concerns for transmission line projects are generally limited to certain construction activities such as impact pile driving in particular.

3.12.2 REGULATORY BACKGROUND AND METHODOLOGY

3.12.2.1 Regulatory Background

Federal

No federal regulations that limit overall environmental noise levels are applicable to the project.

State

No state regulations limit environmental noise impacts.

Local

Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary noise requirements. This section includes a summary of local noise standards or ordinances in the project area for informational purposes and to assist with CEQA review. Airport Land Use Compatibility Plans are discussed in

Section 3.10, Land Use and Planning, and safety concerns around airports are discussed in Section 3.8, Hazards and Hazardous Materials.

City of Brisbane Code of Ordinances

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, 2017). The city establishes operational noise limits based on limiting the increase over existing ambient levels in single-family and multi-family 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 operational and construction noise regulations from Chapter 8.28 of the CBCO are copied below for completeness.

Section 8.28.020 of the CBCO (City of Brisbane, 2017) 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, 2017) 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, 2017) 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, 2017) 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.

Daly City Code of Ordinances

Section 9.22.030 of the Daly City Code of Ordinances (Daly City, 2017) establishes the following provision to limit noise disturbances beyond the confines of the 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 (Daly City, 2013) describes temporary noise generated form construction activities. Construction noise is regulated in 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:

> *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 of San Francisco Police Code

The City of San Francisco's Police Code, Article 29, establishes the regulatory framework for addressing operational and construction-related noise, and it was amended effective in April 2017 (City of San Francisco, 2013). 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 (8:00 p.m. to 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 operational and construction noise regulations from Article 29 are copied below for completeness.

Section 2901 of Article 29: Regulation of Noise in the San Francisco City Ordinance Code (City of San Francisco, 2017) 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 of San Francisco, 2017) 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 of San Francisco, 2017) 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 of San Francisco, 2017) 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.

3.12.3 METHODOLOGY

Evaluation of potential noise impacts from the project included reviewing county and city noise standards that would assist with the environmental review, characterizing the existing noise environment, and predicting noise levels and related impacts during both construction and operations.

Typical noise levels generated by the construction equipment listed in the project description have been calculated previously and published in various reference documents. The expected equipment noise levels listed in the *FHWA Roadway Construction Noise Model User's Guide* (User's Guide) (FHWA, 2006) were used for this evaluation. The User's Guide provides the most recent comprehensive assessment of noise levels from construction equipment. Table 3.12-3 provides typical noise levels and usage factors for general construction equipment and activities consistent with the FHWA Roadway Construction Noise Model. The acoustical usage factor does not equate to the percentage of time the equipment is in use, but rather the percentage of time that it is operated at its maximum sound emission level. For example, a backhoe may be used and energized during the entire shift, but on average it is expected to operate at its maximum sound level 40 percent of the time.

Table 3.12-3. 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
Excavator	40	85	81	170
Flat Bed 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

Table 3.12-3. 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
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
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.
L_{max} = maximum level

Noise at any specific receptor is dominated by the closest and loudest equipment. The types and numbers of construction equipment near any specific receptor location will vary over time. The following assumptions were used for modeling construction noise:

- One piece of equipment generating a reference noise level of 85 dBA (at 50 feet distance with a 40 percent usage factor) located on the transmission line route
- Two pieces of equipment generating reference 85-dBA noise levels located 50 feet farther away on the transmission line route (100 feet distance with a 40 percent usage factor)
- Two additional pieces of equipment generating reference 85-dBA noise levels located 100 feet farther away on the transmission line route (200 feet distance with a 40 percent usage factor)
- Table 3.12-4 presents construction equipment noise levels at various distances based on this scenario. This scenario is anticipated to be conservative given the reductions afforded by intervening buildings or terrain that have not been considered.

Table 3.12-4. 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

3.12.4 ENVIRONMENTAL SETTING

The project is located in San Mateo County within the limits of the city of Brisbane and Daly City, and within the city and county of San Francisco. The project is located in a densely populated urban setting intermixed with commercial, industrial, and open space areas. Land uses surrounding the project are described in Section 3.10.3.2 (Local Land Use Setting [Existing Land Use]), and are summarized below to include the presence of noise-sensitive receptors within 0.25 mile of the project.

The 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

PG&E's existing Martin Substation is located in both the cities of Brisbane and Daly City (Figure 2.4-2). Properties north of and adjacent to the existing Martin Substation are a mix of residential and commercial uses. The area east of Bayshore Boulevard is predominantly vacant industrial land, and a mixture of commercial and industrial uses are located southeast of the site along Bayshore Boulevard. Residential use and open space at the toe 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. An overview of land uses, specifically residences, within 0.25 mile of the existing Martin Substation is shown on Figures 3.10-2d through 3.10-2f. The project work within Martin Substation will occur at the location of the existing Jefferson-Martin line connection within the substation as shown on Figure 2.4-2. The southern extent of this work area is approximately 375 feet from the property line in Brisbane.

Proposed Jefferson-Egbert Line

The proposed Jefferson-Egbert line connects the existing Jefferson-Martin line to the proposed Egbert Switching Station (Figure 2.5-1). The proposed Jefferson-Egbert line begins at a connection point with the existing Jefferson-Martin line in the city of Brisbane on Guadalupe Canyon Parkway. The proposed line continues for approximately 300 feet and then enters the city limits of Daly City on Carter Street. The proposed line continues 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 line in Brisbane is approximately 250 feet from the edge of Guadalupe Canyon Parkway. Along Carter Street in Daly City and several streets in San Francisco, residences are located directly adjacent to the roadway.

In San Francisco, the proposed Jefferson-Egbert line turns east along Geneva Avenue and north onto Santos Street. The portion of Geneva Avenue crossed by the proposed Jefferson-Egbert 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 line bends east to Sunnydale Avenue and then north onto Hahn Street. On Hahn Street, the line passes John McLaren Park to the west and enters the park before connecting to Visitacion Avenue. On Visitacion Avenue, the line crosses directly in front of an entrance point and parking lot to the Visitacion Valley Middle School, which is bound to the west by Visitacion Avenue. Once the line crosses John McLaren Park, it connects to Mansell Street and turns east approaching U.S. 101. The proposed Jefferson-Egbert Line will cross U.S. 101 using a trenchless auger bore method.

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. 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 will run underneath U.S. 101 for approximately 420 feet. The proposed auger bore work areas are shown on Figure 2.5-1e.

The proposed line continues north through a residential area in Crane Street and crosses Paul Avenue, continuing north through a private industrial parcel until connecting to the southern side of the proposed Egbert Switching Station site. An overview of land uses, specifically residential uses, within 0.25 mile of the proposed Jefferson-Egbert line is shown on Figures 3.10-2a through 3.10-2h.

Existing sound levels were measured approximately 400 feet from U.S. 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 Leq during the long term (24-hour) measurement varied from approximately 53 dBA to 68 dBA. Measurements closer to an area highway (I-280) were collected during the evaluation of a housing project in 2015 (Charles M. Salter Associates, Inc., 2015). The calculated 24-hour average DNL or L_{dn} at locations approximately 80 feet from the highway were 82 dBA. These measures are consistent with the typical sound levels described in Table 3.12-2.

Proposed Egbert-Embarcadero and Martin-Egbert Lines

The proposed Martin-Egbert and Egbert-Embarcadero lines will be installed between the existing HZ-1 line near the intersection of Bayshore Boulevard and Bacon Street and the proposed Egbert Switching Station (Figure 2.5-1f). From Bayshore Boulevard, the proposed lines head east in Egbert Avenue to the proposed Egbert Switching Station Site. Figure 3.10-1 shows that residences are located directly adjacent to the proposed Martin-Egbert and Egbert-Embarcadero lines near the intersection of Bayshore Boulevard and Bacon Street, and on the northern side of Egbert Avenue near the proposed Egbert Switching Station.

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 a mix of transportation corridors, industrial and warehouse facilities, and utility structures (including numerous overhead power lines) interspersed with semi-detached and multi-unit residential buildings. Bordering the site's eastern perimeter is a UPRR ROW 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 Chapter 2.0, Project Description, the project includes installation of a new 230 kV switching station on a previously disturbed site 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 will 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 will be located outdoors. A 12-foot-high perimeter fence will surround the site. Along the Egbert Avenue frontage, the wall will be set back 5 to 10 feet from the property line to allow an area for new sidewalk and new landscaping, and will 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. Average (L_{eq}) daytime levels were reported to vary between 56 to 67 dBA during the daytime and 50 to 68 dBA 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. Residual 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 DNL or L_{dn} was 67 dBA. 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 UPRR centerline, and 12 feet above grade. Residual background sound levels (L_{90}) ranged from 52 to 64 dBA during the daytime and from 49 to 59 dBA during the nighttime. These measures are consistent with the typical sound levels described in Table 3.12-2.

3.12.4.1 Sensitive Receptors

Noise-sensitive receptors generally are defined as locations where people reside or where the presence of unwanted sound may adversely affect the existing land use. Typically, noise-sensitive land uses include residences, hospitals, places of worship, libraries, and schools, as well as nature and wildlife preserves and parks. Sensitive receptors within 0.25 mile of the project alignment were analyzed for potential impacts as a result of project construction and operation. Figures 3.10-2a through 3.10-2h depict the locations of nearby residential areas and noise-sensitive receptors in relation to the project.

The nearest noise-sensitive receptors to the existing Martin Substation and Service Center are the multi-family 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 schools to the existing Martin Substation and Service Center are the Bayshore Elementary school, currently under construction, and located approximately 65 feet west of the site boundary on Oriente Street, and the Robertson Intermediate School located approximately 275 feet south of the site boundary. Additional noise-sensitive receptors within 0.25 mile of the existing Martin Substation and Service Center are shown on Figures 3.10-2e and 3.10-2f.

Single- and multi-family residences are the most prominent noise-sensitive receptors along the proposed Jefferson-Egbert, Martin-Egbert, and Egbert-Embarcadero 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 lines will be constructed. Residences and other noise-sensitive receptors within 0.25 mile of the proposed Jefferson-Egbert, Martin-Egbert, and Egbert-Embarcadero lines are shown on Figures 3.10-2a through 3.10-2h. 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. Multi-family residences are also located approximately 140 feet from the site boundary across the UPRR tracks to the east. The Bay View Playground is the nearest recreational area, and the Southeast Health Center Clinic is the nearest health center; both are located approximately 0.15 mile east of the proposed site boundary. Cornerstone Missionary

Baptist is the nearest place of worship, located approximately 0.16 mile from the proposed site boundary. Additional noise-sensitive receptors within 0.25 mile of the proposed Egbert Switching Station site are shown on Figure 3.10-1.

3.12.5 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for noise-related impacts derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operational noise impacts.

3.12.5.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts related to noise were evaluated for each of the criteria listed in Table 3.12-1, as discussed in Section 3.12.4.3.

3.12.5.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

APM Noise (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 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.

3.12.5.3 Potential Impacts

Project impacts related to noise were evaluated against the CEQA significance criteria and are discussed below. This section evaluates potential project impacts during the construction phase and the operation and maintenance phase.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

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 this project will be installed underground. Audible noise from buried lines is not anticipated, and operation of the lines will not result in noise generation.

Construction Noise Levels

Review of the typical construction equipment noise levels in Table 3.12-3 indicates that the loudest equipment generally emits noise in the range of 80 to 90 dBA at 50 feet with usage factors of 40 percent to 50 percent.

The switchgear building at the proposed Egbert Switching Station is expected to be supported by a thickened mat slab foundation. If building piers are required, 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 will be installed using a drill method, and vibratory or impact pile driving is not anticipated.

Transmission line vault excavations (approximately at 1,800- to 2,000-foot intervals along a line) and auger bore pits will 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, will be determined by soil and groundwater conditions. Soil borings obtained during final design work will 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 will generate temporary noise and may result in perceptible vibrations that would be local to the excavation activity where the shoring type is required. A vault is typically completely installed in 7 workdays. A bore pit excavation is expected to occur over approximately 5 workdays. The pile driving activity would be temporary and limited in duration, occurring during daytime construction hours when piles are driven within the excavation activity period. Similarly, if required along the trench, pile driving at any given location would be limited in duration to a few days.

Auger bore operations are expected to last for approximately 6 weeks. Excavation of the auger bore pits will 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 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 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 is listed in Table 2.7-1 and 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
- Semitruck
- Hydraulic breaker for excavator
- Sheet driver for excavator

The estimated sound pressure level from the operation of auger bore equipment operating at the entry is assumed to be similar to the FHWA 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 (CH2M HILL, 2012) without barriers. Table 3.12-5 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 is located in a pit 13 to 15 feet below grade (unlike horizontal directional drilling as used in the Embarcadero-Potrero Project).

Geometric divergence is the primary mechanism of noise reduction close to a noise source. At greater distances, additional reductions (e.g., ground effects and atmospheric attenuation) can be significant. This excess attenuation is not accounted for in the model, nor is the potential shielding afforded by intervening structures. Therefore, the model output should be considered conservatively high.

Table 3.12-5. 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

Table 3.12-5. 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)
1,000	63	58
1,500	60	55
2,000	57	52
4,000	51	46

Notes:
See text narrative preceding this table for the parameters of this noise modeling scenario.

APM NO-5 should reasonably achieve more than a 5 dBA reduction. The results with and without a 5 dBA reduction are incorporated into Table 3.12-5. 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.

The effectiveness of a noise barrier is quantified by its field insertion loss. Field insertion loss is simply the difference in the noise levels at the same location before and after the barrier is constructed. The barrier should be tall enough to block the line-of-sight to the noise-generating portion of the project area; for most diesel-powered equipment, the wall would have to be tall enough to block the line-of-sight to the exhaust. A well-constructed barrier wall constructed of 0.75-inch plywood that minimizes the open space (air gaps between plywood panels) may achieve a 5 to 10 dBA reduction, while a practical limit of barrier effectiveness is typically 20 dBA.

As APM NO-5 notes, current plans anticipate performing most auger bore activities during daytime hours, as well as monitoring noise levels during any required nighttime auger bore activities. Auger bore equipment for nighttime work consists of the bore equipment, which will be in a 13- to 15-foot pit, the side of which could be lined with noise barriers to provide additional noise reduction, and some above-ground support equipment. This data will be used to update the analysis to reflect actual auger bore noise emissions from project-specific equipment. Given the conservative nature of the present analysis, it is expected that measured noise levels will be less than or similar to those predicted in Table 3.12-5.

Construction Vibration

Pile driving is the activity that has the greatest likelihood of creating perceptible off-site vibrations. CEC staff in their analysis typically reference the Federal Transit Administration

(FTA) guidance manual criteria for damage (FTA, 2006). In addition to the FTA guidance manual, the Federal Railroad Administration (2005, 2012) provides thresholds for various land uses. Both the FTA and Federal Railroad Administration provide a methodology for the assessment for 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 CEC staff's proposed criteria of a Peak Particle Velocity (PPV) of 0.2 inch per second (in/sec) is indicated in the Caltrans guidance to be "annoying" but not "unpleasant"; and a level of 0.1 in/sec 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." 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 as PPV and approximate Vibration velocity level (L_v) (Table 3.12-6).

Table 3.12-6. Construction Vibration Damage Criteria

Building Category	PPV (in/sec)	Approximate L_v[a]
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.
[a] Root Mean Squared vibration velocity level (L_v) in decibels relative to 1 micro-in/sec.

The vibration from various construction equipment established by the FTA is provided in Table 3.12-7.

Table 3.12-7. Vibration Source Levels for Construction Equipment[a]

Equipment		PPV at 25 ft (in/sec)	Approximate L_v at 25 ft
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

Table 3.12-7. Vibration Source Levels for Construction Equipment[a]

Equipment	PPV at 25 ft (in/sec)	Approximate L_v at 25 ft
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

[a] Root Mean Squared velocity in decibels relative to 1 micro-in/sec

L_v = vibration velocity level

Source: FTA Manual, Table 12-2, 2006.

Table 3.12-8 shows that the typical sonic pile driver operated at a distance of 25 feet results in a PPV that does not exceed the 0.2 in/sec damage criteria for non-engineered timber or masonry structures. Using the above upper range for an impact pile driver and typical values for a sonic pile driver, the PPV and L_v at various distances has been tabulated (Table 3.12-8).

Table 3.12-8. Predicted Vibrations from Pile Driving Equipment at Various Distances

Distance (ft)	PPV (Upper Range, Impact)	PPV (Typical Sonic)	L_v (Upper Range, Impact)	L_v (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

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 is not expected within 150 feet of residential structures.

Operation and Maintenance

Potential sources of operational noise associated with this 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 will be infrequent (monthly). The infrequent noise from operation and maintenance vehicles will not substantially change noise resulting from the environment surrounding the proposed Egbert Switching Station, which is predominantly commercial and industrial in nature. The series and shunt reactors will be located outside of the enclosed 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 anticipated shunt reactor sound level is similar (less than 75 dBA at 2 meters [6.6 feet]). The building ventilation system will likely consist of an exhaust fan on the GIS 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 feet. Noise associated with these components will decay with distance, and preliminary estimates indicate that a sound level of 60 dBA would be achieved 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 will be incorporated into the design during detailed engineering to minimize sound levels, such as specifying lower noise equipment, directing exhausts in less sensitive direction, addition of exhaust vent silencers, installation of sound barrier walls, or incorporating acoustically absorptive materials to reflective surfaces.

a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? *Less-than-significant Impact*.

Construction

Noisy construction activities will be short term, temporary, and 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 2.7.2.2, 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. 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.

Sound levels decrease with increasing distance, and typical construction sound levels at various distances are presented in Table 3.12-4. PG&E will consult with Brisbane, Daly City, and San Francisco regarding opportunities to reduce noise impacts, and will obtain and comply with all necessary ministerial permits.

<u>Brisbane</u>

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 Brisbane of the proposed Jefferson-Egbert line is limited to approximately 300 feet within Guadalupe Canyon Parkway. The closest residence to the project in 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 construction activities in Brisbane along Guadalupe Canyon Parkway is also very limited, approximately 8 working days. Given the limited duration of these activities, that they are conducted during the daytime hours, and that the predicted levels at the closest residences (250 feet away) are less than the levels identified in the city of Brisbane's Section 8.28.060, construction in Brisbane is anticipated to result in a less-than-significant impact under this criterion.

Daly City

As described in Section 3.12.2.1, Daly City does not provide specific construction-related noise limits, but acknowledges various temporary noise sources generated from construction activities. Construction noise is regulated in 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 is prohibited on weekends and holidays.

San Francisco

While not calculated to exceed the city of San Francisco's requirements of 80 dBA at 100 feet, these levels are approached (79 dBA at 100 feet per Table 3.12-4, and 78 dBA per Table 3.12-5). These predictions are representative of long-term averages; instantaneous levels could be higher or lower, depending on the specific activity. Table 3.12-5 shows that noise associated with the auger bore entry location may reach 78 dBA at 100 feet when minimization measures achieve the minimum 5 dBA reduction. As described above and shown on Figure 2.5-1e, 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.

The proposed Egbert Switching Station perimeter fence and equipment enclosures are expected to require approximately 60 piers installed to a depth of 15 feet. These piers will be drilled, and will not require vibratory or impact pile driving methods.

Pile driving may occur during 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, and will be determined by soil and groundwater conditions. As listed in Table 3.12-3, impact and vibratory pile drivers could have a noise level of 101 dBA at 50 feet, which could result in 95 dBA at 100 feet. Pile driving activities may therefore exceed the city of San Francisco's requirement of 80 dBA at 100 feet.

Implementation of APMs NO-1 through NO-7 will reduce noise impacts from construction. Additionally, APM TR-1 will further minimize noise impacts during construction by discussing haul routes and developing circulation and detour plans for local streets. While it may not be feasible in all cases to reduce noise to a level that is consistent with applicable noise standards (San Francisco's criteria of 80 dBA at 100 feet), given the very short duration of construction activity at any one location (e.g., pile driving to install shoring for 2 to 3 days), impacts under this criterion will be less than significant with the implementation of APMs NO-1 through NO-7.

Where shoring is required to ensure safety of workers and the public, these activities will be conducted during the daytime hours and would be of limited duration; therefore, the noise generated from project construction is anticipated to be a less-than-significant impact under this criterion.

Operation and Maintenance

Corona noise associated with the new transmission lines is not anticipated to be audible given that the proposed lines will be buried. No increases in noise from the existing Martin Substation are expected from the proposed modifications because the modifications will remove the existing Jefferson-Martin line terminal equipment and will 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 will be minimized by enclosure of the switchgear equipment within a building. In addition, equipment specifications and construction details will 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) will incorporate measures to comply with the noise standards at the existing residential uses.

Maintenance activities for the new switching station and transmission lines will typically occur over short timeframes and generate minimal noise. As with existing maintenance activities involving noise-generating equipment or vehicles, noise reduction measures will be employed to reduce temporary noise impacts as described in APMs NO-1 through 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 will have a less-than-significant impact.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? *Less-than-significant Impact*.

Construction

Construction activities (e.g., ground-disturbing activities, including grading and movement of heavy construction equipment) may generate localized groundborne vibration and noise. Earthmoving equipment that may result in groundborne vibration or noise will occur during daytime hours, and will be of short-term duration. 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, which will also occur during daytime hours and will be of short-term duration. Depending on soil and groundwater conditions, impact or vibratory pile driving may occur during 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 activities may result in groundborne vibration perceptible at nearby residences, but it is anticipated that the piling required for shoring can be accomplished with vibratory methods. Implementation of APM NO-7 would consider site-specific factors and appropriate driving technologies for use to reduce the potential effects of off-site vibration. Therefore, exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels during construction of the project will be less than significant.

Operation and Maintenance

Equipment associated with normal operation and maintenance of the proposed project will not produce any groundborne noise or vibration; therefore, operation and maintenance of the project will result in no impact.

c) Would the project result in substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? ***Less-than-significant Impact.***

Construction

Project construction will be temporary, and therefore will not result in a substantial permanent increase in ambient noise levels; no significant impact will occur during construction.

Operation and Maintenance

Corona is typically not a design concern for transmission lines at 230 kV and lower, and the proposed lines will be underground, eliminating any potential audible noise. Equipment will be removed from the existing Martin Substation, and therefore will not result in any permanent increase to ambient noise levels. The proposed Egbert Switching Station will be designed to operate within local noise standards or ordinances. Noise from Egbert Switching Station will be minimized by enclosure of the switchgear equipment within a building. In addition, equipment specifications and construction details will be incorporated during detailed engineering to minimize operational sound levels, such as specifying lower noise equipment, directing exhaust vents in less sensitive direction, adding exhaust vent silencers, installing 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) will incorporate measures to limit the increase to no more than 8 dBA at the existing residential uses.

Maintenance activities will be temporary, and are addressed under the next criterion. Therefore, operation of the project will have a less-than-significant impact, and will not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

d) Would the project result in substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? ***Less-than-significant Impact.***

Construction

Construction noise associated with the project will have a short-term impact on ambient levels. As noted in response to a), work will typically be occurring 5 days per week, during daytime hours, progressing from one area to another along the transmission line routes. Noise levels attributed to typical construction equipment are listed in Table 3.12-3, and the construction equipment noise levels are provided in Table 3.12-4.

One of the longer duration construction activities occurring in a single area is the auger bore, trenchless crossing work. As described in previous sections and as shown on Figure 2.5-1e, 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 2.5-1e, these residences are also near a portion of U.S. 101 where there are no highway noise barriers. Table 3.12-5 shows that noise associated with the auger bore entry location may reach 78 dBA at 100 feet. Implementation of APM NO-5 would reduce noise levels below 78 dBA. 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. The duration of the auger bore is expected to occur for up to approximately 10 days. Should soil conditions determine that nighttime (continuous) use of the auger bore machine is required, such use would be limited in duration. If nighttime operation of the equipment is required, the use will be limited to the auger-boring machine (located in a pit 13 to 15 feet below grade) and supporting equipment required for operation of the auger-bore machine (e.g., generator and work area lights). Any pile driving, saw cutting, and use of a hydraulic breaking hammer are not anticipated to occur during the nighttime hours.

Construction activities in close proximity to this densely populated urban area will be noticeable at times and result in temporary increases in ambient sound levels, but these increases are limited in both duration and primarily to daytime hours. Implementation of APMs NO-1 through NO-7 would help minimize potential noise disturbance from construction activities. Therefore, noise generated during project construction will be of a short duration at any given location, and results in a less-than-significant impact under this criterion.

Operation and Maintenance

Operation of the project will not result in substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. Periodic inspection and maintenance activities will be performed at the proposed Egbert Switching Station and new transmission lines. Maintenance activities will typically occur once a month, typically during daytime hours, and generate minimal noise. Therefore, the impacts from operation and maintenance activities resulting from implementation of the proposed project will be less than significant under this criterion.

e) 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 expose people residing or working in the project area to excessive noise levels? *No Impact.*

Construction, operation, and maintenance of the project will occur at a distance greater than 2 miles from a public airport; therefore, the project will result in no impact under this criterion.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? *No Impact.*

No private airstrips are located within 2 miles of the project; therefore, the project will result in no impact under this criterion during construction and operation and maintenance phases.

3.12.6 REFERENCES

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3.13 POPULATION AND HOUSING

3.13.1 INTRODUCTION

This section describes existing conditions and potential impacts on population and housing as a result of construction, operation, and maintenance of the project. The analysis concludes that the project will have no impact. The project's potential effects on population and housing were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.13-1 and discussed in more detail in Section 3.13.4.

Table 3.13-1. CEQA Checklist for Population and Housing

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

3.13.2 REGULATORY BACKGROUND AND METHODOLOGY

3.13.2.1 Regulatory Background

No federal, state, or local regulations related to population and housing are applicable to the project.

3.13.2.2 Methodology

To evaluate potential effects on population and housing resources, the Housing Element of the San Francisco General Plan, the Daly City General Plan, the Housing Element of the Brisbane General Plan, and U.S. Census Bureau data were reviewed; also, field reconnaissance was conducted in the area as part of the evaluation.

3.13.3 ENVIRONMENTAL SETTING

3.13.3.1 Regional

The Association of Bay Area Governments (ABAG) forecasts the total population for the San Francisco Bay Area Region to reach 9,522,300 in 2040, a growth of 25.1 percent from 2015 (ABAG, 2016) where total population was estimated at 7,609,000.

The project is located in the counties of San Francisco and San Mateo, including the cities of San Francisco, Brisbane, and Daly City. San Mateo County ranked twelfth out of California counties (58 total in the state) for percentage of population increase, while San Francisco County ranked third. Between 2014 and 2015, San Mateo County's population grew by approximately 1 percent to an estimated 765,135. Comparatively, San Francisco County's population has grown by approximately 1.28 percent to reach an estimated 864,816 in 2015 (Silicon Valley Institute for Regional Studies, 2015). By 2040, the population of San Francisco County is expected to reach 951,714, and San Mateo County is expected to reach 850,127 residents (Caltrans, 2015).

3.13.3.2 Local

The City of San Francisco has a land area of 46.87 square miles (U.S. Census Bureau, 2016). In 2010, there were 376,942 housing units and the population was estimated to be 805,235. The vacancy rate for San Francisco in 2010 was 8.3 percent. ABAG estimates the population of San Francisco to reach 890,400 by 2020 (City of San Francisco, 2015). The typical housing stock in San Francisco is divided into low-medium and higher density structures. Approximately 62.5 percent of occupied housing units are rentals (City of San Francisco, 2015).

The City of Daly City has a land area of 7.66 square miles (U.S. Census Bureau, 2016). In 2010, there were 32,588 housing units and the population was estimated to be 101,123. The vacancy rate for Daly City in 2010 was 4.6 percent. ABAG estimates the population to reach 115,100 by 2020 (City of Daly City, 2013).

The City of Brisbane has a land area of 20.02 square miles (U.S. Census Bureau, 2016). In 2010, there were 1,934 housing units and the population was estimated to be 4,282. The vacancy rate for Brisbane in 2010 was 5.8 percent. ABAG estimates the population to reach 4,500 by 2020 (City of Brisbane, 2015).

3.13.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for impacts on population and housing derived from Appendix G of the CEQA Guidelines, and assess potential project-related construction and operational impacts. Because the project will have no impact on population and housing, APMs have not been included for this section.

3.13.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on population and housing were evaluated for each of the criteria listed in Table 3.13-1, as discussed in Section 3.13.4.3.

3.13.4.2 Applicant-Proposed Measures

The project will have no impact on population and housing, and no APMs are proposed.

3.13.4.3 Potential Impacts

Project impacts on population and housing were evaluated against the CEQA significance criteria, as discussed below. This section evaluates potential project impacts from both the construction phase and operation and maintenance phase.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a proposed Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and extend two underground transmission lines to Egbert Switching Station, creating a proposed Martin-Egbert line and a proposed Egbert-Embarcadero line. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

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

This project will improve electric system resiliency and resolve reliability concerns of a prolonged loss of service at Martin Substation in the event of an extreme event, which could result in widespread power outages in San Francisco. The project will not extend new power lines or other infrastructure into areas not already served; the project does not facilitate growth. New development will not be generated by the project.

During peak construction times, PG&E will employ approximately 88 construction personnel (including switchyard workers, supervisors, and inspectors). Approximately 20 percent of this workforce will be locally sourced. 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. PG&E will operate the new switching station and transmission lines using existing operation and maintenance staff. No impact to population growth would occur. Thus, the project would not directly or indirectly induce substantial population growth.

b) Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? *No Impact.*

Project construction, operation, and maintenance will not displace existing housing, nor will replacement housing need to be constructed. Therefore, no impact will occur.

c) Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? *No Impact.*

Project construction, operation, and maintenance will not displace people, nor will replacement housing need to be constructed. Therefore, no impact will occur.

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3.14 PUBLIC SERVICES

3.14.1 INTRODUCTION

This section describes existing conditions and potential impacts on public services as a result of construction, operation, and maintenance of the project, and concludes no impacts will occur. Public services include fire and emergency protection, police protection, and maintenance of public facilities such as schools and parks. Emergency access is discussed in Section 3.16, Transportation and Traffic. Temporary construction-related impacts on schools and parks—such as dust and noise—are discussed in Sections 3.3, Air Quality, and 3.12, Noise, respectively. Project compatibility with future park-planning efforts is discussed in Section 3.10, Land Use and Planning. Potential impacts on parks and recreational facilities are discussed in Section 3.15, Recreation.

The project's potential effects on public services were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.14-1 and discussed in more detail in Section 3.14.4.

Table 3.14-1. CEQA Checklist for Public Services

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	☐	☐	☐	☒
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

3.14.2 REGULATORY BACKGROUND AND METHODOLOGY

3.14.2.1 Regulatory Background

No regulatory background information for public services is relevant to the project.

3.14.2.2 Methodology

Public services include fire and police protection, and maintenance of public facilities such as schools and parks. In preparing this section, reviews were conducted of the General Plans for San Francisco, Daly City, and Brisbane. The following websites were reviewed: San Francisco Fire Department, North County Fire Authority (NCFA) (serves both Daly City and Brisbane), SFPD, Daly City Police Department, Brisbane Police Department, San Francisco Unified School District (SFUSD), Bayshore Elementary School District, Jefferson Elementary School District, Jefferson Union High School District, South San Francisco Unified School District, and Brisbane School District.

3.14.3 ENVIRONMENTAL SETTING

3.14.3.1 Fire Protection and Emergency Services

City and County of San Francisco

Fire protection and emergency services in the city and county of San Francisco are provided by the San Francisco Fire Department, whose services include fire suppression, tactical rescue, emergency medical care, fire prevention, arson investigation, and response to natural disasters, mass-casualties, and hazardous materials incidents. They provide protection to the public within the 49 square miles of San Francisco. Resources consist of 43 engine companies, 19 truck companies, a fleet of ambulances, 2 heavy rescue squad units, 2 fireboats, and multiple special-purpose units distributed through 51 stations (San Francisco Fire Department, 2017). Stations 17, 42, 43, and 44 are within 1 mile of the project; Stations 25 and 49 are approximately 0.5 mile from the potential staging areas on Amador Street, if utilized. Location information for each station is provided in Table 3.14-2.

Cities of Daly City and Brisbane

NCFA serves both Daly City and Brisbane. NCFA provides emergency and non-emergency (i.e., medical, fire, and hazardous situations) services to an area of 60 square miles, serving the cities of Brisbane, Daly City, and Pacifica. There are currently 10 stations, including 1 station in Brisbane and 5 stations in Daly City (NCFA, 2017). Stations 81 (Brisbane) and 93 (Daly City) are within 1 mile of the project (Table 3.14-2).

Table 3.14-2. Emergency Services and Law Enforcement Providers

Station	Address	Distance from Project
San Francisco Fire Department		
Fire Station 17	1295 Shafter Avenue, San Francisco	0.7 mile from the proposed Egbert Switching Station
Fire Station 42	2430 San Bruno Avenue, San Francisco	0.3 mile from the proposed Egbert-Embarcadero and Martin-Egbert lines
Fire Station 43	720 Moscow Street, San Francisco	0.8 mile from the proposed Jefferson-Egbert line
Fire Station 44	1298 Girard Street, San Francisco	0.4 mile from the proposed Jefferson-Egbert line

Table 3.14-2. Emergency Services and Law Enforcement Providers

Station	Address	Distance from Project
Fire Station 49	1415 Evans Avenue, San Francisco	0.5 mile from the potential staging areas on Amador Street
Fire Station 25	3305 3rd Street, San Francisco	0.5 mile from the potential staging areas on Amador Street
North County Fire Authority		
Fire Station 93	464 Martin Street, Daly City	0.2 mile from the proposed Jefferson-Egbert line
Fire Station 81	3445 Bayshore Boulevard, Brisbane	1.0 mile from the existing Martin Substation and potential staging areas within the substation
San Francisco Police Department		
Bayview Police Station	201 Williams Avenue, San Francisco	0.2 mile from the proposed Egbert-Embarcadero and Martin-Egbert lines
Daly City Police Department		
Daly City Police Station	333 90th Street, Daly City	2.9 miles from the proposed Jefferson-Egbert line and the potential staging areas along Carter Street
Brisbane Police Department		
Brisbane Police Department	50 Park Place, Brisbane	1.0 mile from the existing Martin Substation and potential staging areas within the substation

3.14.3.2 Police Services

San Francisco

The SFPD provides law enforcement services to the city and county of San Francisco. There are 10 district stations divided into 2 divisions. The Bayview Police Station would serve the project, including the potential staging areas on Amador Street (Table 3.14-2). In 2014, SFPD averaged 1,691 full-duty sworn officers (SFPD, 2014).

Daly City

The Daly City Police Department consists of 1 station that serves the city of Daly City by way of 6 districts, 4 divisions, and 110 officers (City of Daly City, 2017a). The Daly City Police station is listed in Table 3.14-2.

Brisbane

The City of Brisbane Police Department serves the city of Brisbane. There is 1 district and division with 10 officers (City of Brisbane, 2017). The Brisbane Police Station is listed in Table 3.14-2.

3.14.3.3 Schools

There are 13 schools within 0.25 mile of the project (Table 3.14-3), 10 in San Francisco and 3 in Daly City. There are no schools within 0.25 mile of the potential staging areas on Amador Street.

San Francisco

The SFUSD has a total of 120 schools and 13 charter schools in the San Francisco area. In 2015, there were 55,320 students registered in the district. There are 10 schools within 0.25 mile of the project, as shown in Table 3.14-3 (SFUSD, 2017). All of these schools are operated by SFUSD with the exception of Alta Vista School and Our Lady of the Visitacion School, which operate separately under private ownership. Martin Luther King Jr Academic Middle School is adjacent to the proposed Egbert-Embarcadero and Martin-Egbert lines on Bacon Street in San Francisco. The proposed Jefferson-Egbert line crosses in front of the entrance to Visitacion Valley Middle School as it heads north on Visitacion Avenue and on Mansell Street passes Phillip and Sala Burton Academic High School.

Daly City

Daly City is served by five public school districts and a community college district. Each district is a separate governmental entity. These schools enrolled approximately 21,390 students in 2015 (including schools in South San Francisco, Pacifica, and Colma). There are 2 public schools (Bayshore Elementary and Garnet J Robertson Intermediate School) and 1 private school, Mt Vernon Christian Academy, within 0.25 mile of the project, as shown in Table 3.14-3 (Bayshore Elementary School District, 2017; Jefferson Elementary School District, 2017; California Department of Education, 2017).

Brisbane

Brisbane School District serves three schools: one in Daly City (elementary school) and two in Brisbane (one elementary and one junior high school). These schools enroll approximately 462 students per school year (Brisbane School District, 2017). There are no Brisbane schools within 0.25 mile of the project.

Table 3.14-3. Schools within 0.25 Mile of the Project

School Name	Address	Distance from Project
Martin Luther King Jr Academic Middle School	350 Girard Street, San Francisco	Adjacent to the proposed Martin-Egbert line (work location on Bacon Street near Brussels Street)
Mt Vernon Christian Academy	310 Ottilla Street, Daly City	0.1 mile from the existing Martin Substation and the potential staging areas within the substation
Garnet J Robertson Intermediate School	1 Martin Street, Daly City	0.1 mile from the existing Martin Substation and the potential staging areas within the substation

Table 3.14-3. Schools within 0.25 Mile of the Project

School Name	Address	Distance from Project
Wu Yee New Generation Child Development Center	700 Velasco Avenue, San Francisco	0.1 mile from the proposed Jefferson-Egbert line and 0.2 mile from the potential staging areas along Carter Street
KIPP Bayview Academy	1060 Key Avenue, San Francisco	0.2 mile from the proposed Jefferson-Egbert line
John McLaren Early Education School	2055 Sunnydale Avenue, San Francisco	0.2 mile from the proposed Jefferson-Egbert line
Our Lady of the Visitacion School	785 Sunnydale Avenue, San Francisco	0.2 mile from the existing Martin Substation
Edward Robeson Taylor Elementary School	423 Burrows Street, San Francisco	0.1 mile from the proposed Egbert-Embarcadero and Martin-Egbert lines
Alta Vista School	450 Somerset Street, San Francisco	0.1 mile from the proposed Egbert-Embarcadero and Martin-Egbert lines
El Dorado Elementary School	70 Delta Street, San Francisco	0.1 mile from the proposed Jefferson-Egbert line
Phillip and Sala Burton Academic High School	400 Mansell Street, San Francisco	Adjacent to the proposed Jefferson-Egbert line
Visitacion Valley Middle School	450 Raymond Avenue, San Francisco (main entrance on Visitacion Avenue)	Adjacent to the proposed Jefferson-Egbert 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

3.14.3.4 Parks

There are 28 total parks within 1 mile of the project, with an additional 12 parks if one or both potential staging areas on Amador Street is utilized. The San Francisco Recreation and Park Department builds, maintains, and renovates parks and recreation facilities in San Francisco (City of San Francisco, 2014). In Daly City, there are 25 total municipal parks and "tot lots" (small playgrounds for young children), which are owned and maintained by the Recreation Division of the City (City of Daly City, 2013). In Brisbane, there are two parks, two trails, and one tot lot, all owned and maintained by the City of Brisbane Parks and Recreation Department. Brisbane is adjacent to San Bruno Mountain State and County Park, where 2,416 acres are owned and maintained by San Mateo County Parks Department (County of San Mateo Parks Department, 2017). Table 3.15-2 in Section 3.15, Recreation, lists existing parks within 1 mile of the project; Table 3.15-3 lists parks within 1 mile of the potential staging areas on Amador Street, if utilized.

3.14.3.5 Other Public Facilities

Other public facilities include community centers, public clinics, and libraries. Table 3.14-4 displays other public facilities within 0.5 mile of the project.

Table 3.14-4. Other Public Facilities

Facility	Address	Distance from Project
Boys and Girls Club of San Francisco – Sunnydale Clubhouse	1654 Sunnydale Avenue, San Francisco	Adjacent to the proposed Jefferson-Egbert line
Portola Branch Library	380 Bacon Street, San Francisco	0.1 mile from the proposed Egbert-Embarcadero and Martin-Egbert lines
Portola Family Connections-Social Services	2565 San Bruno Avenue, San Francisco	0.1 mile from the proposed Egbert-Embarcadero and Martin-Egbert lines
Bayview Senior Services – George W Davis Senior Center	1753 Carroll Avenue, San Francisco	0.1 mile from the proposed Egbert-Embarcadero and Martin-Egbert lines
U.S. Post Office – McLaren Branch	2755 San Bruno Avenue, San Francisco	0.1 mile from the proposed Egbert-Embarcadero and Martin-Egbert lines
3rd Street Youth Center and Clinic	1728 Bancroft Avenue, San Francisco	0.1 mile from the proposed Egbert Switching Station
John King Senior Community Center	500 Raymond Avenue, San Francisco	0.1 mile from the proposed Jefferson-Egbert line
Southeast Health Center Clinic	2401 Keith Street, San Francisco	0.3 mile from the proposed Egbert Switching Station
Bayshore Community Center	450 Martin Street, Daly City	0.3 mile from the proposed Jefferson-Egbert line, the potential staging areas on Carter Street, the existing Martin Substation and potential staging areas within the substation
Bayshore Branch Library	460 Martin Street, Daly City	0.3 mile from the proposed Jefferson-Egbert line, 0.2 mile from the potential staging areas on Carter Street, and 0.35 mile from the existing Martin Substation and potential staging areas within the substation
City College of San Francisco – Evans Campus	1400 Evans Avenue, San Francisco	0.5 mile from the potential staging areas on Amador Street
EcoCenter at Heron's Head Park	32 Jennings Street, San Francisco	0.1 mile from the potential staging areas on Amador Street

3.14.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for impacts on public services derived from Appendix G of the CEQA Guidelines and assess potential project-related construction and operational impacts. Because the project will have no impact on public services, APMs have not been included for this section.

3.14.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project-related impacts on public services was evaluated for each of the criteria listed in Table 3.14-1, as discussed in Section 3.14.4.3.

3.14.4.2 Applicant-Proposed Measures

The project will have no impact on public services, and no APMs are proposed.

3.14.4.3 Potential Impacts

Project impacts on public services were evaluated against the CEQA significance criteria and are discussed in further detail below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services: fire protection, police protection, schools, parks, other public facilities? *No Impact.*

Project construction will result in a temporary, short-term increase of up to approximately 88 construction workers. Although construction workers traveling to the project may use existing public services or amenities, this potential increase in demand will be minimal and temporary, and will not require new or altered government facilities. The project will not include development of new residential units that will directly or indirectly increase population; therefore, no increase in the demand for public services in the area will occur. Furthermore, no new or altered public facilities are needed. Therefore, no construction impact will occur. Operation and maintenance visits will be conducted occasionally by PG&E staff, but no increases in staff levels would be required that would trigger the need for new or altered facilities that could result in environmental impacts. Therefore, no operations or maintenance impact will occur. Detail is provided below by service type.

Fire and Police Protection

As described in Section 3.16, Transportation and Traffic, during project construction, PG&E will coordinate any road closures with emergency service providers so that response times will not be affected.

Switching station operation and maintenance personnel will park vehicles within the switching station or along Egbert Avenue and will 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.

In the event of an unlikely situation requiring fire or police protection support, fire and police services are located within 1 mile of the project components (Table 3.14-2). 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. Therefore, there will be no operation and maintenance impact to fire and police protection services.

Schools

The project will not involve developing new residential units or services that will generate a new residential population in the area. Therefore, the project will not cause an increase in the demand on existing schools that would affect school enrollment or performance objectives. Construction will not create a substantial increase to local workforce that would temporarily increase the need for school facilities. Operation and maintenance of the new switching station and transmission lines will be supported by existing PG&E staff; no permanent on-site staff are planned that could increase the need for school facilities. No construction or operation and maintenance impact will occur.

Traffic impacts to schools that are adjacent to the project because of construction activities and road closures are discussed in Section 3.16, Transportation and Traffic.

Parks

The project will not involve developing new residential units or services that will generate a new daytime or residential population in the area that will increase the demand on parks. Operation and maintenance activities will be supported by existing PG&E staff as part of their scheduled work in the area. Construction workers traveling to the area may use existing public services or amenities such as parks. This potential increase in demand for park services because of the presence of construction personnel will be minimal and temporary, and the demand will not exacerbate the need for or deterioration of the park facilities or result in the need for new facilities. Construction- and operation-related impacts to parks in the project are evaluated in Section 3.15, Recreation.

Other Public Facilities

The project will have no construction or operation and maintenance impacts on the various public facilities near the project (Table 3.14-4). The project will improve electric system resiliency and resolve reliability concerns in the area, and will not directly or indirectly induce growth or create a need for additional public services. Therefore, no construction or operation and maintenance impact will occur.

Traffic impacts during construction activities and lane closures that may impact other public facilities are discussed in Section 3.16, Transportation and Traffic.

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3.15 RECREATION

3.15.1 INTRODUCTION

This section describes existing conditions and potential impacts on recreation as a result of construction, operation, and maintenance of the project and concludes that no impacts will occur in this area. The project will not introduce new housing or a significant number of jobs into the area that could increase the use of existing parks and will not require the introduction of new park facilities. Temporary construction impacts on parks—such as dust, noise, and hazards—are discussed in Section 3.3 Air Quality, Section 3.12 Noise, and Section 3.8 Hazards and Hazardous Materials, respectively. The project's potential effects on recreation were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.15-1 and discussed in more detail in Section 3.15.4.

Table 3.15-1. CEQA Checklist for Recreation

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒

3.15.2 REGULATORY BACKGROUND AND METHODOLOGY

3.15.2.1 Regulatory Background

No federal, state, or local regulations related to recreation are applicable to the project.

3.15.2.2 Methodology

Recreation resources include recreational facilities such as state, regional, and local parks. The California Department of Parks and Recreation website (California State Parks, 2017a) was reviewed to identify local recreational resources as well as the San Francisco Bay Trail website (ABAG, 2017). The San Bruno Mountain State and County Park website was reviewed for trail maps and other recreational facilities near the project (California State Parks, 2017b). The General Plan for Daly City, Recreation and Open Space element of San Francisco's General Plan, and Brisbane's Recreation and Community Services element (City of Brisbane, 1994) of the Brisbane General Plan were reviewed. The San Francisco Municipal Transportation Agency (SFMTA) website was consulted for maps of current and projected cycling projects and programs, and websites for the San Francisco Bicycle Coalition and Bay Area Bike Share were also consulted.

In the event that one of the potential staging areas on Amador Street is selected for use, the Port website was reviewed for existing and proposed recreational facilities. Similarly, should the southerly staging area (South Container Terminal) on Amador Street be selected for use, because the edges of the site are within the San Francisco BCDC 100-foot shoreline, the BCDC website was also reviewed for existing and proposed recreational facilities.

3.15.3 ENVIRONMENTAL SETTING

3.15.3.1 Regional Setting

The project is located in the northern part of the San Francisco Peninsula. San Francisco is located at the tip of the peninsula, with Daly City and Burlingame located south of San Francisco on the western side of San Francisco Bay. On the shore of the Bay, ABAG has planned the Bay Trail, a 500-mile shoreline recreational trail, which provides public open space and pedestrian access and recreational opportunities. The Bay Trail will eventually encircle San Francisco and San Pablo Bays with a continuous network of hiking and bicycling trails. The Bay Trail also runs through a portion of Brisbane, at the Brisbane Marina. More than 325 miles of the Bay Trail have been completed (City of San Francisco, 2014a). The Bay Trail is approximately 1 mile east of the proposed Jefferson-Egbert line. Several extensions of the Bay Trail are proposed along the shoreline of the Hunters Point Naval Shipyard redevelopment and Bayshore Freeway/ U.S. 101, which are both over 1 mile from the project area (ABAG, 2017).

In addition to approximately 1,600 acres of federally owned space within the County of San Francisco, two state parks—Candlestick and Mount Sutro (City of San Francisco, 2014a)—are found within the city's boundaries. San Bruno Mountain State and County Park shares borders with the surrounding cities of Brisbane, Daly City, Colma, 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 State Parks, 2017b).

The SFMTA administers and operates a diverse set of transportation modes, including bicycle-related projects. Bicycle facilities are located throughout San Francisco and typically are marked with route or lane markings (i.e., on-street striped lanes, buffered bicycle lanes, and on-street bicycle routes with shared-lane markings) and signage. Similarly, Daly City has a Bicycle and Pedestrian Master Plan that defines the existing and future bicycle network for Daly City (City of Daly City, 2013b).

3.15.3.2 Local Setting

Local recreation facilities proximate to the project include park facilities and bicycle facilities.

Park Facilities

The 28 existing parks that are located within 1 mile of the project area are listed in Table 3.15-2. Parks within 1 mile of the project area are shown on Figures 3.10-3 and 3.10-4.

The southern extent of construction of the proposed Jefferson-Egbert line occurs on Guadalupe Canyon Parkway in Brisbane. San Bruno Mountain State and County Park is adjacent to

Guadalupe Canyon Parkway, although there are no park trails at this intersection (Table 3.15-2). There are no Brisbane city parks near the project route. Five parks in Daly City are within 1 mile of the proposed Jefferson-Egbert line.

Table 3.15-2. Existing and Proposed Recreational Facilities within 1 Mile of the Project

Park Name/Address	Owner	Amenities	Distance (mi)
San Bruno Mountain State Park (Carter Street and Guadalupe Canyon Parkway)	CDPR	Hiking, natural habitat, and open space	Adjacent to proposed Jefferson-Egbert line
John McLaren Park (Mansell Street and John F Shelley Drive)	SFRPD	Playground, picnic area, open space, golf course, and hiking trails; Coffman Pool (swimming)	Adjacent to proposed Jefferson-Egbert line
Bay View Playground (3rd & Armstrong)	SFRPD	Indoor/outdoor pools, playground, and softball	0.1 mi from proposed switching station site
Palega Recreation Center, 500 Felton Street	SFRPD	Community center with basketball court, soccer field, dog park, playground, and picnic areas	0.2 mi from proposed Egbert-Embarcadero and Martin-Egbert lines
Louis Sutter/Wayland and University	SFRPD	Playgrounds, ball parks, tennis and basketball courts, and soccer field	0.2 mi from proposed Jefferson-Egbert line
Arden Park	DCLRS	Playground, picnic area, basketball	0.2 mi from proposed Jefferson-Egbert line
Bayshore Heights Park (400 Martin Street)	DCLRS	Picnic area and playground	0.2 mi from proposed Jefferson-Egbert line
Visitacion Valley Playground (50 Raymond Avenue)	SFRPD	Playground, athletic field, and baseball field	0.3 mi from proposed Jefferson-Egbert line
Kelloch Velasco Parka/Kelloch and Velasco Street	SFRPD	Playground and basketball courts	0.3 mi from proposed Jefferson-Egbert line
Crocker Amazon Playground (Moscow & Geneva)	SFRPD	Playground and sports complex (soccer, baseball, and softball fields; tennis, basketball, and Bocce courts), clubhouse, community garden, and dog park	0.3 mi from proposed Jefferson-Egbert line
Visitacion Valley Greenway (Campbell and Rutland Streets)	SFRPD	Campbell-Rutland Mini Park, Senior Park, picnic area, Native Plants Park, and gardens	0.3 mi from proposed Jefferson-Egbert line
Ralph D House Community Park	SFRPD	Picnic area	0.3 mi from proposed Jefferson-Egbert line
Silver Terrace Playground (1700 Silver Avenue)	SFRPD	Artificial turf field/baseball, basketball and tennis courts, and playground	0.3 mi from proposed Egbert-Embarcadero and Martin-Egbert lines
Florence Fang Asian Community Garden	Caltrain	Urban cul de sac, staircase, views, community garden	0.3 mi from proposed switching station site

Table 3.15-2. Existing and Proposed Recreational Facilities within 1 Mile of the Project

Park Name/Address	Owner	Amenities	Distance (mi)
Bayview Park (LeConte Avenue)	SFRPD	Hiking trails	0.5 mi from proposed switching station site
Little Hollywood Community Park (Lathrop and Tocoloma)	SFRPD	Playground and basketball court	0.6 mi from Martin Substation
Mission Blue Field (475 Mission Blue Drive)	BPRD	Baseball field and tennis court	0.6 mi from proposed Jefferson-Egbert line
Joseph Lee Recreation Center (1395 Mendell Street)	SFRPD	Recreation center, basketball court, and multipurpose field	0.7 mi from proposed switching station site
Adam Rodgers Park/Ingalls and Oak Streets	SFRPD	Playground, basketball court, picnic tables, and walking/ bicycle paths	0.7 mi from proposed switching station site
Palau and Phelps Mini Park (Palau Avenue and Phelps Street)	SFRPD	Playground	0.7 mi from proposed Egbert-Embarcadero and Martin-Egbert lines
Gilman Playground (Gilman Avenue and Griffith)	SFRPD	Playground and basketball court	0.7 mi from proposed Jefferson-Egbert line
Selby and Palau Mini Park (Palau and Selby)	SFRPD	Playground, picnic, and basketball courts	0.8 mi from proposed Egbert-Embarcadero and Martin-Egbert lines
Hilltop Park (La Salle and Whitney Young Circle)	SFRPD	Skate park, picnic area with barbecue, adult fitness area, and neighborhood trail	0.8 mi from proposed switching station site
Mission Hills Park (Frankfort and Acton Street)	DCLRS	Picnic area, playground, basketball, and dog area	0.9 mi from proposed Jefferson-Egbert line
St. Mary's Recreation Center Picnic Area (Murray and Justin Drive)	SFRPD	Recreation center, picnic areas, baseball field, and tennis and basketball courts	0.9 mi from proposed Egbert-Embarcadero and Martin-Egbert lines
Ridgetop Plaza/Whitney Young Circle	SFRPD	Picnic tables	0.9 mi from proposed switching station site
Prentiss Mini Park/Prentiss and Eugenia	SFRPD	Playground and picnic table	1 mi from proposed Egbert-Embarcadero and Martin-Egbert lines
Excelsior Playground, Russia Ave and Madrid	SFRPD	Play structures, picnic areas, and basketball and tennis courts	1 mi from proposed Jefferson-Egbert line

Note:
SFRPD = San Francisco Recreation and Parks Department

SFRPD builds, maintains, and renovates parks and recreation facilities in San Francisco. Currently, SFRPD owns and manages 3,400 acres of recreation and open space. The proposed Jefferson-Egbert line runs through a portion of San Francisco's second-largest city park, John McLaren Park.

In the event that one of the potential staging areas on Amador Street is selected for use, the Port's Southern Waterfront area was reviewed for additional recreational uses. The Amador Street staging area locations are located near San Francisco's Piers 92-96. The Port has included this area in their *Piers 80-96 Maritime Eco-Industrial Strategy*, which is a plan to co-locate maritime industrial uses with public open space, such as the Heron's Head Park Wetlands (Port of San Francisco, 2016). The potential staging areas are intermingled with maritime and industrial uses. The Amador Yard is adjacent to a 3 acre wetland at Pier 94 and the South Container Terminal is adjacent to 8 acres of natural areas within Heron's Head Park. These wetland areas are accessible and open to the public for bird watching and natural views. Heron's Head Park also has picnicking facilities and an Eco Center. The potential Amador Street staging areas expands the project area to include an additional 12 parks within 1 mile as shown in Table 3.15-3.

Table 3.15-3. Additional Existing and Proposed Recreational Facilities within 1 Mile of the Amador Street Staging Areas, if Utilized

Park Name/Address	Owner	Amenities	Distance from potential Amador St. Staging Areas (mi)
Pier 94 wetland	Port	Birdwatching, natural views	Adjacent
Heron's Head Park Wetlands	Port	Picnic area, Eco Center	Adjacent
India Basin Shoreline Park	SFRPD	Bay Trail connection, kayak access, birdwatching	0.3 mi
Youngblood-Coleman Playground	SFRPD	Sports park (soccer, softball, basketball, tennis), playground, clubhouse, picnic area	0.4 mi
India Basin Open Space	SFRPD	Trail, benches, birdwatching	0.4 mi
Promontory Park	HOPE SF	Public view point, terraces	0.4 mi
Tulare Park	Port	Waterfront	0.5 mi
Islais Creek Park	Port	Picnic area	0.5 mi
Warm Water Cove Park	Port	Waterfront, benches, part of Bay Trail and Blue Greenway	0.7 mi
Hunter's Point/Milton Meyer Recreation Center	SFRPD	Playground, indoor gym, sports park, baseball fields, tennis courts, multi-purpose facility	0.7 mi
Progress Park	Caltrans	Dog run, paths, benches, bocce court	0.9 mi
Tunnel Top Park	Caltrain	Garden, benches, dog run, community gathering space	0.9 mi
Innes Court	Lennar	Public picnic area, playground, gardens	0.9 mi

Bicycle Facilities

Four existing bicycle lanes, one existing route, one existing path, one proposed route, and three proposed Green Connection routes are along or cross the proposed transmission lines (Table 3.15-4). Bicycle facilities are not located on or proposed along Egbert Avenue or Guadalupe

Canyon Parkway in Brisbane. Daly City has proposed a bicycle route along Carter Street. Three existing San Francisco bicycle lanes and one bicycle route are along or intersect with the proposed Jefferson-Egbert line on Mansell Avenue, Geneva Avenue, San Bruno Avenue, and Paul Avenue. The bicycle path adjacent to Mansell Avenue begins immediately west of the Mansell Avenue intersection with Visitacion Avenue where the proposed Jefferson-Egbert line is located. The proposed Martin-Egbert and Egbert-Embarcadero lines will cross and be along an existing bicycle path/route along Bayshore Boulevard (separated bicycle path southbound, bicycle route northbound). See Section 3.16, Transportation and Traffic, for analysis of construction-related effects on traffic and access.

Table 3.15-4. Existing and Proposed Bicycle Facilities Crossed by or Along Project Routes[a]

Facility Location/Name	Owner	Facility Type	Proximity to Project Route(s)
Bicycle Path, Lanes, and Routes (existing and proposed)			
Carter Street	Daly City	Proposed route	Along proposed Jefferson-Egbert line on Carter Street between Martin Street and Geneva Avenue
Geneva Avenue	CCSF	Existing lane	Along proposed Jefferson-Egbert line on Geneva Avenue between Santos Street and Carter Street
Mansell Avenue westbound	CCSF	Existing lane	Along proposed Jefferson-Egbert line on Mansell Avenue westbound between San Bruno Avenue and University Street
Adjacent to Mansell Street west of Visitacion Avenue in John McLaren Park	CCSF	Existing path	Path begins immediately west of the proposed Jefferson-Egbert line where it turns from Visitacion Avenue onto Mansell Street
San Bruno Avenue	CCSF	Existing lane	Intersects with proposed Jefferson-Egbert line at eastern bore pit of U.S. 101 crossing along San Bruno Avenue at Mansell Avenue
Paul Avenue	CCSF	Existing route	Intersects with proposed Jefferson-Egbert line where it crosses Paul Avenue to Crane Street
Bayshore Boulevard	CCSF	Existing path (SB)/ existing lane (NB)	At Bacon Street, the facilities cross the proposed Martin-Egbert line and north of the intersection the facilities are along proposed Egbert-Embarcadero line.
San Francisco-Green Connection (proposed routes)			
Green Connection Route 10	CCSF	Green route	Intersects with proposed Jefferson-Egbert line at Paul Avenue and Crane Street
Green Connection Route 23	CCSF	Green route	Intersects with proposed Jefferson-Egbert line at Visitacion Avenue south of Mansell Street
Green Connection Route 12	CCSF	Green route	Along proposed Jefferson-Egbert line on Hahn Street and Sunnydale Avenue

Table 3.15-4. Existing and Proposed Bicycle Facilities Crossed by or Along Project Routes[a]

Facility Location/Name	Owner	Facility Type	Proximity to Project Route(s)

[a] Definitions: *path* is a separated ROW for the exclusive use of bicycles and pedestrians; *lane* is a striped lane for one-way bicycle travel on a street; *route* is a signed shared roadway that provides for shared use with pedestrians or motor vehicle traffic. (Caltrans, 2006)

Notes:
NB = northbound
SB = southbound

The San Francisco Planning Department has developed a plan called Green Connections, the goal of which is to increase access to parks, open spaces, and the waterfront in the city. Green Connections is a 2-year project for which streets are expected to be upgraded incrementally over the next 20 years (City of San Francisco, 2017a). Three of the Green Connections routes are located on streets used by or crossed by the proposed Jefferson-Egbert line (i.e., Green Connections planned route No. 10 Yosemite Creek along Paul Avenue, planned route No. 12 Lake Merced to Candlestick, and planned route No. 23 Crosstown Trail along Visitacion Avenue through McLaren Park). Table 3.15-4, Existing and Proposed Bicycle Routes and Lanes Crossed by or Along the Project, describes the proximity of the project components with the proposed Green Connections.

In addition to these existing lanes, routes, and path, SFMTA is actively pursuing several projects that will improve bicycle mobility along the proposed transmission line routes, including the Bayshore Boulevard Road Diet and Bikeways Project, Geneva Avenue Multimodal Improvement Project, and Paul Avenue Bike Lane Project.

Of the locations identified as potential staging areas, four are located along the proposed Jefferson-Egbert line or within the existing Martin Substation. The bicycle facilities analysis for these four potential staging areas, which are adjacent to or co-located with a proposed or existing project component, is addressed above. The two potential staging areas on Amador Street expand the project area to include a bike lane on Cargo Way, which intersects the eastern end of Amador Street and continues one block south of the Amador Street potential staging locations. Cargo Way is also a segment of the Bay Trail. There are no bicycle facilities on Amador Street or adjacent to the potential staging areas.

3.15.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for impacts on recreation facilities derived from Appendix G of the CEQA Guidelines and assess potential project-related construction and operational impacts. Because the project will have no impact on recreation facilities, APMs have not been included for this section.

3.15.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area

affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on recreation were evaluated for each of the criteria listed in Table 3.15-1, as discussed in Section 3.15.4.3.

3.15.4.2 Applicant-Proposed Measures

The project will have no impact on recreational resources, and no APMs are proposed.

3.15.4.3 Potential Impacts

Potential project impacts on recreation were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and will extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

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

The project does not include development of new residential units that would increase population; therefore, it will not increase the demand for parks or recreational facilities in the project area.

Project construction will result in temporary employment of up to approximately 94 construction workers. This is a very small fraction of the existing daytime population of the project area. While it is possible that construction workers traveling to the area may use existing parks or recreational facilities, including publicly accessible wetlands near the potential staging areas on Amador Street, this potential increase in demand will be minimal and temporary. The proposed Jefferson-Egbert line interconnects with the existing 230 kV transmission line from Jefferson Substation on Guadalupe Canyon Parkway which is bordered by San Bruno Mountain State and County Park to the west. The park is to the west of the route as it turns north onto Carter Street leaving Brisbane city limits and entering the city limits of Daly City.

The proposed Jefferson-Egbert line passes through San Francisco's John McLaren Park underground within Hahn Street, turning northward onto Visitacion Avenue, and exiting the park after the route turns east on Mansell Street. The existing bicycle path through the park begins immediately west when the proposed Jefferson-Egbert line turns eastward. The proposed

Martin-Egbert line would cross bicycle facilities including, a southbound path, on Bayshore Boulevard at Bacon Street. When north of Bacon Street on Bayshore Boulevard, the proposed Egbert-Embarcadero line would be along the bicycle path.

Project construction will not interfere with park or recreational facilities use or operations (see Section 3.16, Transportation and Traffic, for analysis of construction-related effects on traffic and access).

Operation and maintenance of the project will not result in an increase in personnel; therefore, the project will not increase the use of parks or recreational facilities when the project becomes operational.

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

The project will not include recreational facilities or require the construction or expansion of recreational facilities. Therefore, no impact will occur.

3.15.5 References

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3.16 TRANSPORTATION AND TRAFFIC

3.16.1 INTRODUCTION

This section describes existing conditions and potential impacts on transportation and traffic as a result of construction, operation, and maintenance of the project. The analysis concludes that, although existing traffic conditions will be temporarily affected by project construction, project-related impacts on traffic and transportation will be less than significant. The APM as described in Section 3.16.4.2 will further reduce impacts. The project's potential effects on transportation and traffic were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.16-1 and discussed in more detail in Section 3.16.4.

Table 3.16-1. CEQA Checklist for Transportation and Traffic

Would the project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐

3.16.2 REGULATORY BACKGROUND AND METHODOLOGY

3.16.2.1 Regulatory Background

Federal

Americans with Disabilities Act Standards for Accessible Design

The proposed project will involve the reconstruction of sidewalks at pole locations and will be required to comply with Americans with Disabilities Act (ADA) standards. The Department of Justice enacted the ADA in 1990, which adopted enforceable accessibility standards for facility design. The revised ADA standards adopted in 2010 set minimum requirements for newly designed and constructed or altered State and local government facilities, public accommodations, and commercial facilities. State and local government facilities must follow the requirements of the 2010 Standards. The 2010 Standards include the 2010 Standards for State and Local Government Facilities: Title II, including:

- Title II regulations at 28 CFR 35.151; and
- 2004 Americans with Disabilities Act Accessibility Guidelines at 36 CFR part 1191, appendices B and D.

State

Caltrans owns the rights-of-way for State Routes and highways, including any on- and off-ramps. Any project-related work within a Caltrans ROW requires an encroachment permit from Caltrans.

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

Because CPUC 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.

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 cities of San Francisco, Brisbane, and Daly City.

2015 San Francisco Congestion Management Program

The 2015 *San Francisco Congestion Management Program* (San Francisco County Transportation Authority [SFCTA], 2015) guides San Francisco agencies involved in congestion management, sets forth policies and technical tools to implement the Congestion Management Program (CMP) work program, and ensures the city's conformance with CMP legislation created by the state of California. The 2015 *San Francisco Congestion Management Program* establishes traffic level of service (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 (IOZ) 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 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 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 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

C/CAG is the Congestion Management Agency for San Mateo County, and prepares and adopts the CMP. The purpose of the San Mateo County CMP (C/CAG, 2015) is to identify strategies to respond to future transportation needs, develop procedures to alleviate and control congestion, and promote countywide solutions. The CMP includes C/CAG'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 2015 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 element accomplishes these objectives by describing the existing transportation system, 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 will degrade the LOS at any of the city's principal intersections to below acceptable levels, the 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 addresses how the city of Brisbane will maintain, enhance, and expand its circulation system to best meet the needs of its residents, business community, and visitors travelling to, from, or through 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 ADA-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.

3.16.2.2 Methodology

Traffic data and other transportation system information were obtained from maps, literature searches, and aerial photographs. Project activities during construction and operation were evaluated within the context of surrounding transportation facilities to determine whether the project may result in changes that will directly or indirectly affect those facilities. The changes were evaluated against the CEQA checklist to determine potential impacts.

Traffic volumes were obtained from the Caltrans Traffic Data Branch website, and LOS data were obtained from the San Francisco CMP (SFCTA, 2015) and the San Mateo County CMP (C/CAG, 2015).

Both the San Francisco and San Mateo CMPs use average operating speed data to calculate roadway LOS. SFCTA has historically used the 1985 Highway Capacity Manual (HCM) methodology to monitor LOS on the CMP network, and continues to calculate LOS using this method for freeways. The 1985 HCM methodology was utilized in the baseline monitoring cycle, and the methodology is necessary to maintain historical comparisons, identify exempt segments, and monitor potential network deficiencies. Since 2009, all the arterial segments were also evaluated using the HCM 2000 classification. The C/CAG uses the HCM 1994 methodology for roadway segment LOS. Using the calculated average speed for arterials and freeways, the HCM lookup tables are applied to determine the roadway LOS (Tables 3.16-2 through Table 3.16-4). Both CMPs contain LOS data from 2015; therefore, no new LOS calculations were performed as part of this analysis. The LOS for the major roadways in the project area are summarized in Table 3.16-5 (Section 3.16.3.3).

Table 3.16-2. Freeway Segment LOS, HCM 1985

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	-	-

Notes:
LN = lane
MI = mile(s)
PC = passenger car
PCPHPL = passenger car per hour per lane
V/C = volume to capacity
Source: 1985 Highway Capacity Manual (Transportation Research Board, 1985).

Table 3.16-3. LOS Criteria for Arterials, HCM 1994

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

Note:
Source: 1994 Highway Capacity Manual (Transportation Research Board, 1994).

Table 3.16-4. Urban Street LOS by Class, HCM 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: 2000 Highway Capacity Manual (Transportation Research Board, 2000).

3.16.3 ENVIRONMENTAL SETTING

This section includes a description of the roadways that will be used by workers and delivery trucks during construction. Access routes will 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 Figures 3.16-1 and 3.16-2. The proposed transmission lines traverse through the cities of San Francisco, Brisbane, and Daly City.

3.16.3.1 Regional Roadways

Interstate 80 (I-80) provides regional access from the north to the existing Martin Substation and proposed Egbert Switching Station site via U.S. 101. I-80 begins at its intersection with U.S. 101 just north of the project area. I-80 connects 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 (2015) reports an average of 169,000 vehicles per day on I-80 near the U.S. 101 interchange.

U.S. 101 provides north-south regional access along the San Francisco Peninsula between Santa Clara Valley and San Jose to the south and San Francisco to the north. U.S. 101 is 8 to 10 lanes wide. From the south, the closest interchange to the existing Martin Substation is provided at U.S. 101 and Bayshore Boulevard, near Oyster Point. From the north, the nearest interchange is provided at U.S. 101 and Bayshore Boulevard, near Hester Avenue. Access to and from the proposed Egbert Switching Station site is provided at U.S. 101 and Silver Avenue (from the north), U.S. 101 and Alemany Boulevard (to the north), U.S. 101 and Bayshore Boulevard near Hester Avenue (to the south), and U.S. 101 and Bayshore Boulevard near 3rd Street (from the south). Caltrans (2015) reports an average of 239,000 vehicles per day on U.S. 101 near the I-280 interchange, and 120,000 vehicles per day near the I-80 interchange.

I-280 provides regional north-south access to the project area. I-280 is a regional freeway that connects San Francisco with the greater San Jose area and serves as a major commuter route between the two cities. I-280 and U.S. 101 merge approximately 2 miles north of Candlestick Point. Caltrans (2015) reports an average of 171,000 vehicles per day on I-280 west of U.S. 101, and 111,000 vehicles per day east of U.S. 101.

3.16.3.2 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 San Francisco, extending from its interchange with U.S. 101 and Bayshore Boulevard to Market Street in downtown. It is the main commercial street in the Bayview Hunters Point neighborhood, and also serves as a through street and an access way to the industrial areas north and east of U.S. 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 ROW with the exception of the segment between Kirkwood and Thomas Avenues, where the light rail shares the travel lane with vehicles.

Insert

Figure 3.16-1 Regional Map

Insert

Figure 3.16-2 Local Area

Bayshore Boulevard is a decommissioned state highway and is now a city-owned and -maintained principal arterial. It serves as the transportation spine, connecting Brisbane to San Francisco, Daly City, and southern San Francisco. Bayshore Boulevard runs north-south and generally parallels U.S. 101 within the vicinity of the project. Together with its connecting minor arterial streets, Bayshore Boulevard also provides linkages to and from U.S. 101. Within the project area, 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 San Francisco. Supporting 2 lanes of traffic and an on-street bicycle path in each direction, this arterial provides access to and from U.S. 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 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 both Daly City and the city of San Francisco. Upon development of the Baylands, Geneva Avenue will be extended east to U.S. 101 and will serve as an important east-west arterial connection to U.S. 101. This would replace the current U.S. 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 both Brisbane and Daly City.

San Bruno Avenue is a north-south arterial located in 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. 101 on its western side until reaching its northern terminus adjacent to the I-280 and U.S. 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 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 utilized.

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. 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 mile in the India Basin neighborhood 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 mile 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 a local east-west street near the southeastern city limits of San Francisco. Egbert Avenue is bisected by UPRR 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, and 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. 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. 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, and it is the main access road to the golf course. It runs for just over 0.5 mile 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.

3.16.3.3 Existing Traffic Volumes and Levels of Service

Table 3.16-5 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 3.16-5. Summary of Peak Hour LOS on Primary Study Roadways

Roadway	Between	And	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]	Junipero Serra Boulevard	Bayshore Boulevard	A	F	D	A
	Bayshore Boulevard	6th Street	B	E	E	E
U.S. 101 [b, c]	I-380	San Francisco County Line	E	E	E	E
	San Francisco County Line	Cortland Avenue	F	E	C	B
	Cortland Avenue	I-80	F	D	F	D
	I-80	Market Street	F	E	F	F
I-80 [b]	U.S. 101	Fremont Street	E	C	F	F
	Fremont Street	Treasure Island	D	D	E	F
3rd Street	Jamestown Avenue	Evans Street	C	C	C	C
	Evans Street	Terry A. Francois Boulevard	C	C	C	C
	Terry A. Francois Boulevard	Market Street	D	N/A	D	N/A
Bayshore Boulevard	Geneva Avenue	San Francisco County Line	A	A	A	A
	San Francisco County Line	Industrial Street	D	B	B	B
	Industrial Street	Cesar Chavez	C	B	C	B

Table 3.16-5. Summary of Peak Hour LOS on Primary Study Roadways

Roadway	Between	And	AM Peak Hour LOS a		PM Peak Hour LOS a	
			NB or WB	SB or EB	NB or WB	SB or EB
Cesar Chavez Street	Guerrero Street	Bryant Street	C	D	D	D
	Bryant Street	Kansas Street	B	B	B	B
	Kansas Street	3rd Street	C	C	C	C
Evans Avenue	Cesar Chavez Street	3rd Street	C	D	D	C
Geneva Avenue	Bayshore Boulevard	San Francisco County Line	A	A	A	A
	Santos Street	Paris Street	C	C	C	C

[a] LOS presented by direction. WB = westbound, EB = eastbound

[b] All segments of I-280, U.S. 101, and I-80 within 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 CMP in 1991 or are within IOZs.

[c] U.S. 101, in San Mateo County between I-380 and the county line, is operating at LOS F during both peak hours. However, the C/CAG CMP allows for a reduction in volume (or exemption) on segments where trips originate from outside the county. With the exemption, U.S. 101 operates at LOS E and within the county's LOS standard.

Sources: San Francisco CMP (SFCTA, 2015) and San Mateo County CMP (C/CAG, 2015).

Within the project area, I-80, I-280, and U.S. 101 are exempt from the LOS standards because they were either operating at LOS F in the first CMP in 1991 or are within IOZs. Within the project area, 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 IOZs, as are portions of 3rd Street, and they are therefore also exempt from LOS standards.

3.16.3.4 Bicycle Facilities

Bicycle facilities are a significant part of the existing San Francisco Peninsula road network. Existing bicycle facilities in the project area include routes that are part of the San Francisco Bicycle Network, and regional routes, which 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 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 Daly City along Carter Street between Martin Street and Geneva Avenue (Class II) where the proposed Jefferson-Egbert line would be located (City of Daly City, 2011). Bicycle facilities within Brisbane City limits would not be impacted by the proposed project, and therefore are not discussed.

3.16.3.5 Pedestrian Facilities

Pedestrian facilities are found along many of the streets located within the project area, 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 line will cross a sidewalk between the 400 Paul Avenue parcel and 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.

3.16.3.6 Air Traffic

There are no airports or heliports within the project area.

3.16.3.7 Transit and Rail Services

Figure 3.16-3 provides a map of the existing transit routes in the area (San Mateo County Transit District [SamTrans], 2017). Public transit service near the proposed switching station, along the proposed transmission lines and the potential staging areas is provided by the SFMTA (SF Muni Bus) and by SamTrans. Caltrain runs immediately east of the proposed Egbert Switching Station site. Also, located near the project area 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 SFMTA, and provides local bus service within the project area (SFMTA, 2017). There are seven Muni bus lines along the proposed transmission lines, including Routes 29, 24, 8X, 8BX, 90, 54 and 56. Several bus stops serving SFMTA 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 mile 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 San Francisco and the southern Bay Area communities from Daly City to Palo Alto. Within the project area, SamTrans provides service to the municipalities of Daly City, Brisbane, and 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 line.

Insert

Figure 3.16-3 Transit Routes

Caltrain

Caltrain provides rail passenger service on the peninsula and the Santa Clara Valley between Gilroy and San Francisco. The Peninsula Corridor Joint Powers Board, a joint powers agency (JPA) 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 area is the Bayshore Station in 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.

3.16.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for transportation and traffic impacts derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operation and maintenance impacts on transportation and traffic.

3.16.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts related to transportation and traffic were evaluated for each of the criteria listed in Table 3.16-1, as discussed in Section 3.16.4.3.

3.16.4.2 Applicant-Proposed Measures

PG&E will implement the following APM:

APM Transportation and Traffic (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 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.

3.16.4.3 Potential Impacts

Project impacts on transportation and traffic were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

The 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

project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and will extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

a) Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? *Less-than-significant Impact.*

Construction

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. Construction would also occur within and/or 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. The 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. 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; and the hauling of excavated soils or roadway material from, and 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 will also depend on the location of project staging areas. However, the majority of the project's construction-related trips (vehicle and truck trips) would occur on the roadways identified in Table 3.16-2.

For the purposes of this analysis, it is assumed that the number of employees would peak at approximately 88 construction personnel, including supervisors and inspectors, resulting in a maximum of 88 daily round-trips (176 one-way trips) to the project. A detailed description of the construction workers by activity is presented in the Project Description (Section 2.7.6, Construction Workforce and Equipment). During the switching station grading and foundation excavation phases, about 85 days total of about 27 to 40 trucks trips per day is estimated per phase. Excavation and installation of the lines in Egbert Avenue is expected to occur after the switching station grading and excavation is complete and be supported by approximately 4 truck trips per day for about 180 days. Trucking for the proposed Jefferson-Egbert line is expected for approximately 220 days total with about 8 to 12 trucks per day. The trenchless activities are estimated to have 8 truck trips per day for up to about 10 days at each bore pit. The removal of the Jefferson-Martin line termination equipment in Martin Substation is expected to generate about 9 truck trips per day for approximately 60 days. Construction will typically occur between 7 a.m. and 8 p.m. or during times that will be set through coordination with the city and county of San Francisco, and with the cities of Daly City and Brisbane.

Staging Areas/Work Areas. As described in further detail in the Project Description, one to three staging areas of up to 15 acres total may be identified for use once a construction contractor is selected. Specific staging area locations will 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 2.7-1. 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 will 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 will be maintained for up to 8 weeks during the freeze activity. An open trench length of 150 to 300 feet on each street will be typical at any one time, depending on the permitting requirements of the cities of San Francisco, Daly City, and 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 lines in Egbert Avenue is expected to occur one line at a time. Steel plating will 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 will be opened farther down the street. This process will 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 occurs 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 will 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, each of the following roadways may experience lane closures during construction of the project.

Table 3.16-6. 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

Table 3.16-6. Anticipated Partial Road Closures during Construction

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
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.

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 3.16-7 identifies a preliminary list of locations that could be affected.

Table 3.16-7. Potential Affected Locations

Location	Description of Potential Effects
Sunnydale Boys and Girls Club	The Sunnydale Boys and Girls Club is located at the intersection of Sunnydale Avenue and Santos Street. The club will be impacted by both trench work and vault installation work.
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 will 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 will be affected during transmission line and switching station construction activities.
Vault on Geneva Avenue	The proposed vault location on Geneva Avenue will 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 will 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 will be implemented to direct local traffic safely around the work areas and to minimize impacts to the land uses described in Table 3.16-7. PG&E will apply for a permit from SFMTA and SamTrans, as well as for Special Traffic Permits from the cities of San Francisco, Daly City, and Brisbane, as part of APM TR-1. PG&E will also coordinate provisions for emergency vehicle and local access with city personnel. Once the conduits or pipes are installed, the road surface will be restored in compliance with the locally issued permits. The project may require nighttime work to avoid traffic disruption, which will also be coordinated with the local agency.

Several segments of I-80, I-280, and U.S. 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 percent or less), and no changes to the existing LOS are anticipated. Furthermore, within the project area, I-80, I-280, and U.S. 101 are exempt from the LOS standards because they were either operating at LOS F in the first CMP in 1991 or are within IOZs. 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 are not available for other local roadways. However, because of the primarily linear nature of the project, construction project trips would be distributed across the regional road network and would not be concentrated at one location, other than 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 line beneath U.S. 101 because of the lack of available corridors within the existing franchise. No impacts to travel on U.S. 101 would occur, although the U.S. 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 will be minimal, short term, and periodic. Applicable county, state, and federal regulations, ordinances, and restrictions will be identified and complied with prior to and during construction. Therefore, construction-related traffic will 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.

Operation and Maintenance

Existing operation and maintenance crews will operate and maintain the new switching station and transmission lines as part of their current operation and maintenance activities. No impacts attributable to operation and maintenance activities are anticipated.

b) Would the project conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? *Less-than-significant Impact.*

Construction

As described above, construction of the project would result in an increase in local traffic as a result of construction-related workforce traffic and material deliveries, and construction activities occurring within the public ROW. 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.

The project-added trips represent a temporary minimal increase in traffic compared to the existing highway volumes, and no changes to the existing LOS are anticipated. Several segments of I-80, I-280, and U.S. 101 are operating at LOS E or LOS F. However, these roadways are exempt from the LOS standards.

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. Furthermore, 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 coordinated with and approved by the appropriate local jurisdiction. The project would not conflict with an applicable CMP or other standards for designated roads or highways. Impacts will be less than significant.

Operation and Maintenance

No new staff will be required for maintenance or operation at the new switching station and transmission lines; therefore, no impacts will occur.

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? *No Impact.*

No change in air traffic patterns will occur as a result of the project construction or operation and maintenance, so there will be no impact. No airports or airport runways are found within 20,000 feet of the project; therefore, Federal Aviation Administration 14 CFR 77 regulations regarding obstructions within that distance would not apply to the project.

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? *Less-than-significant Impact.*

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 area 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 cities of San Francisco, Daly, and Brisbane) would govern how project construction would comply with roadside safety protocols so as to reduce the risk of accidents. With these measures, the impact will be less than significant.

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. 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 will be no impact.

e) Would the project result in inadequate emergency access? ***Less-than-significant Impact.***

Construction and operation and maintenance of the project would not result in inadequate emergency access. Emergency access routes will 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 project area ROW and within approved temporary construction work and staging areas. Any road closures will be temporary and short-term, and these closures will be coordinated with the local jurisdictions to reduce the effects of potential temporary and short-term emergency access. Emergency responders will be notified prior to construction; and ensuring access for emergency vehicles and all applicable local, state, and federal traffic control measures will be followed to ensure the safety of the local and construction traffic. Implementation of APM TR-1 will further minimize potential impacts. There will be no changes to the emergency access at the existing substations. Switching station operation and maintenance personnel will park vehicles within the switching station or along Egbert Avenue and will 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 will be less than significant.

f) Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? ***Less-than-significant Impact.***

Public transit operates in the vicinity of the project area, and project construction could temporarily disrupt transit service. Bicycle facilities also exist in the area of construction. Table 3.16-6 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 will 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 will include procedures for notifying affected agencies in advance of construction activities, including SF Muni and Sam Trans.

Operation and maintenance of the project will 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 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 will be less than significant.

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3.17 UTILITIES AND SERVICE SYSTEMS

3.17.1 INTRODUCTION

This section describes existing conditions and potential impacts on utilities and service systems as a result of construction, operation, and maintenance of the project, and concludes that no impacts will occur in these areas. Under CEQA, utilities and service systems include water, wastewater, and solid waste collection and treatment. This section also addresses potential impacts on power and natural gas.

The proposed project's potential effects on utilities and service systems were evaluated to using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.17-1 and discussed in more detail in Section 3.17.4.

Table 3.17-1. CEQA Checklist for Utilities and Service Systems

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the Provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

3.17.2 REGULATORY BACKGROUND AND METHODOLOGY

3.17.2.1 Regulatory Background

Federal

No federal regulations pertaining to utilities and service systems are applicable to the proposed project.

State

California Government Code

Section 4216 of the California Government Code protects underground structures during excavation. Under this law, excavators are required to contact a regional notification center at least 2 days prior to excavation of any subsurface installations. In the project area, Underground Service Alert (USA) is the regional notification center. USA notifies utility providers with buried lines within 1,000 feet of the excavation, and those providers are required to mark the specific location of their facilities prior to excavation. The code also requires excavators to probe and expose existing utilities, in accordance with state law, before using power equipment.

Local

Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary regulations. The following summary of local statues and regulations relating to solid waste is provided for informational purposes and to assist with CEQA review.

City of San Francisco

San Francisco Construction and Demolition Waste Ordinance. In 2006, the city adopted Ordinance No. 27-06 mandating the recycling of construction and demolition debris (City and County of San Francisco, 2006). Construction and demolition materials must be source-separated at the construction site or transported to a registered facility that can process mixed construction and demolition debris and divert a minimum of 65 percent of the material from landfills.

San Francisco Mandatory Recycling and Composting Ordinance. In 2009, San Francisco adopted the Mandatory Recycling and Composting Ordinance (No. 100-09) requiring recycling separate bins for recyclables, compostable waste, and trash (City and County of San Francisco, 2009).

City of Daly City

Recyclable Materials. Per city code, 50 percent of all waste must be diverted through source reduction, recycling, and composting (Daly City Municode, 2017).

Waste Management Plan (WMP). Qualified projects must submit a WMP as a portion of the building or demolition permit process. The plan estimates weight of debris, type of debris, provides strategy for diverting 60 percent of debris, identifies the haul facility, and notes any on- or off-site reuse (Daly City Municode, 2017).

Diversion Requirement. Daly City code requires that at least 60 percent of waste tonnage from construction, demolition, and alteration projects is diverted from disposal (Daly City Municode, 2017).

City of Brisbane

Waste Management. Projects are expected to recycle and/or salvage for re-use a minimum of 65 percent of the nonhazardous construction and/or demolition waste and 100 percent of inert solid material associated with excavations and land clearing operations (including trees, stumps, and rocks) in accordance with either an WMP or by an approved waste management company (Brisbane Municode, 2017).

Waste Recycling. A city license fee is required to conduct any activity to recycle non-water-soluble, non-decomposable wastes and industrial wastes (Brisbane Municode, 2017).

Discharge of Pollutants. The discharge of non-stormwaters (i.e., surface water, and groundwater) to the city storm sewer system is prohibited except as provided in the city's municipal code. All discharges of material other than stormwater must be in compliance with an NPDES permit issued for the discharge other than the San Mateo Countywide NPDES Municipal Stormwater Permit No. CA0029921 (Brisbane Municode, 2017).

3.17.2.2 Methodology

General plans and municipal codes of San Francisco, Daly City, and Brisbane, as well as official websites, were reviewed for wastewater collection and treatment, water supply, stormwater drainage, and solid waste disposal for the project area. Electric and gas services information was obtained from PG&E and from municipal websites. Individual utility provider websites documented coverage areas and system information.

3.17.3 ENVIRONMENTAL SETTING

The proposed project is located within urbanized areas of Brisbane, Daly City, and San Francisco. There are a number of utilities both underground and overhead in the project area. Underground utilities that may be encountered include buried water lines, combined storm drains/sanitary sewers, telephone, cable, fiber optic cable, natural gas, electric traffic loops, and electrical distribution lines. Overhead utilities include telephone, cable, and electrical distribution and transmission lines. Utility services and providers are shown in Table 3.17-2.

Table 3.17-2. Local Utility and Service Providers

Utility or Service	Provider
City of San Francisco	
Water Service	San Francisco Public Utilities Commission
Sewer and Stormwater Service	San Francisco Public Utilities Commission Port of San Francisco
Water Line Maintenance	San Francisco Water Department
Wastewater Collection and Treatment at the Southeast Water Pollution Control Plant	San Francisco Public Utilities Commission San Francisco Bureau of Street and Sewer Repair
Garbage Services	Recology – Golden Gate Disposal Recology – Sunset Scavenger
Landfill	Recology – Recology Hay Road Landfill
Natural Gas and Electric Service	San Francisco Public Utilities Commission PG&E ABAG Power

Table 3.17-2. Local Utility and Service Providers

Utility or Service	Provider
City of Daly City	
Garbage and Recycling Collection	Republic Services
Landfill	Republic Services – Ox Mountain Sanitary Landfill
Water and Wastewater Resources	Daly City Services Department
Sewer, water, and streetlights	Daly City Public Works
Natural Gas	PG&E
Electricity Supplier	Peninsula Clean Energy
City of Brisbane	
Garbage and Recycling Collection	South San Francisco Scavenger
Landfill	Republic Services – Ox Mountain Sanitary Landfill
Water and Wastewater Resources	City of Brisbane and City of San Francisco
Natural Gas	PG&E
Sewer, water, and streetlights	City of Brisbane Public Works
Electricity Supplier	Peninsula Clean Energy
State of California	
Buttonwillow Landfill Facility	Clean Harbors
Kettleman Hills Facility	Waste Management

3.17.3.1 Wastewater Collection and Treatment Services

The project area is serviced by three connected sewer districts: Wastewater Enterprise branch of the San Francisco Public Utilities Commission (SFPUC), Bayshore Sanitary District, and City of Brisbane (Figure 3.17-1). A small portion (0.1 mile) of the proposed Jefferson-Egbert line lies inside the city of Brisbane service area and continues north with another small portion (0.2 mile) of line within the Bayshore Sanitary District. Martin Substation also is serviced by the Bayshore Sanitary District. The remainder of the project is within the Wastewater Enterprise service area.

San Francisco Public Utilities Commission

SFPUC is a department of the city and county of San Francisco that provides drinking water, stormwater, and wastewater services to San Francisco. The Wastewater Enterprise, a branch of SFPUC, manages the San Francisco Combined Sewer System, which is a combined stormwater and sanitary sewer system where water is treated prior to discharge to San Francisco Bay or the Pacific Ocean. The Wastewater Enterprise operates and maintains 993 miles of combined sewers, and operates storage facilities and three treatment plants (SFPUC, 2017a).

Figure 3.17-1 Existing Combined Sewer Outflows

Three wastewater treatment plants operated by SFPUC serve San Francisco; the project area is served by the Southeast Water Pollution Control Plant. The plant receives 80 percent of the city's flows and treats 60 to 250 million gallons per day (SFPUC, 2014). The majority of the project is located within the Bayside Watershed, specifically within the Yosemite and Sunnydale drainage basins. The Yosemite system collects and transports sewage and stormwater runoff from the Bayview/Hunters Point and Candlestick areas. In dry weather, gravity directs flows into the Islais Creek Drainage Basin via the Hunters Point Tunnel, or via the Griffith Pump Station. The Griffith Pump Station also pumps wet-weather flows from Yosemite and Sunnydale to the Islais Creek Drainage Basin. From the Islais Creek Drainage Basis, flows continue by gravity to the Southeast Lift Station, where they are lifted to the Southeast Water Pollution Control Plant for treatment.

The Sunnydale Transport/Storage facilities collect and transport sewage and runoff from the drainage area and into the Yosemite system by gravity. During wet weather, Sunnydale flows are diverted from the gravity system to the Transport/Storage structure and Sunnydale Pump Station. From the pump station, wet-weather flows are pumped to the Candlestick tunnel sewer and then flow to the Yosemite system by gravity.

The proposed Jefferson-Egbert line is within the Sunnydale Basin from Daly City, north of the intersection of Carter Street and Alexis Circle, to the intersection of Visitacion Avenue and Mansell Street in San Francisco. The section of the proposed Jefferson-Egbert line east along Mansell Street to the proposed switching station site, and the proposed transmission lines along Egbert Avenue, are within the Yosemite Basin.

Bayshore Sanitary District

The Bayshore Sanitary District is an independent district located in northern San Mateo County, providing sanitary sewer services to portions of Daly City and Brisbane. Unlike the San Francisco Combined Sewer System, stormwater and sanitary sewer services are not combined in the Bayshore Sanitary District (Section 3.17.3.3, Stormwater Drainage). The District discharges wastewater flow to the Sunnydale Drainage Basin, which ultimately exits into San Francisco Bay via the SFPUC's Southeast Water Pollution Control Plant, as described above.

Most of the District's collection system and customers are in Daly City. The sewer force main and Carlyle Pump Station that discharge the wastewater are located within Brisbane city limits.

The proposed Jefferson-Egbert line is within the Bayshore Sanitary District in Daly City on Carter Street between Guadalupe Canyon Parkway and Alexis Circle. Martin Substation is also within the district's service area.

City of Brisbane

The city of Brisbane provides sanitary sewer services to the residents and businesses in its service area. Similar to the Bayshore Sanitary District, stormwater and sanitary sewer services use separate infrastructure for the city of Brisbane. The sewer service area consists of approximately 3,600 residents, several commercial areas, and some light industrial development. A series of gravity collection system mains and smaller pumping stations convey most of the wastewater flow to the Valley Drive Pump Station. The wastewater is then delivered to the city of San Francisco interceptor and ultimately conveyed to the Southeast Water Quality Control treatment facility (City of Brisbane, 2017b).

The proposed Jefferson-Egbert line begins within the city of Brisbane's sewer system management area on Guadalupe Canyon Parkway, then after turning north briefly on Carter Street it exits the service area as it crosses into Daly City and enters the Bayshore Sanitary District.

3.17.3.2 Water Supply

San Francisco

SFPUC provides water to 2.6 million residents in the greater San Francisco Bay Area. Water metered at the San Francisco County line serves customers in the city and county of San Francisco. SFPUC total service area includes wholesale customers in the peninsula, South Bay, and East Bay communities (SFPUC, 2017a).

Daly City

Daly City water supply is received from SFPUC and is supplemented from six underground wells. The city also uses tertiary recycled water from the North San Mateo County Sanitation District wastewater treatment plant (City of Daly City, 2011).

City of Brisbane

The City of Brisbane receives its water from SFPUC. Brisbane operates two separate water districts providing water to the local residents and businesses. The Brisbane Water District serves Central Brisbane, Sierra Point, and the Baylands. The Guadalupe Valley Municipal Improvement District serves Crocker Park and the Northeast Ridge residential development. The water districts are interconnected and are operated together to maximize circulation and flow within the system (City of Brisbane, 2017b).

3.17.3.3 Stormwater Drainage

City of San Francisco

Stormwater is conveyed and collected in the combined system described above. Similar to sewer, stormwater services are provided to most of San Francisco by the Wastewater Enterprise, a branch of SFPUC. As described above, most of the stormwater in the city and county of San Francisco is collected in the San Francisco Combined Sewer System, a combined stormwater and sanitary sewer system where water is treated prior to discharge to San Francisco Bay or the Pacific Ocean.

Daly City

The Streets Section of Daly City's Public Works Department maintains the city's stormwater drainage system. Catch basins and storm pipes are cleaned on a regular maintenance schedule. Water that enters the stormwater system ultimately drains into the Pacific Ocean or San Francisco Bay.

City of Brisbane

Brisbane's storm drain system collects stormwater runoff and eventually discharges to the Brisbane Lagoon or directly to the bay. Brisbane is actively involved in the County Stormwater Pollution Prevention Program to keep urban runoff that is polluted from flushing into storm drains and discharging into the bay (City of Brisbane, 2017b).

3.17.3.4 Solid Waste Disposal

City of San Francisco

Recology serves San Francisco utilizing two hauling companies based on region: Sunset Scavenger and Golden Gate. Recology offers garbage, compost, and recycling pickup. The recycle center is located at Pier 96, where more than 30 large containers are taken for sorting 6 days per week. The San Francisco transfer station is located on Tunnel Avenue within San Francisco city limits, just north of Brisbane. At the transfer station, residents can dispose of construction and demolition debris, electronic waste, household hazardous waste, and other items (Recology, 2017). The transfer station is a registered construction and demolition debris recycling facility and accepts construction materials such as concrete, metal, hard plastics, and wood. Waste that Recology is unable to reuse, recycle, or otherwise manage is taken to the Recology Hay Road Landfill, located in unincorporated Solano County, near Vacaville, California. Based on 2016 waste projections by the California Department of Resources Recycling and Recovery, Recology is expected to reach capacity in 2046 (California Department of Resources Recycling and Recovery, 2016).

Daly City

Republic Services provides recycling, compost, and garbage pickup to Daly City. Waste is taken to Ox Mountain Sanitary Landfill in Half Moon Bay, where all solid wastes are accepted except hazardous materials (Republic Services, 2017). The remaining capacity as reported in December 2015 is 22.18 million cy (California Integrated Waste Management Board, 2016).

City of Brisbane

South San Francisco Scavenger serves Brisbane with pickup of solid wastes including garbage, recycling, and compost. Scavenger built an anaerobic digester to process food and yard scraps into compressed natural gas, which fuels their vehicle fleet (South San Francisco Scavenger, 2017). Waste is taken to Ox Mountain Sanitary Landfill in Half Moon Bay, where all solid wastes are accepted except hazardous materials (Republic Services, 2017).

Section 3.8, Hazards and Hazardous Materials, discusses solid waste disposal of hazardous materials.

3.17.3.5 Electricity and Natural Gas

San Francisco, Brisbane, and Daly City are all within PG&E's electricity and natural gas services territory (PG&E, 2017). PG&E maintains the supporting infrastructure (e.g., electric and gas transmission and distribution).

Electricity may be purchased from non-PG&E sources; PG&E provides delivery, safety, billing, and other services. Similarly, gas can be purchased directly from a third-party gas supplier, Core Transport Agents.

City and County of San Francisco

SFPUC provides generation, energy efficiency, transmission, and other clean energy services (SFPUC, 2017b). ABAG Power is a JPA that assists cities in procuring and managing energy. ABAG Power's primary objective is to conduct pooled purchasing of natural gas on behalf of local governments and special districts that voluntarily join the pool (ABAG Power, 2017).

San Mateo County

The default electrical services provider for San Mateo County is Peninsula Clean Energy (PCE). PCE is a JPA that procures energy for cities in San Mateo County. Customers have the option to opt out of PCE and continue service with PG&E. PG&E maintains the electrical lines and sends electrical bills to customers (PCE, 2017).

PG&E is the gas service provider for San Mateo County, which includes the project areas within Brisbane and Daly City.

3.17.4 Applicant-Proposed Measures and Potential Impacts

The following sections describe significance criteria for impacts on utilities and service systems derived from Appendix G of the CEQA Guidelines and assess potential project-related construction and operational impacts. Because the project will have no impact on utilities and service systems, APMs have not been included for this section.

3.17.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on utilities and service systems was evaluated for each of the criteria listed in Table 3.17-1, as discussed in Section 3.17.4.3.

3.17.4.2 Applicant-Proposed Measures

The project will have no impact on utilities and service systems, and no APMs are proposed.

3.17.4.3 Potential Impacts

Project impacts on utilities and service systems were evaluated against the CEQA significance criteria as discussed below. This section evaluates potential project impacts from both the construction phase and the operation and maintenance phase.

PG&E's engineering team has taken into consideration the location of other underground and overhead utilities in designing the project. Additional utilities identification will occur in the final design stages. As required by state law, PG&E will notify other utility companies (via USA) to locate and mark existing underground structures along the proposed alignments prior to any excavation or augering activities. In addition, PG&E will probe and expose existing utilities, in accordance with state law, before using power equipment. PG&E has conducted existing utilities surveys as part of its feasibility study and routing analysis. Based on these surveys and during detailed design, PG&E will design the project to have no permanent impact on power, natural gas, or any other utilities that are specifically documented.

Also during the detailed design phase, PG&E will assess whether the temporary interruption of other utilities will be necessary. If deemed necessary, PG&E will obtain timely approval from other utilities and closely coordinate with them until those utilities are returned to service. Prior to construction, PG&E will obtain emergency contact information for utilities that may be in close proximity or require monitoring during construction of the project. In case of accidental service interruption to another utility, PG&E will immediately contact the affected utility to coordinate actions to restore service in a safe and timely manner.

The 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 project will reroute two existing underground 230 kV transmission lines currently connected to Martin Substation (Jefferson-Martin and Martin-Embarcadero lines) to Egbert Switching Station. An underground transmission line extension will connect the Jefferson-Martin line to Egbert Switching Station, creating a Jefferson-Egbert line. The existing Martin-Embarcadero line will be bisected and extend two underground transmission lines to Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line. Operation and maintenance activities will 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 detail inspections (annually) at the switching station and vault locations along the lines.

a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? *No Impact.*

The project area will be served by the Southeast Water Pollution Control Plant, which receives combined stormwater and sanitary sewer wastewater from San Francisco, wastewater from Bayshore Sanitary District, and wastewater from the city of Brisbane. The minimal amount of effluent generated by construction personnel will not cause the wastewater treatment plant to exceed its treatment capacity.

PG&E anticipates the use of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit) (Order No. 2009-0009-DWQ; NPDES Permit No. CAS000002) from the State Water Resources Control Board. Groundwater encountered during trenching will be sampled and characterized prior to removal and discharge as described in Section 3.9, Hydrology and Water Quality; as appropriate, the water may be pumped into containment vessels (Baker tanks), tested for measures 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. Temporary approvals for water use and discharge will be obtained as required by the construction contractor, and water will be disposed of in accordance with state and federal standards.

Wastewater treatment requirements of the RWQCB will not be exceeded; therefore, no impacts attributable to project construction will result. For detailed information on potential impacts to groundwater, see Section 3.9, Hydrology and Water Quality.

Operation and maintenance visits will be conducted occasionally by PG&E staff, but no wastewater will result from these activities. Therefore, no operations or maintenance impact to wastewater will occur.

b) Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? *No Impact.*

The project will not require the construction of new, or expansion of existing, water treatment facilities; existing supplies are sufficient to provide water for dust control. Wastewater service will be provided by portable toilets, and waste disposal will occur at appropriately licensed facilities off-site. The minimal amount of effluent generated by construction personnel will not cause a wastewater treatment plant to exceed its treatment capacity. Trench water will be disposed of as described above to a combined system or will be hauled off-site to an appropriate disposal facility.

Once operational, the transmission lines and switching station will not require a potable water source or a connection to the sewer system. Therefore, no impacts will occur to water or wastewater treatment facilities resulting in the need for new or expanded facilities.

c) Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? *No Impact.*

As discussed in Chapter 2.0, Project Description, San Francisco's Stormwater Management Requirements and Design Guidelines requires stormwater management controls for new and redevelopment projects in both the city's separate and combined sewer areas. The City of San Francisco requires all projects creating and/or replacing 5,000 square feet or more of impervious surface to comply with stormwater management requirements and to submit a Stormwater Control Plan. Operation of the subject project's stormwater management system will comply with the above regulations and guidelines.

The project does not include construction of new stormwater drainage facilities, nor will it result in new or expanded stormwater drainage facilities. Therefore, no impacts would occur.

d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? *No Impact.*

The primary need for water will be for construction-related dust control activities. Water will be trucked in as needed. Recycled water will be used if feasible. The minimal water needed for dust control and construction crew consumption will not exceed available supplies. Water trucks used for dust control during construction generally have capacity for 3,000 gallons of water. Sufficient existing water supplies are available; therefore, no impact will occur.

Operation and maintenance visits will be conducted occasionally by PG&E staff, but water is not required for these activities. Therefore, no operations or maintenance impact to water supply will occur.

e) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? *No Impact.*

The project will require portable toilets for construction personnel. Sanitary waste will be disposed of at appropriately licensed facilities with adequate capacity. Trench water will be disposed of as described above or will be hauled off-site to an appropriate disposal facility.

Licensed facilities in the area have adequate capacity; therefore, no construction impact will occur.

The project does not include construction of facilities that will generate wastewater; therefore, operations or maintenance will have no impact.

f) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? ***No Impact.***

An estimated 35,000 cy of non-hazardous excavated material from the project, including switching station, trenches, and vault locations, will be off-hauled for disposal to an appropriately licensed facility or hauled to a commercial soil recycling facility. Project waste that can be recycled may be taken to a commercial waste recycling facility, such as Recology's San Francisco Transfer Station. Small amounts of additional food-related trash, packing material, and other miscellaneous trash from construction would also be hauled on a regular basis from construction sites. Existing landfills serving the project area have adequate capacity for this amount of construction debris and soils. Depending on agreements in place at the time of project execution, current landfill capacity, and the results of soil characterization, the project may use Ox Mountain Sanitary Landfill, Recology Hay Road Landfill, or another appropriately approved disposal site; no construction impact will occur.

Approximately 2,700 cy of potentially hazardous material is anticipated for disposal in a facility that accepts hazardous wastes, such as Kettleman Hills Landfill or Buttonwillow Landfill. Disposal of hazardous materials is addressed in Section 3.8, Hazards and Hazardous Materials.

Operation and maintenance visits will be conducted occasionally by PG&E staff. Any small amount of solid waste generated during these activities will not impact landfill capacity. Therefore, no operations or maintenance impact to landfill capacity will occur.

g) Would the project comply with federal, state, and local statutes and regulations related to solid waste? ***No Impact.***

PG&E will manage solid waste generated during construction and maintenance and operation of the project by off-hauling to appropriate landfills as described above. PG&E and the project will comply with all applicable federal, state, and local statutes and regulations related to solid waste.

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3.18 MANDATORY FINDINGS OF SIGNIFICANCE AND CUMULATIVE IMPACT ANALYSIS

3.18.1 INTRODUCTION AND METHODOLOGY

This section discusses mandatory findings of significance as well as potential cumulative impacts related to the project.

Cumulative impacts, as defined in Section 15355 of the CEQA Guidelines, refer to two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts. A cumulative impact is the change in the environment that results from the incremental impact of a project when added to other closely related past, present, or reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant impacts occurring over time.

An analysis of potential cumulative impacts for each relevant resource topic is provided in Section 3.18.3.2 Table 3.18-2 lists projects within approximately 0.5 mile of the project area. These projects, developed from available information on websites and with input by the involved municipalities, were included if they had potential environmental impacts, geographic scope and location, and/or timing, and duration of implementation similar to those of the project. The analysis considered the potential cumulative impacts that could result when impacts of the proposed project are considered in combination with impacts of other past, present, and reasonably foreseeable future projects. Some reasonably foreseeable future projects listed in Table 3.18-2 might not be approved or could be modified prior to approval; however, for the purpose of this analysis, approval and construction of identified projects was assumed.

3.18.2 MANDATORY FINDINGS OF SIGNIFICANCE

The analysis presented in this section is based on consideration of the CEQA checklist questions presented in Table 3.18-1. The analysis indicates that there is no substantial evidence, in the light of the whole record, that any of the conditions set forth in Table 3.18-1 will occur.

Table 3.18-1. CEQA Checklist for Mandatory Findings of Significance

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐

Table 3.18-1. CEQA Checklist for Mandatory Findings of Significance

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
b) Have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?	☐	☐	☐	☒
c) Have possible environmental effects that are individually limited, but cumulatively considerable? Cumulatively considerable means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
d) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

a) Would the project have the potential to substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of an endangered, rare or threatened species; or eliminate important examples of the major periods of California history or prehistory? *Less-than-significant Impact.*

Construction activities may have minor, short-term impacts on species habitat resulting in less-than-significant impacts. The project area is largely urban in nature, with habitat areas limited to a few potential staging areas and the roadway work connecting to the Jefferson-Martin line on Guadalupe Canyon Parkway. As all impacts associated with the proposed Egbert Switching Station, proposed transmission line routes, and the potential Amador Street, Cow Palace parking lot, and Martin Substation staging areas are on or under paved surfaces or in ruderal habitat in highly urban areas, there is no potential for special-status plants to occur in those areas of the project. If the potential Carter Street staging area is used, there is a very low potential for special-status plants to occur. Based on the amount of suitable habitat present for each species along the project alignment, impact avoidance strategies are easily implemented for these species. PG&E will implement APMs BIO-1 through APM BIO-3; therefore, the impact will be less than significant.

Cultural resources surveys and records searches identified one historical district in the project APEs. More cultural resources may be present in areas where pavement and other obstacles precluded survey, including some areas that have been identified as high sensitivity for buried or subsurface resources. APMs CR-1 through CR-4 reduce impacts to a less-than-significant level for the potential to cause a substantial adverse change in the significance of an archaeological resource, in the unlikely event that such a resource is discovered during construction activities.

b) Would the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals*? No Impact.*

The project will not achieve short-term environmental goals to the disadvantage of long-term environmental goals. The project will result in either no impact or less-than-significant impacts in both the short- and long term. The project will be compatible with local environmental goals and will not conflict with federal or state environmental policies and regulations. Therefore, no impact will occur.

c) Would the project have possible environmental effects that are individually limited, but cumulatively considerable? Cumulatively considerable means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)*? Less-than-significant Impact.*

A cumulative impact analysis for each resource area is presented in Section 3.18.3.2. The project may contribute incrementally to cumulative impacts in the project area related to aesthetics, air quality, cultural and paleontological resources, geology, GHG emissions, hazards and hazardous materials, hydrology and water quality, noise, and traffic; however, the incremental effects are not significant in the context of those cumulative impacts. Thus, the project will not result in environmental effects that are individually limited but cumulatively considerable. Therefore, the impact will be less than significant.

d) Would the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? *No Impact.*

The project will not adversely affect human beings either directly or indirectly. Potential construction impacts associated with human health include the presence of hazards, hazardous materials use, and temporary air quality impacts. As discussed previously, construction impacts associated with air quality and with hazards and hazardous materials will be less than significant. APMs will further reduce the potential for adverse effects. The project will have a beneficial effect on human beings in the project area by increasing electrical service reliability. Therefore, the impact will be less than significant.

3.18.3 CUMULATIVE IMPACTS

Projects included in the cumulative impact assessment were identified by using a list approach (CEQA Guidelines Section 15130[b][1][A]), including all pending development projects within an approximately 0.5-mile radius of the project area. This area includes the cities of San Francisco, Daly City, and Brisbane. Table 3.18-2 summarizes these pending development projects.

Table 3.18-2. Cumulative Projects in the Project Vicinity

Project Name	Description/Location	Construction Time Frame	Proximity to Project*
Caltrain Electrification and California High-Speed Rail	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
320-400 Paul Avenue Internet Services Exchange	Construct an Internet Services Exchange facility. Improvements include renovation of two buildings, as well as demolition and replacement of an existing building with a data center building.	2018 - 2019	Proposed Jefferson-Egbert line route is on the parcel for 0.2 mile
Geneva Avenue Multimodal Improvement Project	Improve pedestrian safety, bus reliability, and bicycle access for residents, businesses, transit riders, and visitors on Geneva Avenue.	2014 - ongoing	Proposed Jefferson-Egbert line route within avenue for 0.2 mile
Visitacion Valley/ Schlage Lock Development Project	Develop 20 acres of land located in Visitacion Valley and Schlage Lock into a mixed-use urban community.	2016 - ongoing	0.3 mile from proposed Jefferson-Egbert line
Recology Modernization and Expansion Project	Expand the existing Recology recycling center on Tunnel Avenue in San Francisco/Brisbane.	Unknown; to be phased over 4 years	0.4 mile from proposed Jefferson-Egbert line
Hunters Point Substation Rebuild Project	Replace aging infrastructure of PG&E's Hunters Point Substation located on Evans Avenue	2019 - 2021	0.4 mile from potential Amador Street staging area at South Container Terminal
Robertson Intermediate School Development	Redevelop the Robertson Intermediate School property into a single-family residential area.	2017/2018 - 2021	0.1 mile from the existing Martin Substation
Point Martin – Phase 2	Housing Development on Steve Courter Way and Martin Street.	2017 - 2019	0.1 mile from proposed Jefferson-Egbert line
Baylands Specific Plan Implementation	Redevelop the Brisbane Baylands.	Unknown; 20-year construction period	0.2 mile from proposed Jefferson-Egbert line

Note:
* Distances are approximate.
Sources: City and County of San Francisco Planning Department, 2017.
City of Brisbane, California, 2017.
City of Daly City Planning Department, 2016.
City of Daly City Public Works Department, 2017.

3.18.3.1 Key Projects in the Project Vicinity

The projects listed in Table 3.18-2 are located within 0.5 mile of a component of the project, and may overlap with its construction time line. Figure 3.18-1 includes a graphic indicating the location of these projects in proximity to the project. Additional information is provided on the time line and status of these projects as follows.

Figure 3.18-1 Cumulative Projects in the Project Vicinity

San Francisco

Caltrain Electrification and California High-Speed Rail

The Peninsula Corridor Joint Powers Board's Caltrain Electrification project will replace Caltrain's existing diesel service with a fully electrified service from the 4th and King Station in San Francisco to the Tamian Station in San Jose. Electrification will 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 will share the infrastructure, staying within the existing ROW. The project corridor runs north-south and is located adjacent to the east of the proposed Egbert Switching Station. Construction is anticipated to begin by early 2018, ending in early 2021.

320-400 Paul Avenue Internet Services Exchange

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 line will 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 anticipated to last approximately 12 months. Therefore, construction is not likely to overlap with this project.

Geneva Avenue Multimodal Improvement Project

The Geneva Avenue Multimodal Improvement Project is an SFMTA project to improve pedestrian safety, bus reliability, and bicycle access for residents, businesses, transit riders, and visitors. The project is located on the Geneva Avenue corridor from Santos Street heading west to Ocean Avenue. The proposed Jefferson-Egbert line is located under Geneva Avenue from Santos Street heading west for five blocks until turning off Geneva onto Carter Street. The project was initiated in 2014, and is listed as a "Muni Forward Transit Priority Project" by SFMTA.

Recology Modernization and Expansion Project (San Francisco & Brisbane)

The Recology Modernization and Expansion Project is a comprehensible modernization program designed to facilitate management 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 Brisbane and San Francisco. The 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, 2017a). The modernization and expansion portion of the project is located 0.4 mile from Martin Substation and the portion to be decommissioned is adjacent to the potential Amador Street staging area at South Container Terminal. It is unknown when the project will be initiated, but it will be phased over approximately 4 years.

Hunters Point Substation Rebuild Project

The Hunters Point Substation Rebuild Project is a PG&E project to replace the aging infrastructure of Hunters Point Substation, located near the intersection of Evans Avenue and Jennings Street in San Francisco. 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.

City of Daly City

Robertson Intermediate School Redevelopment

The project will redevelop the 6.96-acre property where the Bayshore Elementary School District's Robertson Intermediate School was formerly located into a planned development for 71 single-family residences. The city of Daly City approved the General Plan Amendment to rezone the site (City of Daly City City Council, 2016), and adopted the Mitigated Negative Declaration for the project in April 2016. Construction is anticipated to begin by early 2018 and last approximately 2 to 3 years. The residences would be served by driveways off Martin Street, and the project site is located 0.1 mile from Martin Substation.

Point Martin – Phase Two

The Point Martin project is located on Steve Courter Way and Martin Street; the completed Phase One developed a 1.9-acre vacant area into a residential area. The second phase of the Point Martin project proposes to develop an additional 7.93 acres into 133-unit townhomes, with construction to begin in late 2017 and lasting 2 years. This project is approximately 0.1 mile from the proposed Jefferson-Egbert line.

City of Brisbane

Baylands

The Baylands Subarea is a Specific Plan Area designated by the City of Brisbane's General Plan (City of Brisbane, 2017a). The specific plan for redevelopment was submitted by the property owners for the Baylands in 2006, was updated in 2011, and continues to be reviewed and refined in discussions with Brisbane City Council. 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. 101 causeway, and on the south by Brisbane Lagoon. The subarea is located directly across Bayshore Boulevard from Martin Substation. 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 will occur in this area over a 20-year period.

3.18.3.2 Analysis of Cumulative Impacts

The intent of this project is to provide service reliability for existing users. Other than the incremental visual change following construction of the proposed Egbert Switching Station, no long-term impacts have been identified. Implementation of APMs will further minimize less-than-significant short-term construction impacts related to aesthetics, air quality, biology, cultural resources, geology and soils, GHGs, hazards, hydrology and water quality, noise, and traffic. As described in Chapter 3.0, Environmental Setting and Impact Assessment Summary, for agricultural and forest resources, land use, minerals, population and housing, public services, recreation, and utilities, either the project has no impacts or the impacts are so minor that they would have no contribution to cumulative impacts in the area. Because the majority of potential impacts related to the proposed project are construction phase related, the most relevant projects are either those that (1) overlap geographically with the proposed work areas or (2) occur in an overlapping time frame that could lead to potential cumulative effects on construction-related impacts such as traffic and transportation, air quality, or noise.

A discussion regarding each relevant resource area follows.

Aesthetics: The visible component of the project that will remain following construction is the proposed Egbert Switching Station structure and perimeter fencing, which is compatible with the industrial setting and the existing nearby structures. This includes the planned data center development at 320-400 Paul Avenue, assuming the project is constructed as designed. The similarity in terms of overall scale and form of the proposed switching station helps to visually integrate it into the surrounding existing/proposed urban-industrial setting. The proposed switching station, therefore, does not contribute substantially to a cumulative impact in visual conditions to the area.

Air Quality: The air emissions from construction of the project, as well as the nearby projects, will contribute to the cumulative air quality issues in the SFBAAB, particularly by increasing the quantity of regional nonattainment air quality pollutants (volatile organic compounds, NO_x, PM_{10}, and $PM_{2.5}$). Because the air emissions will be temporary and will only occur during limited portions of the 22-month construction period, the project will not have 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 in this document follow those guidelines, thereby further minimizing the significance of the project's contribution to regional air quality.

Biological Resources: The project has no potential to affect terrestrial biological resources other than the limited potential for white-tailed kite, American peregrine falcon, migratory birds, and American badger to be present in the project area while foraging. No direct or indirect impacts to special-status species are anticipated because no suitable habitat for special-status species will be impacted. With implementation of pre-construction bird surveys, and setting up appropriate buffers as needed in the unlikely event that active nests should be found in these urban areas that could be disrupted by construction, the project will have no effect on terrestrial biological resources. Construction of the projects listed in Table 3.18-2 could overlap in time with this project, and could also have a minor impact on these resources; however, any such effects would be minor, and no cumulative impacts would result.

With implementation of the APMs presented in Section 3.4.4.2, including rare plant measures should any be found at the Carter Street potential staging area, the project's minor effects on biological resources would not contribute substantially to any cumulative effect on biological resources. Because the project has no effect on wetlands or special aquatic sites, it will not contribute to any cumulative impacts on these resources.

Cultural and Paleontological Resources: The record search identified one historical district, resources in the project APEs. More resources may be present in areas where pavement and other obstacles precluded survey. APMs CR-1 through CR-4 will 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.

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 line, the excavation depths are unlikely to impact paleontological resources are given that fossils in Pleistocene sediments are rare at shallow depths.

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 paleontological and 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 APMs, the project will have a negligible contribution to any potential cumulative effects.

Geology and Soils: The project is in a seismically active area with underlying older geologic deposits in the majority of the project area. Geologic and seismic hazards with the greatest potential to impact the project include strong ground-shaking and seismic-induced ground failure, while hazards with the greatest potential to impact the project include liquefaction and landslides. However, with implementation of the APMs presented in Section 3.6.4.2, which provide for geotechnical investigations and appropriate engineering and construction measures, any potential impacts will be reduced to less-than-significant levels or eliminated entirely. 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 engineering and construction measures appropriate for that project. The impacts of the project are not individually significant, and will not contribute significantly to any potential hazard when considered in the context of each other as well as with other related projects that have been identified for development in the area.

Greenhouse Gas Emissions: GHG emissions directly generated during construction will result in a less-than-significant, short-term impact to climate change. GHG emissions will be further reduced with implementation of APM GHG-1. As shown in Table 3.7-3, the GHG emissions from the construction phase of the project, with or without APM GHG-1, are expected to be well below SCAQMD's recommended threshold of 10,000 metric tons of CO_2e per year. As a result, the project will 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 will not be cumulatively considerable.

Hazards and Hazardous Materials: All potential impacts related to hazards and hazardous materials are considered less than significant or nonexistent with implementation of the APMs described in Section 3.8.4.2. During construction activities, there is an increased potential for accidental release of fluids from a vehicle or motorized piece of equipment. Any impacts associated with such an accidental release will be reduced to a less-than-significant level by implementation of APMs. The implementation of PG&E's standard hazardous substance control, emergency response, and health and safety procedures will further minimize less-than-significant impacts.

Additional characterization of soils will occur prior to project construction to determine appropriate handling and disposal methods, as is expected for other excavation projects. Other projects in the vicinity, such as the proposed building construction on 320-400 Paul Avenue in San Francisco, 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.

The impacts of the proposed project related to hazards or hazardous materials are not individually significant, and cumulative effects of this and other related excavation projects will 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.

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 described in Section 3.9.4.2 will 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 sewers and to the Bay. These projects would similarly implement measures to minimize any water quality impacts. The project will not contribute substantially to any potential cumulative impacts on water quality.

These APMs include construction SWPPP preparation/implementation and spill prevention and response measures, among others. Potential operational impacts to water quality will be less than significant and will be further reduced through spill prevention and response measures at the proposed Egbert Switching Station; operation and maintenance activities along the transmission lines are not expected to impact water quality.

Noise: 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 of San Francisco noise standards for residential uses within 50 feet. Of the projects in Table 3.18-2, 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.

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 will be primarily limited to daytime hours compatible with local noise ordinances. Unplanned nighttime work will be infrequent, will occur in limited locations, and will be short term. A number of projects listed in Table 3.18-2 (including the nearest 320-400 Paul Avenue Internet Services Exchange, which is expected to be completed prior to construction at the proposed Egbert Switching location, and Caltrain Electrification/High-Speed Rail projects) are in the near vicinity, and may have overlapping construction periods. Noise measures, including noise-reduction measures at the proposed Egbert Switching Station, will reduce construction noise to meet municipal standards as described in Section 3.12, Noise. The project will not contribute significantly to cumulative noise impacts.

Transportation and Traffic: The project would have short-term temporary effects on traffic and parking 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 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 a period of up to approximately 10 days. With implementation of the APMs, the project will 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 will apply for 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 cities' permit process would address other activities in the area that may contribute to traffic impacts at the specific times of construction. Other projects will 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 3.18-2 are expected to have some overlap with project construction, including the Caltrain Electrification and California High-Speed Rail and Robertson Intermediate School Development. For others, the construction time line is uncertain but may overlap. Most of these projects will involve off-street construction, so the on-street impacts of the project are not expected to have a combined substantial cumulative impact. Although the construction schedules of some projects listed in Table 3.18-2 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.

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CHAPTER 4 ALTERNATIVES

4.1 INTRODUCTION

This discussion is included to comply with the CPUC's General Order (G.O.) 131-D, Section IX.B.1.c, but is not required as part of the CEQA analysis because this PEA has concluded that all impacts from the proposed project will be less than significant. CEQA does not require a review of alternatives where, as with this project, the proposed project would result in no significant environmental impacts after mitigation (CEQA Guidelines, California Code of Regulations, Title 14, Chapter 3 [Guidelines], § 15126.6, subd. [a] and [f][2][A]; CPUC Decision [D.] 10-09-025 at 10.). This is because, under CEQA, a "reasonable alternative" is one that could feasibly accomplish most of the basic objectives of the project and could avoid, or substantially lessen, one or more of the significant effects of the project (Guidelines, § 15126.6, subd. [a]).

This chapter begins with a brief description of considered system alternatives to the proposed project, including the No Project Alternative, considering the ability of each to meet the project objectives. This chapter then describes alternative sites and transmission line routes for the proposed project, discusses the advantages and disadvantages of each alternative, and, in compliance with G.O. 131-D, qualitatively compares the environmental advantages and disadvantages of the proposed project and the alternatives considered.

PG&E evaluated alternative methods, and sites and routes for achieving the basic project objectives, purpose, and need defined in Section 2.2, before recommending the proposed project for approval by the CPUC.

4.2 SYSTEM AND DEMAND SIDE ALTERNATIVES

The California Independent System Operator's (CAISO's) 2014-2015 ISO Transmission Plan discussed and recommended approval of the project. In March 2015, the CAISO Board of Governors approved the project. The stated scope was to address San Francisco reliability concerns stemming from an extreme event that could render Martin Substation inoperable by reconfiguring the existing 230 kV transmission lines terminating at Martin Substation to provide one 230 kV path bypassing Martin Substation.

Other solutions to improving the reliability and resiliency of PG&E's electric service to the northern peninsula area were considered by PG&E and/or CAISO. These system alternatives would also provide an alternative path for electrical power to serve the population of San Francisco. The alternatives as described in the following sections are estimated to cost more than the proposed project and, given the line lengths, will likely have greater environmental project impacts.

The system alternatives evaluation consisted of the following steps:

- Evaluating the existing electric transmission infrastructure to develop a range of alternatives for increasing the likelihood of continued electric service to customers of San Francisco in the event that the transmission system at Martin Substation is rendered inoperable.

- Evaluating the cost and feasibility of the infrastructure alternatives to determine which provides the greatest value while meeting the project objectives.

4.2.1 DESCRIPTION OF SYSTEM ALTERNATIVES

PG&E evaluated three alternative approaches to increasing the likelihood of continued electric service to customers of San Francisco in the event that the transmission system at Martin Substation is rendered inoperable: the Egbert Switching Station project, the Moraga-Potrero 230 kV project, and the Eastshore-Potrero 230 kV project. PG&E also evaluated the No Project Alternative. All system alternatives have a San Francisco terminus north of Martin Substation, and each has a different location for the terminus located outside San Francisco (i.e., different connection points to the 230 kV lines feeding San Francisco). All system alternatives will provide a new 230 kV single circuit into San Francisco without going through Martin Substation. The proposed project will install new underground 230 kV lines within the San Francisco Peninsula (peninsula). The other two alternatives have East Bay termini, and will install underground and overhead lines in the East Bay, cross under San Francisco Bay via submarine cable, and continue underground in San Francisco. The proposed project will require a new switching station, while the alternatives will use existing PG&E substations. The proposed project requires the shortest length of new 230 kV transmission lines. The three system alternatives, as well as the No Project Alternative, are summarized in the following sections.

4.2.1.1 Egbert Switching Station (Proposed Project)

The proposed project will require the construction of a new switching station on approximately 1.8 acres of private land. The project requires the installation of approximately 3.9 miles of new 230 kV underground transmission lines. The transmission lines will require very few new easements because most of the lines will be installed within city streets using PG&E's existing franchise agreements. Associated work will include a minor modification at Martin Substation. This alternative will provide bypass capability of approximately 418 megawatts (MW). PG&E estimates the proposed project would cost between $205.8 and $260.8 million in 2022 dollars.

4.2.1.2 Moraga-Potrero 230 kV Alternative

In 2013, PG&E and the CAISO considered providing 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 the following components:

- 4.5-mile overhead section between Moraga Substation and Claremont Substation in Oakland (length assumes paralleling the existing Moraga–Claremont 115 kV line)
- 5- to 9-mile underground section between Claremont Substation and San Francisco Bay (length is dependent on route selected)
- 5- to 11-mile section of submarine cable across San Francisco Bay (length is dependent on route selected)
- Approximately 0.5-mile underground section between San Francisco Bay and Potrero Switchyard

- Associated work at Moraga and Potrero substations to provide the terminus

The project would be designed to provide additional capacity of over 450 MW.

This project alternative was not proposed for construction primarily because of its anticipated higher cost than the proposed project, and potentially greater environmental impacts resulting from much longer line lengths. The project costs are assumed to be in the range of $500 million to $1 billion.

4.2.1.3 Eastshore–Potrero 230 kV Line

PG&E considered providing 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 likely include the following components:

- Approximately 0.5-mile overhead section between Eastshore Substation and San Francisco Bay
- Approximately 21-mile section of submarine cable across San Francisco Bay (length will vary depending on route selected)
- Approximately 0.5-mile underground section between San Francisco Bay and Potrero Switchyard
- Associated work at Eastshore and Potrero substations to provide the terminus

The project would be designed to provide additional capacity of over 450 MW. This project alternative was not proposed primarily because of its anticipated higher cost than the proposed project, and potentially greater environmental impacts resulting from much longer line lengths. The project costs would likely be similar to those for the Moraga–Potrero line alternative.

4.2.1.4 No Project Alternative

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. There would be no new infrastructure to provide improved reliability 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 (see Section 2.2).

The No Project Alternative fails to meet CAISO's and PG&E's basic project objectives; PG&E, therefore, rejected this alternative.

4.2.2 Comparison of System Alternatives

The objectives of the comparative analysis of system alternatives are as follows:

- Determine whether each of the alternatives would meet the project objectives.
- Consider the cost effectiveness and feasibility of alternatives.

- Eliminate the alternative from further consideration if it is not feasible, does not meet the project objectives, or does not provide the comparative greatest value.

PG&E determined that all three system alternatives appear to be feasible, would improve system resiliency, and would increase the likelihood of continued electric service to the six transmission-supplied substations in San Francisco in the event that the transmission system at Martin Substation is rendered inoperable by an extreme event. However, only the proposed project matches the CAISO-approved project (Egbert Switching Station Project) and meets all the PG&E project objectives, including minimizing environmental impacts and cost to ratepayers.

PG&E has performed sufficient preliminary engineering for the proposed project on which to base its cost estimates. For the other alternatives, PG&E performed "desk top" evaluations, but did not perform preliminary engineering to develop detailed cost estimates or environmental analyses.

Visual observation for the overland sections of the Moraga–Potrero 230 kV line alternative found that locating acceptable and feasible routes will be challenging. Steep terrain and residential areas along the existing ROW will require a significant amount of engineering and public outreach to locate an acceptable route between Moraga Substation and San Francisco Bay.

The Eastshore–Potrero 230 kV line alternative is primarily a submarine line with very short underground segments on the Potrero Switchyard side and a short overhead segment from the bay to Eastshore Substation. Additional research, engineering, and discussions with and resource agencies will be required to further confirm the feasibility of the Eastshore–Potrero 230 kV line alternative. Given the similarities between this alternative and the Moraga-Potrero 230 kV line alternative, the estimated cost of the Eastshore-Potrero 230 kV line is assumed to be similar.

Table 4-1 provides a comparison of the key features and estimated costs of the three system alternatives.

Table 4-1. Comparison of Alternatives

Alternative	Transmission Line Length (miles)			Cost Estimate (cost in 2022 dollars; in millions)		
	Under-ground	Over-head	Submarine	Base	Recommended Project Contingency	Total Project Cost
Egbert Switching Station (Proposed Project)	3.9	0	0	$205.8	$55	$260.8
Moraga–Potrero 230 kV Line	5.5-9.5	4.5	5-11	-	-	$500 - $1000
Eastshore–Potrero 230 kV Line	0.5	0.5	21	-	-	$500 - $1000

Comparing the estimated costs indicates that the proposed project is the lowest cost alternative. In addition, the proposed project is the only system alternative that meets the project objective of minimizing environmental impacts because the other two alternatives will have much longer transmission lines. Because of its shorter length, the proposed project is likely to have fewer and less severe environmental impacts than the other two alternatives. For these reasons, the project was retained as the proposed project.

4.2.3 DEMAND SIDE ALTERNATIVES

PG&E considered whether the project objectives could be met with demand side alternatives. These alternatives include distributed generation, energy efficiency, demand response and energy storage, also known as distribution energy resources (DER). PG&E determined that the amount of DER needed with Martin Substation inoperable on a typical weekday would be more than 350 MW for most hours of the day and more than 250 MW for the early morning and early evening hours. This assumes that the typical weekday power demand in San Francisco is more than 650 MW for most hours and that the TBC can deliver 300 MW into San Francisco.

PG&E's forecast of power demand in San Francisco, including DER, shows fairly flat growth. Demand reductions achieved due to DER are forecast to be offset by demand growth from strong construction and development markets. However, even if daily power demand in San Francisco remains at current levels or even drops; it does not appear that DER could offset the loss of power imports up the peninsula that would result from Martin Substation being inoperable.

Current and forecasted DER levels in San Francisco are not expected to reach the level associated with Martin Substation being inoperable (more than 350 MW) in the foreseeable future. And, due to limits on the availability of DER throughout the day, DER would not be able to meet the hour-to-hour demand shortfall in San Francisco resulting from an outage of Martin Substation that could last for several weeks. 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. And energy storage would be very costly and would require a significant amount of time to recharge every day.

In light of the foregoing analysis, PG&E determined that demand side alternatives would not achieve the project objectives.

4.3 SUMMARY OF SITE ALTERNATIVES AND ROUTE OPTIONS

PG&E identified and evaluated potential sites and routes for the proposed project and alternatives that would meet the project objectives. The analysis included stakeholder outreach to discuss the project and to seek information about the study area.

PG&E examined several preliminary potential sites for the proposed project before retaining three site alternatives. Potential transmission line route options to each of the three site alternatives were identified and examined. The three site alternatives and their associated transmission line route interconnections were evaluated against the project objectives to ultimately identify the proposed project.

4.3.1 SITING AND STAKEHOLDER INFORMATION

To support project objectives, PG&E conducted an initial review of potential switching station sites using a study area within 2 miles of the existing Martin Substation, which includes the cities of San Francisco, Daly City, Brisbane, and South San Francisco, as well as the unincorporated

San Mateo County. Given the limited availability of land and the density of existing structures in the study area, switchgear was assumed to be housed within a building instead of having an outdoor arrangement, which would likely require more than 10 acres. The new transmission lines were assumed to be underground, in part to more readily connect to the existing transmission lines, and because the study area does not appear to have sufficient space for three new overhead transmission lines.

Preliminary potential sites and transmission lines route options were identified and evaluated within the study area thorough literature review; GIS database searches and mapping; review of aerial photography (e.g., Google Earth); and stakeholder, agency, and public information. Outreach efforts included meetings with stakeholders, mailings to addresses within at least 300 feet of the proposed project components under evaluation, two open house events (held on May 22 and 24, 2017), and installation of a project website and toll-free number. Stakeholder meetings were held with government agencies (local and state), elected officials, city managers, city planning and public works departments, local business, and home owner associations / neighborhood organizations.

4.3.2 Alternatives Considered

PG&E examined several sites for the substation component of the proposed project before selecting three sites (Figure 4.3-1) that would meet the project objectives described in Section 2.2. A summary description of the three retained sites and associated routing considerations is provided in the following sections. Potential transmission line route options to each site were identified. Depending on the proximity to the site, either the Martin-Embarcadero #1 230 kV transmission line (HZ-1) or Martin-Embarcadero #2 230 kV transmission line (HZ-2) (interchangeable in project objectives) was identified for the line reroute from Martin Substation to Embarcadero Substation. The route options to each site were reviewed by evaluating land ownership and jurisdiction, natural resources, and engineering, operations, and construction considerations.

4.3.2.1 Egbert Switching Station – Proposed Project

A switching station at this location within San Francisco would be at the end of a dead-end street abutting a UPRR rail line used by Caltrain (Figure 4.3-2). The site parcel and adjoining parcels are zoned industrial (PDR-2 or M-1). The site is adjacent to primarily industrial and commercial uses; residential zoning and use are across the street, and residential use is across the rail line from the site. The site is currently used for equipment and material storage, and contains no natural habitat. This site is the farthest of the alternatives to Martin Substation.

Egbert-Embarcadero Line Route Options

Route options were considered for connecting to the existing HZ-1 line to Embarcadero Substation. The most direct route option along Egbert Avenue was retained because of the shorter length, and most of the route is located within franchise.

Insert

Figure 4.3-1 Study Area and Preliminary Potential Sites with Zoning Overlay

Insert

Figure 4.3-2 Proposed Egbert Switching Station and Transmission Line Proposed and Alternative Routes

Jefferson-Egbert Line Route Options

Route options connecting to this switching station site from the west were constrained by a high density of utilities within the roads crossing under U.S. 101 and piers supporting the highway. Two trenchless crossing locations under the highway were identified as reasonable and feasible. West of the highway, these two route options have a similar alignment in San Francisco, and are within the same alignment in Daly City and Brisbane. The route along Crane Street to Mansell Street-Westbound was retained because of the shorter length and fewer bends than either other route option; has less trenchless crossings than the east route option; and has more feasible trenchless crossing of the west route options.

Martin-Egbert Line Route Options

The three route options were considered to re-use the existing HZ-1 line remnant south to Martin Substation. The route option along Egbert Avenue was retained because it is shorter, most of the route is located within franchise, and it avoids the engineering and construction constraints of crossing under U.S. 101.

4.3.2.2 Bayshore Switching Station– Alternative Site

Existing zoning at this location within Brisbane is C-1, Commercial Mixed Use. A native plant nursery with a greenhouse uses a portion of this parcel. The Brisbane Baylands Final Environmental Impact Report (EIR) (City of Brisbane, 2015) describes the site as having nonnative annual grassland habitat. 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 mile of the site. The topography and vegetation could provide visual screening from sensitive locations. The EIR, currently in review by Brisbane, identifies this area as potential open space with educational use.

The location would be expected to have relatively shorter transmission line lengths compared to the Egbert Switching Station Site given the site's closer proximity to existing Martin Substation, the existing Jefferson-Martin line, and the existing HZ lines (Figure 4.3-3).

Bayshore-Embarcadero Line Route Options

Route options were considered for connection to the existing HZ-1 and HZ-2 lines. The route option along Bayshore Boulevard was retained because of the shorter length, location within franchise, and avoidance of line siting within the unresolved street locations of the Baylands Master Plan.

Jefferson-Bayshore Line Route Options

Three route options were considered for connection to the existing Jefferson-Martin line. The route option along Ice House Hill was retained because it is shorter and would avoid construction and operation constraints from the high density of utilities within Bayshore Boulevard.

Insert

Figure 4.3-3 Alternative Bayshore Switching Station and Transmission Line Alternative Routes and Options

Martin-Bayshore Line Route Options

Route options to connect this switching station site to existing Martin Substation included two options that would re-use the existing Jefferson-Martin line remnant in Bayshore Boulevard. The Ice House Hill route option, which would connect to the remnant, was retained because of its shorter length within Bayshore Boulevard, re-use of the existing Jefferson-Martin line remnant, and avoidance of line siting within the unresolved street locations of the Baylands Master Plan.

4.3.2.3 Geneva Switching Station – Alternative Site

This site is in Daly City to the west of the Cow Palace complex, and is zoned Commercial (C-RO, commercial, retail, and office) with residential areas across adjacent streets (Figure 4.3-4). The parcel is a former drive-in theatre with sparse, ruderal habitat, and is bordered to the west and south by mature trees. The mature trees on the parcel and on the adjacent parcel may provide some visual screening of the site. Residences are within 400 feet of the site. The parcel is adjacent to the SBM HCP boundary. Daly City's 2030 General Plan and its Cow Palace Master Area Plan have identified this location as part of a future mixed use, commercial, and residential development in the Cow Palace complex area.

This site is the closest of the alternatives to Martin Substation, the existing Jefferson-Martin line, and the existing HZ lines (Figure 4.3-4).

Geneva-Embarcadero Line Route Options

Route options were considered that would connect to the existing HZ-2 line from the alternative Geneva Switching Station. The route option along Geneva Avenue was retained because of its shorter length, and the route is primarily within franchise.

Jefferson-Geneva Line Route Options

One route option connected to the existing Jefferson-Martin line in Guadalupe Canyon Parkway, while two other route options would connect further east in Bayshore Boulevard. The route option along Carter Street connect in Guadalupe Canyon Parkway was retained because of the shorter length than the other route options.

Martin-Geneva Line Route Options

Two route options from the existing Martin Substation to the alternative Geneva Switching Station would connect to the existing HZ-2 line remnant, while a third route option would connect at the HZ-2 terminal within existing Martin Substation. The route option along Geneva Avenue was retained because the route is primarily within franchise and the line would re-use the HZ-2 line remnant into Martin Substation.

4.3.3 ALTERNATIVES COMPARISON

The three retained site alternatives and their associated transmission line route interconnections were compared. A summary of the proposed project and the two alternatives, including land use, resource permitting, environmental considerations, and engineering, construction and operational considerations is provided in Table 4-2.

Insert

Figure 4.3-4 Alternative Geneva Switching Station and Transmission Line Alternative Routes and Options

Table 4-2. Summary of the Proposed Project and Alternatives

Key Elements	Proposed Project – Egbert Switching Station and Lines	Alternative – Bayshore Switching Station and Lines	Alternative – Geneva Switching Station and Lines
Site Size (acreage)	1.7	6.6	11.1
Line Length (total miles)	3.9	2.6	2.3
Existing Zoning and Land Use	Industrial. Equipment and materials staging and laydown use. Routes are within franchise or across private industrial and public properties.	Commercial Mixed-Use. Nursery with greenhouse on-site. Mainly nonnative, ruderal vegetation. Routes are within franchise or across private commercial properties that includes horse stables and corral area.	Commercial. Construction staging and laydown use. Routes are within franchise and across state commercial property.
Adjacent Land Use	Adjacent zoning is industrial. Adjacent land uses: industrial, commercial, and residential.	Adjacent zoning is commercial mixed use. Adjacent land uses: industrial, public (fire station), and commercial.	Within Cow Palace Area Master Plan for a commercial mixed use area. Residential across Carter Street.
Planned Land Use	Industrial. No active permitting. One route briefly crosses private industrial property, one of which is in construction.	Institutional - charter high school, open space - play fields (Brisbane Baylands EIR) High-speed Rail Alternative B for light maintenance facility overlaps with the routes around Ice House Hill.	City 2030 General Plan describes commercial mixed-use development.
Environmental, Engineering, Construction, and Operational Considerations			
Aesthetics	An industrial and commercial area with residential uses across street and rail line. Design shields or generally screens equipment from view.	Mature canopy trees and topography along Bayshore Boulevard partially screen views. Old Bayshore Tunnel Trail adjacent. Residences within 0.25 mile. Site size supports layout options such as setbacks or vegetation screening.	Mature trees and tall shrubs generally screen views of the site. Briefly visible from Guadalupe Canyon Parkway, a San Mateo County Scenic Corridor, and Saddle Loop Trail on San Bruno Mountain. Residences within 400 feet. Site size supports layout options such as setbacks or vegetation screening.

Table 4-2. Summary of the Proposed Project and Alternatives

Key Elements	Proposed Project – Egbert Switching Station and Lines	Alternative – Bayshore Switching Station and Lines	Alternative – Geneva Switching Station and Lines
Land Cover/Biological Resources	Site is developed/ruderal. Routes are paved/ruderal. Nesting bird potential (street trees, parks), white-tailed kite, American peregrine falcon, and American badger.	Site and two routes are developed/ruderal/nonnative annual grassland habitat; one route is paved. Mature trees are on two sides of site. Similar species to proposed project. Potential habitat for sensitive species found on San Bruno Mountain on adjacent Ice House Hill.	Site is developed/ruderal; adjacent to Habitat Conservation Plan; may have rare plant habitat. Routes paved. Sparse, ruderal habitat on-site and bordered by mature trees on two sides. Similar species to proposed project. Site would be surveyed for the potential for rare plant habitat and any habitat avoided.
Hydrology and Water Quality	Site and portion of the routes are within potential inundation zones attributable to reservoir failure.	One route crosses a drainage. Two routes are in unpaved areas. Two sides of site and 0.5 mile of a route are along 100-year flood plain.	Outside of potential inundation or flood areas, unlike the proposed project and the Bayshore Alternative. Shorter length of routes; less potential for erosion.
Resource Permitting	None anticipated.	Potential 404, 401, and 1602 permitting if waterway impacts can't be avoided (trenchless or other design).	None anticipated.
Cultural and Paleontological Resources	Two cultural resources and the historic district in area of potential effect (APE) will not be impacted. Sensitivity for buried resources ranges from low to high within the APE. Areas of moderate to very low paleontological sensitivity.	Two cultural resources are adjacent to or within the APE of two routes. Historic district in APE will not be impacted. Sensitivity for buried resources range same as proposed project. Areas of low or very low paleontological sensitivity.	No known cultural resources in APE. Historic district in APE will not be impacted. Sensitivity for buried resources range same as proposed project. Areas of paleontological sensitivity same as Bayshore Alternative.
Air Quality/GHG Emissions/Noise	Temporary construction-related dust, equipment emissions, and noise are expected.	Shorter routes assume shorter construction schedule and fewer impacts than proposed project.	Shorter routes assume shorter construction schedule and fewer impacts than proposed project.
Known Remedial Action	None identified.	Open groundwater assessment and interim remedial action site (Brisbane Baylands Cleanup Program Site); open groundwater and soil remediation (Tuntex Properties Cleanup Program Site) under RWQCB oversight.	None identified.

Table 4-2. Summary of the Proposed Project and Alternatives

Key Elements	Proposed Project – Egbert Switching Station and Lines	Alternative – Bayshore Switching Station and Lines	Alternative – Geneva Switching Station and Lines
Geology and Soils	The proposed site, routes on Egbert Avenue, and Jefferson-Egbert line to Paul Avenue are underlain by potentially liquefiable material. Proposed Jefferson-Egbert line will cross a mapped debris flow source area on Carter Street.	More than either alternative. Routes around Ice House Hill, and the route in Bayshore Boulevard would cross mapped debris flow source areas. Northern side of Ice House Hill has a known landslide. Very high liquefaction susceptibility on site and routes. Project area has bay mud / fill.	More than the proposed project but less than the Bayshore Alternative. A known landslide is mapped on the western third of the site. The alternative Jefferson-Geneva line would cross the same mapped debris flow source area as the proposed Jefferson-Egbert line.
Route Slope Considerations	Various lengths on Jefferson-Egbert line have slopes that may require additional design cost.	Slope between site and Bayshore Boulevard; northern side of Ice House Hill to Bayshore Boulevard have slopes that may require additional design cost.	Jefferson-Geneva line has slopes that may require additional design cost.
Transportation and Traffic	Short-term construction partial road closures, and possibly one full road closure (one, one-way block for approximately 10 days).	Less than other alternatives with partial road closures limited to one route in franchise (1.4 miles).	Shorter route length (less than 1.5 mile) in franchise than proposed project; longer (approximately 1 mile) than Bayshore Alternative.
Highway or Railway Crossing	One highway crossing.	None.	None.
Underground Existing Utilities	Moderate – high density.	Low – high density.	Moderate – high density.

4.3.3.1 Proposed Project – Egbert Switching Station and Transmission Lines

The proposed project includes construction of a new switching station (Egbert Switching Station) and three new transmission lines (Egbert-Embarcadero, Martin-Egbert, and Jefferson-Egbert) created by re-routing the existing HZ-1 and Jefferson-Martin lines (Figure 4.3-2).

Description

The switching station will be located at 1755 Egbert Avenue in San Francisco (see additional project description in Chapter 2.0, Project Description).

Comparative Summary

Site and routes are located on developed or ruderal parcels, and no resource permitting is anticipated. Overall transmission line extensions would total 1.3 to 1.6 miles more than the line extensions for either of the alternatives. More short-term partial road closures will occur during construction to install the transmission lines and to maintain public safety than the other two alternatives with shorter length of routes in streets. Crossing of U.S. Highway 101 (U.S. 101) is required for this alternative and not for the other two alternatives. Design will address known and potential geological conditions and inundation potential on-site and on the routes similar to the other alternatives. There is no known open remediation action on-site or routes, whereas the Bayshore Alternative would require working through a remedial action site.

The site is in an industrial and commercial area, and is currently used for equipment and materials staging. The site is within approximately 50 feet of residential uses across Egbert Avenue, whereas the other two alternatives are within 230 to 1,200 feet of residential uses. Switching station equipment will be shielded or generally screened from view by the building, equipment screening, and site perimeter fencing. The proposed project has greater compatibility with existing and planned land use for the switching station site than the alternatives. The proposed project has the highest compatibility with the project objectives, and it is preferred.

4.3.3.2 Alternative – Bayshore Switching Station and Transmission Lines

This alternative includes construction of a new switching station (Bayshore Switching Station) and three new transmission lines (Bayshore-Embarcadero, Martin-Bayshore, and Jefferson-Bayshore) created by re-routing the existing HZ-2 and Jefferson-Martin lines (Figure 4.3-3).

Description

The switching station would be located at 3435 Bayshore Boulevard in Brisbane. The current site use includes a native plant nursery and greenhouse. This site is the closest to the existing Jefferson-Martin line of any of the alternatives. The Martin-Bayshore and Jefferson-Bayshore lines would be approximately 0.5 and 0.7 mile long, respectively, and would exit the site to the east on private property to either side of a manufacturing facility. The Martin-Bayshore line would cross an unnamed drainage south of Ice House Hill. The routes would then turn north staying west of the rail line and progressing along the toe 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 routes would generally follow existing dirt roads and would circle back through an area with a corral and horse stables before reaching Bayshore Boulevard and the interconnection with the existing Jefferson-Martin line. The Jefferson-Martin line would be split into two interception points for the two new lines, using the first segment back to Jefferson Substation and the second segment back to Martin Substation. The Bayshore-Embarcadero line extension to the HZ-2 line would exit the site to the west across an area with dense, scrub vegetation and some mature trees onto Bayshore Boulevard within franchise. Commercial use is found along the western side of Bayshore Boulevard. The route 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 route would continue west when 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 route 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 route would continue west within Midway Drive in franchise before turning north on Schwerin Street, where it would intersect with the HZ-2 line near the intersection with Ottilla Street for a total of approximately 1.4 miles.

Comparative Summary

This alternative has slightly longer total transmission lines than the Geneva Alternative (about 0.3 mile) and a shorter total length than the proposed project (about 1.3 miles). Less construction would occur within streets; construction for two routes would be through unpaved areas, unlike the other alternatives. Crossing of highways or railways is not required for this alternative compared to one crossing for the proposed project. While adjacent to franchise, the slope to Bayshore Boulevard from the east is steep and could present operational challenges. More known and potential geology and hydrology conditions would be addressed during design such as very high liquefaction susceptibility potential, mapped debris flow source area, routes adjacent to a known landslide, and adjacent 100-year flood plain than either alternative. Open remedial actions under RWQCB oversight overlap with components of this alternative.

Greater potential for biological resources occurs with this alternative than with the other alternatives, and permitting may be required if project design cannot avoid potential impacts to the unnamed drainage. Two known cultural resources are within the potential area of effects for two routes; judicious final routing could minimize or avoid potential impacts. The size of this site supports layout options such as setbacks or vegetation screening. Old Bayshore Tunnel Trail, which has informal recreational use, would be adjacent to the site where it runs along the southern end of Ice House Hill.

This alternative overlaps with current commercial agricultural use on-site (native plant nursery and greenhouse) and on two of the routes (horse stables and corral). This site and routes around Ice House Hill are within the Brisbane Baylands development proposal under Brisbane's review and the High-speed Rail light maintenance facility Alternative B location. This alternative switching station site has lower compatibility with existing and planned land uses than the proposed project. As previously described, the Bayshore Alternative is less compatible with the environmental (including land use) project objectives than the preferred project, and it is not preferred.

4.3.3.3 Alternative – Geneva Switching Station and Transmission Lines

This alternative includes construction of a new switching station (Geneva Switching Station) and three new transmission lines (Geneva-Embarcadero, Martin-Geneva, and Jefferson-Geneva) created by re-routing the existing HZ-2 and Jefferson-Martin lines (Figure 4.3-4).

Description

The switching station would be located at 2150 Geneva Avenue in Daly City. The three line extensions would be of similar length, about 0.8 mile each for the Geneva-Embarcadero and Martin-Geneva lines connecting with the HZ-2 line and about 0.7 mile for the line connecting with the Jefferson-Martin line. The three lines would be within franchise except when exiting the site to Carter Street, where a state parcel would be crossed for approximately 250 feet. Continuing north in Carter Street, the Geneva-Embarcadero and Martin- Geneva lines would be located within franchise before turning east on Geneva Avenue in franchise and interconnecting with the HZ-2 Line near the intersection of Geneva Avenue and Schwerin Street. The HZ-2 line would be split into two interception points for the two new lines, using the first segment back to Martin Substation and the second segment back to Embarcadero Substation. 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 route for both lines is surrounded by commercial/ residential area. The extension between the Jefferson-Martin line and the site would follow the same alignment described for the Jefferson-Egbert line within Guadalupe Canyon Parkway and Carter Street connecting into the site before Geneva Avenue.

Comparative Summary

The Geneva Alternative would have a shorter total transmission line length than either the Bayshore Alternative or the proposed project. All three transmission lines connect to the site from Carter Street, which may cause operational congestion. Crossing of highways or railways is not required for this alternative. This alternative would have less potential for impacts to biological resources than the Bayshore Alternative or the proposed project because of shorter line lengths adjacent to or through potential habitat. A pre-construction survey would occur to identify any rare plant habitat on-site and mark any habitat for avoidance. A known landslide on the western third of the site would be avoided, or design would address this geologic condition. The alternative Jefferson-Geneva line would cross the same mapped debris flow source area as the proposed Jefferson-Egbert line. Otherwise, this alternative has fewer geological and hydrological constraints than the other alternatives.

The site is briefly visible from Guadalupe Canyon Parkway, a San Mateo County Scenic Corridor, and Saddle Loop Trail on San Bruno Mountain. The site size supports layout options such as setbacks or vegetation screening. Daly City's 2030 General Plan and the Cow Palace Master Plan describe planned commercial/mixed-use development for the site and surrounding area. This alternative site has a lower compatibility with existing and planned land use than the proposed project. As described previously, the Geneva Alternative is less compatible with the environmental (including land use) project objectives than the preferred project, and it is not preferred.

4.4 PROPOSED PROJECT ALTERNATIVES CONCLUSION

It was determined that all three alternative sites and routes have the ability to meet the project objectives. However, after considering the existing and planned land use associated with each alternative site, the Egbert Switching Station site and routes were selected as the proposed project. The proposed project has the highest existing and planned land use compatibility. The proposed site transmission line routes do not cross sensitive drainages or remedial action sites. The new switching station is the only permanent aboveground component of the project, whereas the lines will be installed and operate underground. In addition, the alternative projects offer no perceptible benefit that is not also provided by the proposed project. As described in Chapter 3.0, Environmental Setting and Impact Assessment Summary, construction of the proposed project will result in no significant impacts.

4.5 REFERENCES

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CHAPTER 5 LIST OF PREPARERS

The following PG&E staff and consultants participated in preparation of this Proponent's Environmental Assessment:

PEA Project Management

Mark Schexnayder/PG&E
Brandon Liddell/PG&E
Colleen Taylor/CH2M
Mary Gerut/CH2M

Project Description and Alternatives

Colleen Taylor/CH2M
Lynne Hosley/CH2M

Aesthetics

Marsha Gale/Environmental Vision

Air Quality and Greenhouse Gas Emissions

Elyse Engel/CH2M
Jerry Salamy/CH2M

Biological Resources

David Rasmussen/CH2M

Cultural and Paleontological Resources

Sharon Waechter/ FarWestern (cultural resources)
Kim Carpenter/FarWestern (cultural resources)
MariaElena Conserva/CH2M (paleontological resources)

Agriculture and Forest Resources, Land Use and Planning, Mineral Resources, Population and Housing, Public Services, Recreation, Utilities and System Services, and Mandatory Finds of Significance and Cumulative Impacts

Mary Gerut/CH2M
Lynne Hosley/CH2M

Geology and Soils

Wesley Irons/Northgate Environmental
Ana Demorest/CH2M

Hazards and Hazardous Materials, and Hydrology and Water Quality

Kevin Torres/Northgate Environmental
Ana Demorest/CH2M

Noise

Mark Bastasch/CH2M

Transportation and Traffic

Lisa Valdez/CH2M

Appendix A
List of Parcels within 300 Feet

Appendix B
Electric and Magnetic Fields (EMF) Discussion

Appendix C
Native American Heritage Commission and Native American Correspondence

Electric and Magnetic Fields (EMF) Discussion

The California Public Utilities Commission (CPUC) and the California Department of Health Services (CDHS) have not concluded that exposure to magnetic fields from utility electric facilities is a health hazard. Many reports have concluded that the potential for health effects associated with electric and magnetic field (EMF) exposure is too speculative to allow the evaluation of impacts or the preparation of mitigation measures.

EMF is a term used to describe electric and magnetic fields that are created by electric voltage (electric field) and electric current (magnetic field). Power frequency EMF is a natural consequence of electrical circuits, and can be either directly measured using the appropriate measuring instruments or calculated using appropriate information.

Electric Fields

Electric fields are present whenever voltage exists on a wire, and are not dependent on current. The magnitude of the electric field is primarily a function of the configuration and operating voltage of the line and decreases with the distance from the source (line). The electric field can be shielded (i.e., the strength can be reduced) by any conducting surface, such as trees, fences, walls, buildings, and most types of structures. The strength of an electric field is measured in volts per meter (V/m) or kilovolts per meter (kV/m).

Magnetic Fields

Magnetic fields are present whenever current flows in a conductor, and are not dependent on the voltage present on the conductor. The strength of these fields also decreases with distance from the source. However, unlike electric fields, most common materials have little shielding effect on magnetic fields.

The magnetic field strength is a function of both the current on the conductor and the design of the system. Magnetic fields are measured in units called Gauss. However, for the low levels normally encountered near power systems, the field strength is expressed in a much smaller unit, the milligauss (mG), which is one thousandth of a Gauss.

Power frequency EMF is present where electricity is used. This includes not only utility transmission lines, distribution lines, and substations, but also the building wiring in homes, offices, and schools, and in the appliances and machinery used in these locations. Typical magnetic fields from these sources can range from below 1 mG to above 1,000 mG (1 Gauss).

Magnetic field strengths diminish with distance. Fields from compact sources (i.e., those containing coils such as small appliances and transformers) decrease in inverse proportion to the distance from the source cubed. For three-phase power lines with balanced currents, the magnetic field strength drops off inversely proportional to the distance from the line squared. Fields from unbalanced currents, which flow in paths such as neutral or ground conductors, fall off inversely proportional to the distance from the source. Conductor spacing and configuration also affect the rate at which the magnetic field strength decreases.

The magnetic field levels of PG&E's overhead and underground transmission lines will vary depending upon customer power usage. Magnetic field strengths for typical PG&E transmission line loadings at the edge of rights-of-way are approximately 10 to 90 mG. Under peak load conditions, the magnetic fields at the edge of the right-of-way would not likely exceed 150 mG. There are no long-term, health-based state or federal government EMF exposure standards. State regulations for magnetic fields have been developed in New York and Florida (150 mG and 200 mG at the edge of the right-of-way). However, these are based on limiting exposure from new facilities to levels no greater than existing facilities.

The strongest magnetic fields around the outside of a substation come from the power lines entering and leaving the station. The strength of the magnetic fields from transformers and other equipment decreases quickly with distance. Beyond the substation fence, the magnetic fields produced by the equipment within the station are typically indistinguishable from background levels.

Possible Health Effects

The possible effects of EMF on human health have come under scientific scrutiny. Concern about EMF originally focused on electric fields; however, much of the recent research has focused on magnetic fields. Uncertainty exists as to what characteristics of magnetic field exposure need to be considered to assess human exposure effects. Among the characteristics considered are field intensity, transients, harmonics, and changes in intensity over time. These characteristics may vary from power lines to appliances to home wiring, and this may create different types of exposures. The exposure most often considered is intensity or magnitude of the field.

There is a consensus among the medical and scientific communities that there is insufficient evidence to conclude that EMF causes adverse health effects. Neither the medical nor scientific communities have been able to provide any foundation upon which regulatory bodies could establish a standard or level of exposure that is known to be either safe or harmful. Laboratory experiments have shown that magnetic fields can cause biologic changes in living cells, but scientists are not sure whether any risk to human health can be associated with them. Some studies have suggested an association between surrogate measures of magnetic fields and certain cancers while others have not.

California Public Utilities Commission Decision Summary

Background

On January 15, 1991, the CPUC initiated an investigation to consider its role in mitigating the health effects, if any, of electric and magnetic fields from utility facilities and power lines. A working group of interested parties, called the California EMF Consensus Group, was created by the CPUC to advise it on this issue. It consisted of 17 stakeholders representing citizens groups, consumer groups, environmental groups, state agencies, unions, and utilities. The Consensus Group's fact-finding process was open to the public, and its report incorporated concerns expressed by the public. Its recommendations were filed with the Commission in March 1992.

In August 2004 the CPUC began a proceeding known as a “rulemaking” (R.04-08-020) to explore whether changes should be made to existing CPUC policies and rules concerning EMF from electric transmission lines and other utility facilities.

Through a series of hearings and conferences, the Commission evaluated the results of its existing EMF mitigation policies and addressed possible improvements in implementation of these policies. The CPUC also explored whether new policies are warranted in light of recent scientific findings on the possible health effects of EMF exposure.

The CPUC completed the EMF rulemaking in January 2006 and presented these conclusions in Decision D.06-01-042:

- The CPUC affirmed its existing policy of requiring no-cost and low-cost mitigation measures to reduce EMF levels from new utility transmission lines and substation projects.
- The CPUC adopted rules and policies to improve utility design guidelines for reducing EMF, and provides for a utility workshop to implement these policies and standardize design guidelines.

- Despite numerous studies, including one ordered by the Commission and conducted by the California Department of Health Services, the CPUC stated "we are unable to determine whether there is a significant scientifically verifiable relationship between EMF exposure and negative health consequences."
- The CPUC said it will "remain vigilant" regarding new scientific studies on EMF, and if these studies indicate negative EMF health impacts, the Commission will reconsider its EMF policies and open a new rulemaking if necessary.

In response to a situation of scientific uncertainty and public concern, the decision specifically requires PG&E to consider "no-cost" and "low-cost" measures, where feasible, to reduce exposure from new or upgraded utility facilities. It directs that no-cost mitigation measures be undertaken, and that low-cost options, when they meet certain guidelines for field reduction and cost, be adopted through the project certification process. PG&E was directed to develop, submit and follow EMF guidelines to implement the CPUC decision. Four percent of total project budgeted cost is the benchmark in implementing EMF mitigation, and mitigation measures should achieve incremental magnetic field reductions of at least 15%.

Reviews of EMF Studies

Hundreds of EMF studies have been conducted over the last 20 years in the areas of epidemiology, animal research, cellular studies, and exposure assessment. A number of nationally recognized multi-discipline panels have performed comprehensive reviews of the body of scientific knowledge on EMF. These panels' ability to bring experts from a variety of disciplines together to review the research gives their reports recognized credibility. It is standard practice in risk assessment and policymaking to rely on the findings and consensus opinions of these distinguished panels. None of these groups have concluded that EMF causes adverse health effects or that the development of standards were appropriate or would have a scientific basis.

Reports by the National Research Council/National Academy of Sciences, American Medical Association, American Cancer Society, National Institute of Environmental Health Sciences, World Health Organization, International Agency for Research on Cancer, and California Department of Health Services conclude that insufficient scientific evidence exists to warrant the adoption of specific health-based EMF mitigation measures. The potential for adverse health effects associated with EMF exposure is too speculative to allow the evaluation of impacts or the preparation of mitigation measures.

National Institute of Environmental Health Sciences

In June of 1999, the federal government completed a $60-million EMF research program managed by the National Institute of Environmental Health Sciences (NIEHS) and the Department of Energy (DOE). Known as the EMF RAPID (Research And Public Information Dissemination) Program. In their report to the U.S. Congress, the NIEHS concluded that:

> *The NIEHS believes that the probability that ELF-EMF exposure is truly a health hazard is currently small. The weak epidemiological associations and lack of any laboratory support for these associations provide only marginal, scientific support that exposure to this agent is causing any degree of harm.*

The NIEHS report also included the following conclusions:

> *The National Toxicology Program routinely examines environmental exposures to determine the degree to which they constitute a human cancer risk and produces the 'Report on Carcinogens' listing agents that are 'known human carcinogens' or 'reasonably anticipated to be human carcinogens.' It is our opinion that based on evidence to date, ELF-EMF exposure would not be listed in the 'Report on Carcinogens' as an agent*

> *'reasonably anticipated to be a human carcinogen.' This is based on the limited epidemiological evidence and the findings from the EMF-RAPID Program that did not indicate an effect of ELF-EMF exposure in experimental animals or a mechanistic basis for carcinogenicity.*
>
> *The NIEHS agrees that the associations reported for childhood leukemia and adult chronic lymphocytic leukemia cannot be dismissed easily as random or negative findings. The lack of positive findings in animals or in mechanistic studies weakens the belief that this association is actually due to ELF-EMF, but cannot completely discount the finding. The NIEHS also agrees with the conclusion that no other cancers or non-cancer health outcomes provide sufficient evidence of a risk to warrant concern.*
>
> *Epidemiological studies have serious limitations in their ability to demonstrate a cause and effect relationship whereas laboratory studies, by design, can clearly show that cause and effect are possible. Virtually all of the laboratory evidence in animals and humans and most of the mechanistic work done in cells fail to support a causal relationship between exposure to ELF-EMF at environmental levels and changes in biological function or disease status. The lack of consistent, positive findings in animal or mechanistic studies weakens the belief that this association is actually due to ELF-EMF, but it cannot completely discount the epidemiological findings.*
>
> *The NIEHS suggests that the level and strength of evidence supporting ELF-EMF exposure as a human health hazard are insufficient to warrant aggressive regulatory actions; thus, we do not recommend actions such as stringent standards on electric appliances and a national program to bury all transmission and distribution lines. Instead, the evidence suggests passive measures such as a continued emphasis on educating both the public and the regulated community on means aimed at reducing exposures. NIEHS suggests that the power industry continue its current practice of siting power lines to reduce exposures and continue to explore ways to reduce the creation of magnetic fields around transmission and distribution lines without creating new hazards. We also encourage technologies that lower exposures from neighborhood distribution lines provided that they do not increase other risks, such as those from accidental electrocution or fire.*

U.S. National Research Council/National Academy of Sciences

In May 1999, the National Research Council/ National Academy of Sciences, an independent scientific agency responsible for advising the federal government on science, technology, and medicine, released its evaluation of the scientific and technical content of research projects conducted under the U.S. EMF RAPID Program, concluding that:

> *The results of the EMF-RAPID program do not support the contention that the use of electricity poses a major unrecognized public-health danger. Basic research on the effects of power-frequency magnetic fields on cells and animals should continue, but a special research-funding effort is not required. Investigators should compete for funding through traditional research-funding mechanisms. If future research on this subject is funded through such mechanisms, it should be limited to tests of well-defined mechanistic hypotheses or replications of reported positive effects. If carefully performed, such experiments will have value even if their results are negative. Special efforts should be made to communicate the conclusions of this effort to the general public effectively.*

The following specific recommendations are made by the committee:

1. The committee recommends that no further special research program focused on possible health effects of power-frequency magnetic fields be funded. Basic research on the effects of power-frequency magnetic fields on cells and animals should continue but investigators should compete for

funding through traditional research funding mechanisms.

2. If, however, Congress determines that another time-limited, focused research program on the health effects of power-frequency magnetic fields is warranted, the committee recommends that emphasis be placed on replications of studies that have yielded scientifically promising claims of effects and that have been reported in peer-reviewed journals. Such a program would benefit from the use of a contract-funding mechanism with a requirement for complete reports and/or peer-reviewed publications at program's end.
3. The engineering studies were initiated without the guidance of a clearly established biologic effect. The committee recommends that no further engineering studies be funded unless a biologic effect that can be used to plan the engineering studies has been determined.
4. Much of the information from the EMF-RAPID biology program has not been published in peer-reviewed journals. NIEHS should collect all future peer-reviewed information resulting from the EMF-RAPID biology projects and publish a summary report of such information periodically on the NIEHS Web site.
5. The communication effort initiated by EMF-RAPID is reasonable. The two booklets and the telephone information line are useful, as is the EMF-RAPID Internet site. There are two limitations to the effort. First, it is largely passive, responding to inquiries and providing information, rather than being active. Second, much of the information produced is in a scientific format not readily understandable by the public. The committee recommends that further material produced to disseminate information on power-frequency magnetic fields be written for the general public in a clear fashion. The Web site should be made more user-friendly. The booklet *Questions and Answers about EMF* should be updated periodically and made available to the public.

World Health Organization

The World Health Organization (WHO) established the International EMF Project in 1996 to investigate potential health risks associated with exposure to electric and magnetic fields (EMF). A WHO Task Group recently concluded a review of the health implications of extremely low frequency (ELF) EMF.

A Task Group of scientific experts was convened in 2005 to assess any risks to health that might exist from exposure to ELF electric and magnetic fields. Previously in 2002, the International Agency for Research on Cancer (IARC) examined the evidence regarding cancer; this Task Group reviewed evidence for a number of health effects, and updated the evidence regarding cancer. The conclusions and recommendations of the Task Group are presented in a WHO report titled: “Extremely Low Frequency Fields Environmental Health Criteria Monograph No.238” and Factsheet No 322.

> *“New human, animal and in vitro studies, published since the 2002 IARC monograph, do not change the overall classification of ELF magnetic fields as a possible human carcinogen.”*
>
> *“A number of other diseases have been investigated for possible association with ELF magnetic field exposure. These include cancers in both children and adults, depression, suicide, reproductive dysfunction, developmental disorders, immunological modifications and neurological disease. The scientific evidence supporting a linkage between ELF magnetic fields and any of these diseases is much weaker than for childhood leukaemia and in some cases (for example, for cardiovascular disease or breast cancer) the evidence is sufficient to give confidence that magnetic fields do not cause the disease.”*
>
> *“the epidemiological evidence is weakened by methodological problems, such as potential selection bias. In addition, there are no accepted biophysical mechanisms that would suggest that low-level exposures are involved in cancer development. Thus, if there were any effects from exposures to these low-level fields, it would have to be*

through a biological mechanism that is as yet unknown. Additionally, animal studies have been largely negative. Thus, on balance, the evidence related to childhood leukaemia is not strong enough to be considered causal."

"Policy-makers should establish an ELF EMF protection programme that includes measurements of fields from all sources to ensure that the exposure limits are not exceeded either for the general public or workers."

"Government and industry should monitor science and promote research programmes to further reduce the uncertainty of the scientific evidence on the health effects of ELF field exposure."

"Policy-makers, community planners and manufacturers should implement very low-cost measures when constructing new facilities and designing new equipment including appliances."

"Changes to engineering practice to reduce ELF exposure from equipment or devices should be considered, provided that they yield other additional benefits, such as greater safety, or little or no cost."

"When changes to existing ELF sources are contemplated, ELF field reduction should be considered alongside safety, reliability and economic aspects."

International Agency for Research on Cancer

In June of 2001, the International Agency for Research on Cancer (IARC), a branch of the World Health Organization (WHO), evaluated the carcinogenic risk to humans of static and extremely low-frequency EMF. In October of 2001, the WHO published a Fact Sheet that summarized the IARC findings. Below is an excerpt from the fact sheet:

In June 2001, an expert scientific working group of IARC reviewed studies related to the carcinogenicity of static and ELF electric and magnetic fields. Using the standard IARC classification that weighs human, animal and laboratory evidence, ELF magnetic fields were classified as possibly carcinogenic to humans based on epidemiological studies of childhood leukaemia. Evidence for all other cancers in children and adults, as well as other types of exposures (i.e. static fields and ELF electric fields) was considered not classifiable either due to insufficient or inconsistent scientific information.

"Possibly carcinogenic to humans" is a classification used to denote an agent for which there is limited evidence of carcinogenicity in humans and less than sufficient evidence for carcinogenicity in experimental animals.

This classification is the weakest of three categories ("is carcinogenic to humans", "probably carcinogenic to humans" and "possibly carcinogenic to humans") used by IARC to classify potential carcinogens based on published scientific evidence. Some examples of well-known agents that have been classified by IARC are listed below:

Classification	***Examples of Agents***
Carcinogenic to humans (usually based on strong evidence of carcinogenicity in humans)	*Asbestos Mustard gas Tobacco (smoked and smokeless) Gamma radiation*
Probably carcinogenic to humans (usually based on strong evidence of carcinogenicity in animals)	*Diesel engine exhaust Sun lamps UV radiation Formaldehyde*

Possibly carcinogenic to humans (usually based on evidence in humans which is considered credible, but for which other explanations could not be ruled out)	*Coffee* *Styrene* *Gasoline engine exhaust* *Pickled Vegetables* *ELF magnetic fields*

DO ELF FIELDS CAUSE CANCER?

ELF fields are known to interact with tissues by inducing electric fields and currents in them. This is the only established mechanism of action of these fields. However, the electric currents induced by ELF fields commonly found in our environment are normally much lower than the strongest electric currents naturally occurring in the body such as those that control the beating of the heart.

Since 1979 when epidemiological studies first raised a concern about exposures to power line frequency magnetic fields and childhood cancer, a large number of studies have been conducted to determine if measured ELF exposure can influence cancer development, especially leukaemia in children.

There is no consistent evidence that exposure to ELF fields experienced in our living environment causes direct damage to biological molecules, including DNA. Since it seems unlikely that ELF fields could initiate cancer, a large number of investigations have been conducted to determine if ELF exposure can influence cancer promotion or co-promotion. Results from animal studies conducted so far suggest that ELF fields do not initiate or promote cancer.

However, two recent pooled analyses of epidemiological studies provide insight into the epidemiological evidence that played a pivotal role in the IARC evaluation. These studies suggest that, in a population exposed to average magnetic fields in excess of 0.3 to 0.4 µT, twice as many children might develop leukaemia compared to a population with lower exposures. In spite of the large number data base, some uncertainty remains as to whether magnetic field exposure or some other factor(s) might have accounted for the increased leukaemia incidence.

Childhood leukaemia is a rare disease with 4 out of 100,000 children between the age of 0 to 14 diagnosed every year. Also average magnetic field exposures above 0.3 or 0.4 µT in residences are rare. It can be estimated from the epidemiological study results that less than 1% of populations using 240 volt power supplies are exposed to these levels, although this may be higher in countries using 120 volt supplies.

The IARC review addresses the issue of whether it is feasible that ELF-EMF pose a cancer risk. The next step in the process is to estimate the likelihood of cancers in the general population from the usual exposures and to evaluate evidence for other (non-cancer) diseases. This part of the risk assessment should be finished by WHO in the next 18 months.

American Cancer Society

In the journal, *A Cancer Journal for Clinicians*, the American Cancer Society (ACS) reviewed EMF residential and occupational epidemiologic research in an article written by Dr. Clark W. Heath, Jr., ACS's vice president of epidemiology and surveillance research. Dr. Heath reviews 13 residential epidemiologic studies of adult and childhood cancer. Dr. Heath wrote:

Evidence suggesting that exposure to EMF may or may not promote human carcinogenesis is mostly based on...epidemiologic observations.... While those observations may suggest such a relationship for leukemia and brain cancer in particular, the findings are weak, inconsistent, and inconclusive.... The weakness and inconsistent nature of epidemiologic data, combined with the continued dearth of coherent and reproducible findings from *experimental laboratory research, leave one uncertain and rather doubtful that any real biologic link exists between EMF exposure and carcinogenicity.*

American Medical Association

The AMA adopted recommendations of its Council on Scientific Affairs (CSA) regarding EMF health effects. The report was prepared as a result of a resolution passed by AMA's membership at its 1993 annual meeting. The following recommendations are based on the CSA's review of EMF epidemiologic and laboratory studies to date, as well as on several major literature reviews:

- Although no scientifically documented health risk has been associated with the usually occurring levels of electromagnetic fields, the AMA should continue to monitor developments and issues related to the subject.
- The AMA should encourage research efforts sponsored by agencies such as the National Institutes of Health, the U.S. Department of Energy, and the National Science Foundation. Continuing research should include study of exposures to EMF and its effects, average public exposures, occupational exposures, and the effects of field surges and harmonics.
- The AMA should support the meeting of an authoritative, multidisciplinary committee under the auspices of the National Academy of Sciences or the National Council on Radiation Protection and Measurements to make recommendations about exposure levels of the public and workers to EMF and radiation.

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PRELIMINARY SUBSTATION EMF MANAGEMENT PLAN
EGBERT SWITCHING STATION PROJECT

I. PRELIMINARY SUBSTATION FMP CHECKLIST

Project Name: Egbert Switching Station Project

No	No-cost and low-cost magnetic field reduction measures evaluated for a substation project.	Measures adopted (Yes.No)	Reason if not adopted
1	Keep high-current devices, transformers, capacitors and reactors away from substation property lines.	Yes	
2	For underground duct banks, the minimum distance should be 12 feet from adjacent property lines or as close to 12 feet as possible.	Yes	
3	Locate new substations close to existing power lines to the extent practical.	Yes	
4	Increase the substation property boundary to the extent practical.	No	The project scope is to build a new substation, so this measure is not practical.

TECHNICAL MEMORANDUM

Biological Resources Technical Report for the Pacific Gas and Electric Company Egbert Switching Station Project, San Mateo and San Francisco Counties, California

PREPARED FOR:	Abdullah Arakozie/PG&E and Brandon Liddell/PG&E
COPY TO:	Lynne Hosley/CH2M HILL, Inc. (CH2M) and Colleen Taylor/CH2M
PREPARED BY:	David Rasmussen/CH2M
DATE:	July 14, 2017

Introduction

This report discusses biological resources for the proposed 230 kilovolt (kV) switching station and associated transmission lines for the Pacific Gas and Electric Company's (PG&E's) Egbert Switching Station Project. The project is located in both San Mateo and San Francisco counties in the cities of Daly City, Brisbane, and San Francisco (Figure 1). The project involves constructing a new 230 kV switching station and new 230 kV transmission lines to re-route with the Jefferson-Martin 230 kV line, loop-in the Martin-Embarcadero- 230 kV (HZ-1) line, and connect the existing Martin Substation to the new switching station. The proposed switching station location, currently used as a construction staging yard, is at 1755 Egbert Avenue, San Francisco.

This report also discusses the three proposed transmission line routes connecting the proposed Egbert Switching Station with the existing Jefferson-Martin 230 kV line, HZ-1 230 kV line, and Martin Substation. The transmission lines are proposed to be underground, and would be installed by open trench construction or auger bore in paved or disturbed areas, with only small portions through disturbed, landscaped, or nonnative vegetation (Figure 1). Once new lines are connected with existing lines, any line remnants would be removed from service by retiring the line in place. Construction would not extend beyond the existing line cap at the interconnection points with lines to Embarcadero, Jefferson, and Martin substations. Existing line remnants not connecting to the proposed Egbert Switching Station would be removed from service by retiring in place. Existing line termination equipment within Martin Substation will be removed. Work that would occur within an existing facility, such as this termination equipment removal, is not discussed further.

Six potential staging areas have been identified for this project. They include two potential staging areas within the fenced boundary of Martin Substation, two potential staging areas in an industrial area off of Amador Street, one potential staging area within a paved parking lot at the Cow Palace, and one potential staging area off of Carter Street in a disturbed area. One or several of these staging areas will be used for this project depending upon availability at the time of construction.

This report will discuss the areas that will be affected by this project and immediately adjacent areas, along with the potential for special-status plant and wildlife species to occur and proximity to waters that are potentially jurisdictional under the Clean Water Act (CWA) and California Fish and Game Code (CFGC).

Methods

Biological resources in the project area were characterized by reviewing existing information and conducting reconnaissance-level field surveys of botanical, wetlands, and wildlife resources. Reconnaissance-level surveys were conducted within the biological resources survey area corridor by CH2M biologist David Rasmussen on May 12, 2017. Follow up surveys for the potential staging areas were conducted by David Rasmussen on June 26, 2017. The purpose of these surveys was to identify potential habitat for special-status species and to field-verify the mapped vegetation types and wetland features that were identified in online database searches. Prior to conducting the reconnaissance-level surveys, the following biological databases were reviewed:

- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CDFW, 2017)
- U.S. Fish and Wildlife Service (USFWS) Information, Planning, and Consultation System (IPaC) (USFWS, 2017a)
- USFWS Critical Habitat Mapper (USFWS, 2017b)
- California Native Plant Society (CNPS) online version of the Inventory of Rare and Endangered Plants of California (CNPS, 2017); species designated as List 3 and 4 were not considered
- National Wetlands Inventory (USFWS, 2017c)
- U.S. Geological Surveys (USGS) National Hydrography Dataset (USGS, 2017)

The CNDDB database search was conducted for a 5-mile buffer around the project area; the IPaC list was generated based on a polygon that surrounded the project; and the CNPS species list was generated for the San Francisco North and San Francisco South USGS quadrangles.

The biological resources survey area is shown on detailed route maps in this report, and includes a 300-foot-wide corridor centered on the proposed Jefferson-Egbert, Egbert-Embarcadero, and Martin-Egbert transmission lines and Egbert Switching Station (Figure 1). Sites located outside of the 300-foot-wide corridor, including the temporary work locations to support the HZ-1 line bypass activities, and potential staging areas encompassed a survey radius of at least 50 feet to support minor adjustments during construction. The Amador, Geneva, and Martin yards are fenced, and surrounding areas were not surveyed because adjustments would not be anticipated to exceed those boundaries, and surrounding areas for the potential Carter Street staging area were not accessible for surveys.

General biological reconnaissance surveys entailed conducting windshield surveys in developed areas, walking and meandering surveys in publicly accessible non-developed portions of the biological resources survey area, and surveying areas that appeared to support potential habitat for special-status species as identified in desktop-level reviews. The proposed Egbert Switching Station and the potential Carter Street, Martin Substation, and Amador Street staging areas were not accessible during the surveys, so visual surveys were conducted from the nearest publicly accessible viewpoints.

The following sections describe existing biotic communities and discuss sensitive habitats and special-status plant and wildlife species with potential to occur in the project area (defined here as the areas disturbed by project activities).

Results

The results from the reconnaissance-level surveys for the proposed Egbert Switching Station, transmission line routes, and potential staging areas are discussed in this section. All of the new 230 kV lines would be installed underground, and no overhead routes are proposed. Habitat, potential for special-status species, and presence of water features potentially jurisdictional under the CWA and CFGC are discussed for the proposed Egbert Switching Station, transmission line routes, and potential staging areas.

Suitable nesting habitat for migratory birds is found within the project area for the proposed Egbert Switching Station, transmission line routes, and staging areas; as a result, migratory birds will not be discussed individually for each project component. For further information on potential for special-status species, see Table 1, Special-Status Plant Species, and Table 2, Special-Status Wildlife Species.

Proposed Egbert Switching Station

The proposed Egbert Switching Station is located at 1755 Egbert Avenue. This site is located in a highly urbanized area, is currently used as a construction laydown and staging area, and is devoid of 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.

There is a low potential for American peregrine falcon (*Falco peregrinus anatum*) to forage in the vicinity of the switching station, transmission line routes, and staging areas discussed in this document. No suitable habitat for special-status species identified in the records search is found within this project area, and no suitable nesting habitat for peregrine was observed during reconnaissance surveys. This species has a similar potential to occur throughout the project area, this species will not be discussed individually for the proposed transmission line routes; rather, the discussion here applies for all areas.

There are no potentially jurisdictional areas under the CWA and CFGC within the site (Figure 2).

Proposed Egbert-Embarcadero Line

The existing HZ-1 line runs roughly south to north (from Martin Substation to Embarcadero Substation) approximately 0.3 mile to the west of the proposed Egbert Switching Station site. A new 230 kV line, the proposed Egbert-Embarcadero line, would be constructed within Egbert Avenue for approximately 0.3 mile to connect this switching station to the HZ-1 line heading toward Embarcadero Substation. The proposed route exits the switching station onto Egbert Avenue, and continues northwest along Egbert Avenue onto Bayshore Avenue.

The proposed route for this transmission line is within paved surfaces with no suitable habitat for special-status species, and there are no potentially jurisdictional areas under the CWA and CFGC that cross this route (Figure 2). As such, impacts to special-status species and jurisdictional areas are not expected. Areas surrounding this route are a mix of existing residential, commercial, and industrial uses.

The proposed civil and electrical interconnection between the new line and the HZ-1 line is located in an existing vault within Bayshore Avenue, before the intersection of Bayshore with Phelps Street. To support the HZ-1 bypass activities, an excavation (approximately 10 by 35 feet) will be located over the transmission line north of the vault on Bayshore Boulevard. From this work area, the HZ-1 line (to Embarcadero Substation) would be reused without additional construction activities on this length of line.

Proposed Jefferson-Egbert Line

The proposed Jefferson-Egbert line would be constructed between the proposed Egbert Switching Station and the existing Jefferson-Martin line, and would interconnect within Guadalupe Canyon Parkway approximately 300 feet west of Carter Street. The existing Jefferson-Martin line between this interconnection point and Martin Substation would be removed from service by capping the end of the transmission line at the new interconnection and by removing the line terminal equipment within Martin Substation. With the exception of several small areas discussed in the following paragraphs, the proposed route is entirely within paved surfaces.

Developed areas surround both sides of the majority of the route, with exceptions along Guadalupe Canyon Parkway and Carter Street adjacent to San Bruno Mountain, and along Visitacion Avenue and other connecting streets through McLaren Park.

On San Bruno Mountain and in McLaren Park, suitable habitat is found for several special-status plant species including Franciscan manzanita (*Arctostaphylos franciscana*), San Bruno Mountain manzanita (*A. imbricata*), Montara manzanita (*A. montaraensis*), Pacific manzanita (*A. pacifica*), fragrant fritillary (*Fritillaria liliacea*), seaside tarplant (*Hemizonia congesta* ssp. *congesta*), marsh microseris (*Microseris paludosa*), white-rayed pentachaeta (*Pentachaeta bellidiflora*), adobe sanicle (*Sanicula maritima*), and San Francisco campion (*Silene verecunda* ssp. *verecunda*). There is also designated critical habitat for Franciscan manzanita in McLaren Park (Figures 3, 4, and 5). The portion of San Bruno Mountain in the vicinity of Carter Street and the work on Guadalupe Canyon Parkway has suitable habitat for a variety of rare plant species and butterfly species, including Bay checkerspot butterfly (*Euphydryas editha bayensis*), Mission blue butterfly (*Icaricia icarioides missionensis*), and callippe silverspot butterfly (*Speyeria callippe callippe*). Bay checkerspot butterfly was reintroduced onto San Bruno Mountain in 2017 (Creekside Science, 2017). However, these butterfly species are not expected to be present or occur within the work areas because all of these sites are on paved surfaces with regular traffic. There is a limited potential for American badger (*Taxidea taxus*) to occur on San Bruno Mountain. However, as all work in the vicinity of these locations is confined to paved surfaces with regular traffic, impacts to these species are not expected.

Multiple large trees in the vicinity of the route in McLaren Park and in the vicinity of San Bruno Mountain could be suitable roosting habitat for the foliage-roosting western red bat (*Lasiurus blossevillii*). Impacts to adjacent large trees are not expected and, because of the urbanized setting, there is only a low potential for this species to be present. This species will not be discussed further in this report because no trimming or removal of trees that are potentially suitable for this species is expected.

The bore pit on the western side of U.S. Highway 101 may encroach within the vegetated median in Mansell Street. This area is dominated by nonnative annual grasses and shrubs, as well as scattered blue gum eucalyptus (*Eucalyptus globulus*), acacia (*Acacia* sp.), coast live oak (*Quercus agrifolia*), and other landscape trees. The proposed route immediately south of the switching station site passes along the eastern edge of a parcel that contains several abandoned structures, several paved parking areas, and a ruderal field. These areas of the proposed route are highly disturbed and, with the exception of foraging habitat for American peregrine falcon, no suitable habitat for the special-status species identified in the records search is found in these areas.

No features that are potentially jurisdictional under the CWA or CFGC were identified within any of these routes (Figure 2). The biological resources survey area includes two drainage features, both riverine intermittent streambeds, and a wetland feature. One of the riverine intermittent streambeds is located near the proposed interconnection point of the proposed Jefferson-Egbert line with the existing Jefferson-Martin line on Guadalupe Canyon Parkway. The western arm of this riverine intermittent streambed originates approximately 500 feet upslope of the interconnection, flows downslope passing under Guadalupe Canyon Parkway in a culvert, and upon daylighting, flows approximately 300 feet downslope where it connects with a concrete-lined ditch. The eastern arm of this feature originates at a point south of the intersection of Carter Street and Guadalupe Canyon Parkway, and flows downslope to the concrete-lined ditch. This feature will be avoided during work activities.

A second riverine intermittent streambed is located within the southern extent of Martin Substation, outside the fenced area where work would occur. The wetland feature, identified as a palustrine emergent persistent wetland, is located immediately north of this second riverine intermittent streambed, and is also outside of the fenced area where work would occur (Figure 2).

Proposed Martin-Egbert Line

To interconnect the existing Martin Substation with the proposed Egbert Switching Station, a new line will be constructed between the existing HZ-1 line and the switching station, and the existing HZ-1 line south to Martin Substation will be reused. As mentioned for the proposed Egbert-Embarcadero line, the HZ-1 line runs north from Martin Substation (to Embarcadero Substation) and passes approximately 0.3 mile west of the proposed Egbert Switching Station.

The proposed Martin-Egbert route follows a similar route as the proposed Egbert-Embarcadero line. This route exits north from the proposed Egbert Switching Station, and runs through Egbert Avenue to a location at the intersection of Bayshore Boulevard where the HZ-1 line is located. At this point, the existing civil infrastructure of the HZ-1 line (to Martin Substation) would be reused without additional construction activities on this length of line. Work in Bacon Street near its intersection with Brussels Street is expected to include work in an existing vault and an excavation (approximately 10 by 35 feet) about 20 feet west of the vault over the line in the street to support the HZ-1 line bypass activities.

With the exception of foraging habitat for American peregrine falcon, there is no suitable habitat for special-status species and no potentially jurisdictional areas under the CWA and CFGC that are expected to be impacted by construction of this route (Figure 2).

Potential Staging Areas

The potential staging areas at Martin Substation are within the fenced boundary of the substation, and the potential Cow Palace staging area is in a paved parking lot associated with the Cow Palace. These areas are heavily disturbed and are covered in gravel or paved, and have multiple buildings located within them.

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's South Container Terminal, and the northern, smaller one is referred to herein as the Amador Yard, an area used by PG&E and approved by the Port and 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 Bay Conservation and Development Commission (BCDC) but a portion of the edge of the southern yard is within the BCDC 100-foot shoreline band, however using this yard as a staging area would be keeping with its current use. At both potential yards, 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 (*Bromus diandrus*), telegraph weed (*Heterotheca grandiflora*), mustard (*Brassica rapa*), fennel (*Foeniculum vulgare*), dove weed (*Croton setigerus)*, English plantain (*Plantago lanceolata*), and wild radish (*Raphanus raphanistrum*). 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, acacia, and California coffeeberry. With the exception of American peregrine falcon, there is no suitable habitat for special-status species and no potentially jurisdictional areas under the CWA and CFGC that are expected to be impacted by the potential staging areas within Martin Substation, off Amador Street, and at the Cow Palace (Figure 2).

The potential Carter Street staging area was previously used as a drive-in movie theater, and it is no longer in operation. This area was covered in gravel and in use as a laydown and staging area at the time of the biological reconnaissance surveys. This potential staging area is bounded by parking lots to the north and east and by a 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.

There is marginally suitable habitat for several special-status plant species in the degraded coastal scrub to the north and east. These plants include San Bruno Mountain manzanita, Montara manzanita, San Francisco lessingia, and compact cobwebby thistle. For additional plant species that have potential to occur, see Table 2. The potential Carter Street staging area is a mostly graveled area with ruderal vegetation, and was not accessible during biological surveys. No potentially jurisdictional areas under the CWA and CFGC are found at the potential Carter Street staging area (Figure 2).

Special-Status Plant Species

The list of special-status plant species identified by the records searches is included in Table 1; mapping of special-status plants reported to the CNDDB within 5 miles of the project area is included in Figure 3; and mapping of critical habitat is included in Figure 5. Prior to the reconnaissance-level field surveys, aerial imagery and the results from the database searches were studied to identify locations within the project area that might have substrates or habitats suitable for special-status plant species. 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, there is marginally suitable habitat for several special-status species in the form of degraded coastal scrub (Table 1). However, these species are considered to be highly unlikely to occur given that the site was covered with gravel and in use as a laydown and staging area, and was historically used as a drive-in movie theater, resulting in a highly disturbed site with little potential for native vegetation or a native seed bank.

Special-status plant species were defined in accordance with the California Environmental Quality Act (CEQA) Guidelines, Section 15380, and the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (California Department of Fish and Game, 2009), and include species that meet the following criteria:

- Are federally or State-listed, or are proposed for listing as rare, threatened, or endangered;
- Are a Special Plant as defined by the CNDDB; or
- Are listed by the CNPS in the online version of its *Inventory of Rare and Endangered Plants of California*; species designated as List 3 and 4 by the CNPS were not considered.

Table 1: Special-status Plant Species Identified in the Records Searches

Scientific Name	Common Name	Status*			Blooming Period	Habitat Characteristics	Potential for Occurrence Based on Reconnaissance Survey
		Federal	State	CNPS			
Allium peninsulare var. *franciscanum*	Franciscan onion	-	-	1B.2	May-June	Cismontane woodland, valley and foothill grassland. Clay soils; often on serpentine. Dry hillsides.	**Absent:** No suitable habitat is found within the project area. Suitable habitat may be present outside of the project area in McLaren Park or on San Bruno Mountain.
Amsinckia lunaris	bent-flowered fiddleneck	-	-	1B.2	March-June	Cismontane woodland, valley and foothill grassland.	**Absent:** No suitable habitat is found within the project area. Suitable habitat may be present outside of the project area in McLaren Park or on San Bruno Mountain.
Arctostaphylos franciscana	Franciscan Manzanita	E	-	1B.1	Feb-April	Serpentine outcrops in chaparral.	**Absent:** No suitable habitat is found within the project area. Suitable habitat may be present outside of the project area in McLaren Park or on San Bruno Mountain. Critical habitat present within McLaren Park.
Arctostaphylos hookeri ssp. *ravenii*	Presidio manzanita	E	E	1B.1	Feb-March	Chaparral, coastal prairie, coastal scrub. Open, rocky serpentine slopes.	**Unlikely:** Low-quality habitat may be present within the potential Carter Street staging area. Suitable habitat may be present outside of the project area on San Bruno Mountain. Only known to occur in the San Francisco Presidio.
Arctostaphylos imbricata	San Bruno Mountain manzanita	-	E	1B.1	Feb-May	Chaparral, coastal scrub. Mostly known from a few sandstone outcrops in chaparral.	**Unlikely:** Low-quality habitat may be present within the potential Carter Street staging area. Suitable habitat may be present outside of the project area on San Bruno Mountain.
Arctostaphylos montaraensis	Montara Manzanita	-	-	1B.2	Jan-March	Chaparral, coastal scrub. Slopes and ridges.	**Unlikely:** Low-quality habitat may be present within the potential Carter Street staging area. Suitable habitat may be present outside of the project area on San Bruno Mountain.

Table 1: Special-status Plant Species Identified in the Records Searches

Scientific Name	Common Name	Status*			Blooming Period	Habitat Characteristics	Potential for Occurrence Based on Reconnaissance Survey
		Federal	State	CNPS			
Arctostaphylos pacifica	Pacific manzanita	-	E	1B.1	Feb-April	Coastal scrub.	**Unlikely:** Low-quality habitat may be present within the potential Carter Street staging area. Suitable habitat may be present outside of the project area in McLaren Park or on San Bruno Mountain.
Arenaria paludicola	marsh sandwort	E	E	1B.1	May-August	Marshes and swamps.	**Absent:** No suitable habitat is found within the project area.
Astragalus tener var. *tener*	alkali milk-vetch	-	-	1B.2	March-June	Alkali playa, valley and foothill grassland, vernal pools. Low ground, alkali flats, and flooded lands. In annual grassland or in playas or vernal pools.	**Absent:** No suitable habitat is found within the project area.
Carex comosa	bristly sedge	-	-	2.1	May-Sept	Marshes and swamps. Lake margins, wet places.	**Absent:** No suitable habitat is found within the project area.
Carex praticola	Northern meadow sedge	-	-	2B.2	May-July	Meadows and seeps. Moist to wet meadows.	**Absent:** No suitable habitat is found within the project area.
Centromadia parryi ssp. *parryi*	pappose tarplant	-	-	1B.2	May-November	Coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland. Vernally mesic, often alkaline sites.	**Absent:** No suitable habitat is found within the project area. Suitable habitat may be present outside of the project area in McLaren Park or on San Bruno Mountain.
Chloropyron maritimum ssp. *palustre*	Point Reyes bird's beak	-	-	1B.2	June-Oct	Coastal salt marsh. Usually in coastal salt marsh with *Salicornia*, *Distichlis*, *Jaumea*, *Spartina*, etc.	**Absent:** No suitable habitat is found within the project area.
Chorizanthe cuspidata var. *cuspidata*	San Francisco Bay spineflower	-	-	1B.2	April-July	Coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub. Closely related to *C. pungens*. Sandy soil on terraces and slopes.	**Absent:** No suitable habitat is found within the project area. Suitable habitat may be present outside of the project area on San Bruno Mountain.

Table 1: Special-status Plant Species Identified in the Records Searches

Scientific Name	Common Name	Status*			Blooming Period	Habitat Characteristics	Potential for Occurrence Based on Reconnaissance Survey
		Federal	State	CNPS			
Chorizanthe robusta var. *robusta*	robust spineflower	E	-	1B.1	April-Sept	Cismontane woodland, coastal dunes, coastal scrub. Sandy terraces and bluffs or in loose sand.	**Absent:** No suitable habitat is found within the project area. Suitable habitat may be present outside of the project area on San Bruno Mountain.
Cirsium andrewsii	Franciscan thistle	-	-	1B.2	March-July	Coastal bluff scrub, broadleaved upland forest, coastal scrub. Sometimes serpentine seeps.	**Absent:** No suitable habitat is found within the project area. Suitable habitat may be present outside of the project area on San Bruno Mountain.
Cirsium hydrophilum var. *vaseyi*	Mt. Tamalpais thistle	-	-	1B.2	May-Aug	Broadleafed upland forest, chaparral, meadows and seeps. Serpentine seeps and streams in chaparral and woodland.	**Absent:** No suitable habitat is found within the project area. Suitable habitat may be present outside of the project area on San Bruno Mountain.
Cirsium occidentale var*. compactum*	compact cobwebby thistle	-	-	1B.2	April-June	Chaparral, coastal dunes, coastal prairie, coastal scrub. On dunes and on clay in chaparral and grassland.	**Unlikely:** Low quality habitat may be present within the potential Carter Street staging area. Suitable habitat may be present outside of the project area on San Bruno Mountain.
Cirsium rhothophilum	surf thistle	-	T	1B.2	April-June	Coastal dunes, coastal bluff scrub. Open areas in central dune scrub; usually in coastal dunes.	**Absent:** No suitable habitat is found within the project area.
Clarkia franciscana	Presidio clarkia	E	E	1B.1	May-July	Coastal scrub, valley and foothill grassland. Serpentine outcrops in grassland or scrub.	**Unlikely:** Low-quality habitat may be present within the potential Carter Street staging area.
Collinsia corymbosa	round-headed Chinese-houses	-	-	1B.2	April-June	Coastal dune habitats.	**Absent:** No suitable habitat is found within the project area.
Collinsia multicolor	San Francisco collinsia	-	-	1B.2	March-May	Closed-cone coniferous forest, coastal scrub. On decomposed shale (mudstone) mixed with humus.	**Unlikely:** Low-quality habitat may be present within the potential Carter Street staging area. Suitable habitat may be present outside of the project area on San Bruno Mountain.

Table 1: Special-status Plant Species Identified in the Records Searches

Scientific Name	Common Name	Status*			Blooming Period	Habitat Characteristics	Potential for Occurrence Based on Reconnaissance Survey
		Federal	State	CNPS			
Fritillaria liliacea	fragrant fritillary	-	-	1B.2	Feb-April	Coastal scrub, valley and foothill grassland, coastal prairie. Often on serpentine; various soils reported though usually clay, in grassland.	**Unlikely:** Low-quality habitat may be present within the potential Carter Street staging area. Suitable habitat may be present outside of the project area on San Bruno Mountain.
Gilia capitata ssp. *chamissonis*	blue coast gilia	-	-	1B.1	April-July	Coastal dunes, coastal scrub.	**Unlikely:** Low-quality habitat may be present within the potential Carter Street staging area. Suitable habitat may be present outside of the project area on San Bruno Mountain.
Gilia millefoliata	dark-eyed gilia	-	-	1B.2	April-July	Coastal dunes.	**Absent:** No suitable habitat is found within the project area.
Helianthella castanea	Diablo helianthella	-	-	1B.2	March-June	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Usually in chaparral/oak woodland interface in rocky azonal soils. Often in partial shade.	**Unlikely:** Low-quality habitat may be present within the potential Carter Street staging area. Suitable habitat may be present outside of the project are in McLaren Park and on San Bruno Mountain.
Hemizonia congesta ssp. *congesta*	seaside tarplant	-	-	1B.2	April-Nov	Coastal scrub, valley and foothill grassland. Grassy valleys and hills; often in fallow fields.	**Unlikely:** Low-quality habitat may be present within the potential Carter Street staging area. Suitable habitat may be present outside of the project area on San Bruno Mountain.
Hesperevax sparsiflora var. *brevifolia*	short-leaved evax	-	-	1B.2	March-June	Coastal bluff scrub, coastal dunes. Sandy bluffs and flats.	**Absent:** No suitable habitat is found within the project area.
Hesperolinon congestum	Marin western flax	T	T	1B.1	April-July	Chaparral, valley and foothill grassland. In serpentine barrens and in serpentine grassland and chaparral.	**Absent:** No suitable habitat is found within the project area.

Table 1: Special-status Plant Species Identified in the Records Searches

Scientific Name	Common Name	Status*			Blooming Period	Habitat Characteristics	Potential for Occurrence Based on Reconnaissance Survey
		Federal	State	CNPS			
Heteranthera dubia	water star-grass	-	-	2B.2	July-August	Marshes and swamps. Alkaline, still, or slow-moving water. Requires a pH of 7 or higher, usually in slightly eutrophic waters.	**Absent:** No suitable habitat is found within the project area.
Horkelia cuneata ssp. *sericea*	Kellogg's horkelia	-	-	1B.1	Feb-July	Closed-cone coniferous forest, coastal scrub, chaparral. Old dunes, coastal sandhills, openings.	**Unlikely:** Low-quality habitat may be present within the potential Carter Street staging area.
Horkelia marinensis	Point Reyes horkelia	-	-	1B.2	May-Sept	Coastal dunes, coastal scrub. Sandy flats and dunes near coast. In grassland or scrub plant communities.	**Unlikely:** Low-quality habitat may be present within the potential Carter Street staging area.
Layia carnosa	beach layia	E	E	1B.1	March-July	Coastal dunes. Highly reduced in range along California's north coast dunes.	**Absent:** No suitable habitat is found within the project area.
Leptosiphon rosaceus	rose leptosiphon	-	-	1B.1	April-July	Coastal bluff scrub.	**Absent:** No suitable habitat is found within the project area.
Lessingia germanorum	San Francisco lessingia	E	E	1B.1	July-Nov	Coastal scrub. Open sandy soils relatively free of competing plants.	**Unlikely:** Low-quality habitat may be present within the potential Carter Street staging area.
Malacothamnus arcuatus	arcuate bush-mallow	-	-	1B.2	April-Sept	Chaparral. Gravelly alluvium.	**Unlikely:** Low-quality habitat may be present within the potential Carter Street staging area. Suitable habitat may be present outside of the project area on San Bruno Mountain.
Microseris paludosa	marsh microseris	-	-	1B.2	April-June	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland.	**Unlikely:** Low-quality habitat may be present within the potential Carter Street staging area. Low-quality habitat is present outside of the project area in McLaren Park and on San Bruno Mountain.

Table 1: Special-status Plant Species Identified in the Records Searches

Scientific Name	Common Name	Status*			Blooming Period	Habitat Characteristics	Potential for Occurrence Based on Reconnaissance Survey
		Federal	State	CNPS			
Monardella sinuata ssp. *nigrescens*	northern curly-leaved monardella	-	-	1B.2	March-July	Coastal dunes, coastal scrub, chaparral, lower montane coniferous forest. Sandy soils.	**Unlikely:** Low-quality habitat may be present within the potential Carter Street staging area. Suitable habitat may be present outside of the project area on San Bruno Mountain.
Pentachaeta bellidiflora	white-rayed pentachaeta	E	E	1B.1	March-May	Valley and foothill grassland. Open dry rocky slopes and grassy areas. Often on soils derived from serpentine bedrock.	**Absent:** No suitable habitat is found within the project area. Suitable habitat may be present outside of the project area in McLaren Park and on San Bruno Mountain.
Plagiobothrys chorisianus var. *chorisianus*	Choris' popcorn-flower	-	-	1B.2	March-June	Chaparral, coastal scrub, coastal prairie. Mesic sites.	**Unlikely:** Low-quality habitat may be present within the potential Carter Street staging area. Suitable habitat may be present outside of the project area in McLaren Park and on San Bruno Mountain.
Plagiobothrys diffusus	San Francisco popcorn-flower	-	E	1B.1	March-June	Valley and foothill grassland, coastal prairie. Historically from grassy sites with marine influence.	**Absent:** No suitable habitat is found within the project area.
Polemonium carneum	Oregon polemonium	-	-	2B.2	April-Sept	Coastal prairie, coastal scrub, lower montane coniferous forest.	**Unlikely:** Low-quality habitat may be present within the potential Carter Street staging area.
Sanicula maritima	adobe sanicle	-	R	1B.1	Feb-May	Meadows and seeps, valley foothill grassland, coastal prairie. Moist clay or ultramafic soils.	**Absent:** No suitable habitat is found within the project area. Suitable habitat may be present outside of the project area in McLaren Park and on San Bruno Mountain.
Silene verecunda ssp. *verecunda*	San Francisco campion	-	-	1B.2	March-June	Coastal scrub, valley and foothill grassland, coastal bluff scrub, chaparral, coastal prairie. Often on mudstone or shale. One site on serpentine.	**Unlikely:** Low-quality habitat may be present within the potential Carter Street staging area. Suitable habitat may be present outside of the project area in McLaren Park and on San Bruno Mountain.

Table 1: Special-status Plant Species Identified in the Records Searches

Scientific Name	Common Name	Status*			Blooming Period	Habitat Characteristics	Potential for Occurrence Based on Reconnaissance Survey
		Federal	State	CNPS			
Stebbinsoseris decipiens	Santa Cruz microseris	-	-	1B.1	April-May	Broadleafed upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, valley and foothill grassland. Open areas in loose or disturbed soil, usually derived from sandstone, shale, or serpentine. On seaward slopes.	**Unlikely:** Low-quality habitat may be present within the potential Carter Street staging area.
Suaeda californica	California seablite	E	-	1B.1	July-Oct	Marshes and swamps. Margins of coastal salt marshes.	**Absent:** No suitable habitat is found within the project area.
Trifolium amoenum	two-fork clover	E	-	1B.1	April-June	Valley and foothill grasslands, coastal bluff scrub. Sometimes on serpentine soil, open sunny sites, swales. Most recently sited on roadside and eroding cliff face.	**Absent:** No suitable habitat is found within the project area. Suitable habitat may be present outside of the project area in McLaren Park and on San Bruno Mountain.
Triphysaria floribunda	San Francisco owl's-clover	-	-	1B.2	April-June	Coastal prairie, valley and foothill grassland. On serpentine and non-serpentine substrate.	**Absent:** No suitable habitat is found within the project area. Suitable habitat may be present outside of the project area in McLaren Park and on San Bruno Mountain.
Triquetrella californica	coastal triquetrella	-	-	1B.2	Not applicable	A bryophyte that grows in coastal bluff scrub, coastal scrub valley and foothill grasslands. Grows within 30 meters from the coast in coastal scrub, grasslands and in open gravels on roadsides, hillsides, and rocky slopes.	**Absent:** No suitable habitat is found within the project area.

Table 1: Special-status Plant Species Identified in the Records Searches

Scientific Name	Common Name	Status*			Blooming Period	Habitat Characteristics	Potential for Occurrence Based on Reconnaissance Survey
		Federal	State	CNPS			

*Status:
Federal Designations:
(E) Federally Endangered, (T) Federally Threatened
State Designations:
(E) State Endangered, (T) State Threatened, (R) State Rare
CNPS California Rare Plant Rank:
(1A) Presumed extinct in California; (1B) Rare, threatened, or endangered in California and elsewhere; (2) Rare, threatened, or endangered in California, but more common elsewhere
Threat Rank:
•0.1 Seriously threatened in California (more than 80% of occurrences threatened / high degree and immediacy of threat)
•0.2 Fairly threatened in California (20 to 80% occurrences threatened / moderate degree and immediacy of threat)

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;
- Listed or candidates for listing as threatened or endangered under the California Endangered Species Act;
- Designated as Species of Special Concern by the CDFW; or
- Listed on the CDFW "Special Animals" list; or otherwise meet the definition of rare, threatened, or endangered as described in the CEQA Guidelines, Section 15380.

Special-status wildlife species identified in the records searches along with their habitat are included in Table 2. Mapping of special-status wildlife species reported to the CNDDB within 5 miles of the project area is included on Figure 4. Prior to the reconnaissance-level field survey, aerial imagery was studied to identify locations within the project area that might have habitats suitable for these species.

Because the proposed Egbert Switching Station and the potential Carter Street, Martin Substation, and Amador Street staging areas were not accessible during the reconnaissance-level field surveys, these areas and areas adjacent to the routes were evaluated using aerial imagery and views from publicly accessible areas. There is a low potential for several special-status wildlife species to occur along several of the transmission line routes.

The proposed Egbert Switching Station, all of the proposed transmission lines routes, and potential staging areas are located in areas that are suitable for nesting migratory birds. The Migratory Bird Treaty Act (16 U.S.C. §§ 703–711) and California Fish and Game Code Sections 3503, 3503.5, and 3513 protect all migratory birds and their nests.

Wildlife Potentially Occurring in the Project Area

The literature and database reviews identified 25 special-status wildlife species (Table 2). Based on the initial assessment of wildlife habitats conducted during the reconnaissance field survey, nine of these species were determined to have a low or moderate potential to occur in the project area. While not identified in the records search, there is potential for white-tailed kite (*Elanus leucurus*), a California Fully Protected species, to occur in the project area. A discussion of the species with a moderate potential to occur is included in the following paragraphs.

While the proposed Egbert Switching Station is highly disturbed, there is still potentially suitable nesting habitat for migratory birds. In addition, all of the proposed transmission line routes and potential staging areas have suitable nesting habitat for migratory birds in the vicinity. Nesting bird surveys will be conducted prior to work activities if they take place during the nesting bird season. If any bird nests are identified that may be impacted by construction activities, next steps will be coordinated with the PG&E biologist and these may include biological monitoring, visual screens, or temporarily halting work in the area until the nests have fledged.

Table 2: Special-status Wildlife Species Identified in the Records Searches

Scientific Name	Common Name	Status*			Habitat	Potential for Occurrence Based on Reconnaissance Survey
		Federal	State	CDFW		
Invertebrates						
Callophrys mossii bayensis	San Bruno elfin butterfly	E	-	-	Coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain. Colonies are located on steep, north-facing slopes within the fog belt. Larval host plant is *Sedium spathulifolium*.	**Unlikely:** No suitable habitat is found within the project area. Occurs on San Bruno Mountain and may occasionally fly across Guadalupe Canyon Road, but surrounding habitat is low quality.
Euphydryas editha bayensis	Bay checkerspot butterfly	T	-	-	Native grasslands on outcrops of serpentine soil. *Plantago erecta* is the primary host plant; *Orthocarpus densiflorus* and *Orthocarpus purpurscens* are the secondary host plants.	**Unlikely**: No suitable habitat is found within the project area. Species reintroduced to San Bruno Mountain in 2017 and may occasionally fly across Guadalupe Canyon Road, but surrounding habitat is low quality
Icaricia icarioides missionensis	Mission Blue butterfly	E	-	-	Coastal scrub and grasslands; requires varied lupine, silver lupine, or summer lupine for larvae.	**Unlikely**: No suitable habitat is found within the project area. Occurs on San Bruno Mountain and may occasionally fly across Guadalupe Canyon Road, but surrounding habitat is low quality
Speyeria callippe callippe	Callippe silverspot butterfly	E	-	-	Restricted to the northern coastal scrub of the San Francisco Peninsula. Hostplant is *Viola pedunculata.* Most adults found on east-facing slopes; males congregate on hilltops in search of females.	**Unlikely**: No suitable habitat is found within the project area. Occurs on San Bruno Mountain. and may occasionally fly across Guadalupe Canyon Road, but surrounding habitat is low quality
Speyeria zerene myrtleae	Myrtle's silverspot butterfly	E	-	-	Restricted to the foggy, coastal dunes/hills of the Point Reyes Peninsula; extirpated from Coastal San Mateo County. Larval foodplant thought to be *Viola adunca*.	**Absent**: No suitable habitat is found within the project area. Considered extirpated south of the Golden Gate Bridge.

Table 2: Special-status Wildlife Species Identified in the Records Searches

Scientific Name	Common Name	Status*			Habitat	Potential for Occurrence Based on Reconnaissance Survey
		Federal	State	CDFW		
Fish						
Eucyclogobius newberryi	Tidewater goby	E	-	SSC	Brackish water habitats along the California coast from Agua Hedionda lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	**Absent**: No suitable habitat is found within the project area.
Hypomesus transpacificus	Delta smelt	T	E	-	Sacramento-San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait, and San Pablo Bay. Seldom found at salinities > 10 parts per thousand. Most often at salinities <2 parts per thousand.	**Absent**: No suitable habitat is found within the project area.
Mylopharodon conocephalus	hardhead	-	-	SSC	Low to mid-elevation streams in the Sacramento-San Joaquin drainage; also present in the Russian River.	**Absent**: No suitable habitat is found within the project area.
Oncorhynchus mykiss irideus	Steelhead - central California coast DPS	T	-	-	From Russian River, south to Soquel Creek and to, but not including, Pajaro River. Also San Francisco and San Pablo Bay basins.	**Absent**: No suitable habitat is found within the project area.
Spirinchus thaleichthys	Longfin smelt	C	T	-	Euryhaline, nektonic, and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15 to 30 parts per thousand, but can be found in completely freshwater to almost pure seawater.	**Absent**: No suitable habitat is found within the project area.

Table 2: Special-status Wildlife Species Identified in the Records Searches

Scientific Name	Common Name	Status*			Habitat	Potential for Occurrence Based on Reconnaissance Survey
		Federal	State	CDFW		
Amphibians						
Rana draytonii	California red-legged frog	T	-	SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval development. Must have access to estivation habitat.	**Absent**: No suitable aquatic habitat is found within the project area. Species has not been observed on San Bruno Mountain in the 30 years of Habitat Conservation Plan monitoring surveys, and nearest potentially extant populations are associated with Lake Merced, Golden Gate Park, and wetlands in the vicinity of the San Francisco Airport.
Reptiles						
Emys marmorata	Western pond turtle	-	-	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 kilometer from water for egg laying.	**Absent**: No suitable habitat is found within the project area.
Thamnophis sirtalis tetrataenia	San Francisco garter snake	E	E	CFP	Vicinity of freshwater marshes, ponds, and slow-moving streams in San Mateo County and extreme northern Santa Cruz County.	**Absent**: No suitable aquatic habitat is found within the project area. Species has not been observed on San Bruno Mountain in the 30 years of Habitat Conservation Plan monitoring surveys, and nearest potentially extant populations are associated with the wetlands in the vicinity of the San Francisco Airport.

Table 2: Special-status Wildlife Species Identified in the Records Searches

Scientific Name	Common Name	Status*			Habitat	Potential for Occurrence Based on Reconnaissance Survey
		Federal	State	CDFW		
Birds						
Elanus leucurus	White-tailed kite	-	-	CFP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodlands. Open grasslands, meadows, or marshes for foraging close to isolated dense-topped trees for nesting and perching.	**Potential to occur:** Potentially suitable roosting and nesting sites present in McLaren Park and San Bruno Mountain.
Falco peregrinus anatum	American peregrine falcon	D	D	-	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site. Peregrine falcons build their nests in substrates on ledges of cliffs ranging from 8 to 400 meters in height, and almost always nest near water.	**Potential to occur:** Suitable roosting and nesting sites absent from the project area. May forage in the vicinity of the project.
Geothlypis trichas sinuosa	Saltmarsh common yellowthroat	-	-	SSC	Resident of the San Francisco Bay region, in fresh and saltwater marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, and willows for nesting.	**Absent:** No suitable habitat is found within the project area.
Laterallus jamaicensis coturniculus	California black rail	-	T	CFP	Freshwater marshes, wet meadows, and shallow margins of saltwater marshes. Needs water depth of about 1 inch that does not fluctuate during the year and dense vegetation for nesting habitat.	**Absent:** No suitable habitat is found within the project area.
Melospiza melodia pusillula	Alameda song sparrow	-	-	SSC	Resident of salt marshes bordering south arm of San Francisco Bay. Inhabits *Salicornia* marshes; nests low in *Grindelia* bushes (high enough to escape high tides) and in *Salicornia*.	**Absent:** No suitable habitat is found within the project area.

Table 2: Special-status Wildlife Species Identified in the Records Searches

Scientific Name	Common Name	Status*			Habitat	Potential for Occurrence Based on Reconnaissance Survey
		Federal	State	CDFW		
Rallus obsoletus	Ridgway's rail	E	E	CFP	Saltwater and brackish marshes with tidal sloughs. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	**Absent:** No suitable habitat is found within the project area.
Riparia riparia	Bank swallow	-	T	-	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, or ocean to dig nesting hole.	**Absent:** No suitable habitat is found within the project area.
Sternula antillarum browni	California least tern	E	E	-	Nests along the coast from San Francisco Bay south to Northern Baja California. Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, landfills, or paved areas.	**Absent:** No suitable habitat is found within the project area.
Mammals						
Corynorhinus townsendii	Townsend's big-eared bat	-	C	SSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	**Unlikely:** Suitable roosting habitat is absent because of the highly urban nature of the project area. May pass through project areas as an occasional forager.
Lasiurus blossevillii	Western red bat	-	-	SSC	Roosts primarily in trees, 2 to 40 feet above the ground, from sea level up through mixed conifer forests.	**Unlikely:** Potentially suitable, but low quality, roosting habitat occurs in eucalyptus trees and other large trees in McLaren Park and on San Bruno Mountain. May pass through project areas as an occasional forager.

Table 2: Special-status Wildlife Species Identified in the Records Searches

Scientific Name	Common Name	Status*			Habitat	Potential for Occurrence Based on Reconnaissance Survey
		Federal	State	CDFW		
Scapanus latimanus parvus	Alameda Island mole	-	-	SSC	Only known from Alameda Island. Found in a variety of habitats, especially annual and perennial grasslands. Prefers moist, friable soils. Avoids flooded soils.	**Absent:** No suitable habitat is found within the project area.
Taxidea taxus	American badger	-	-	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils, and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	**Potential to occur:** Known to occur on San Bruno Mountain, and may occasionally pass through the project area.

*Status:
<u>Federal Designations</u>:
(E) Federally Endangered, (T) Federally Threatened, (D) Federally Delisted
<u>State Designations</u>:
(E) State Endangered, (T) State Threatened, (C) Candidate, (D) State Delisted
<u>CDFW Designations</u>:
(SSC) Species of Special Concern, (CFP) Fully Protected Species

American Peregrine falcon

The habitat of the American peregrine falcon includes many terrestrial biomes, which may encompass urban and developed areas. Most often, breeding peregrine falcons utilize habitats containing cliffs, and they almost always nest near water (Wheeler, 2003; White et al., 2002). Peregrine falcons generally utilize open habitats for foraging, but are also known to forage and occur in densely populated areas. Many artificial habitats like towers, bridges, and buildings are also utilized by this species (White et al., 2002). Prey mainly consists of birds ranging from small passerines to mid-sized waterfowl; juveniles primarily feed on large flying insects (Wheeler, 2003).

Peregrine falcons are known to nest in San Francisco at various locations, including 77 Beale Street and the former Potrero Power Plant. There is a moderate potential for this species to occur in the vicinity because San Bruno Mountain may contain suitable nesting habitat for the species, and the project area is suitable foraging habitat for the species.

White-tailed kite

The white-tailed kite 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 area; however, white-tailed kites are known to occur in the San Francisco Bay region, and may occasionally pass through the project area. There is a moderate potential for this species to occur in the vicinity because of suitable foraging habitat within McLaren Park and on San Bruno Mountain, as well as low-quality nesting habitat in several large, dense-topped trees within 500 feet of the project area.

Townsend's big eared bat

Townsend's big-eared bat is found in all habitats except for subalpine and alpine habitats, and may be found at any season throughout its range. It is most abundant in mesic habitats and requires caves, mines, tunnels, buildings, or other human-made structures for roosting. This species may use separate sites for night, day, hibernation, or maternity roosts. This species is extremely sensitive to disturbance of roosting sites (Zeiner et al., 1990).

Within the project area are multiple abandoned buildings and other human-made structures that are potentially suitable roosting habitat for this species. However, in the developed portions of the project area, this species is not expected to roost because of the level of disturbance and density of humans. Areas with lower disturbance levels such as McLaren Park and San Bruno Mountain may provide suitable roosting habitat; however, this potential is low. This species may forage in the vicinity of the project area, but foraging is more likely in the vicinity of San Bruno Mountain.

Western red bat

The Western red bat is widely distributed throughout California and is known to occur in a variety of habitats, including forested canyons, riparian zones, urban areas, and arid areas where they primarily roost in trees (Reid, 2006). This non-colonial species roosts almost exclusively in foliage, under overhanging leaves. Western red bats have been observed to use nonnative trees for roosting, including eucalyptus (Johnston and Whitford, 2009).

There are several large stands of eucalyptus in the vicinity of the proposed Jefferson-Egbert line when adjacent to McLaren Park, the Cow Palace, and San Bruno Mountain, which are potentially suitable roosting habitat. However, because of the highly urban areas in the vicinity of the project, there is a low potential for Western red bat to occur, although this species may occur and forage throughout the project area.

American badger

American badger 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.
A badger will typically have a large home range and spend inactive periods in underground burrows. 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. The nearest documented record in the CNDDB is within Golden Gate Park approximately 5 miles to the northwest, but separated from the project by dense urban development (see Figure 4). There is also 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 Habitat Conservation Plan (San Mateo County Parks Department, 2008). If this species occurs on San Bruno Mountain, individuals may forage in the vicinity of the project area, and may occasionally cross Carter Street and Guadalupe Canyon Parkway during foraging and dispersal movements.

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Pacific Gas and Electric Company
Egbert Switching Station
Project

Final Paleontological Inventory Report

Updated November 2017

Prepared for
Pacific Gas & Electric Company

Prepared by
MariaElena Conserva, Ph.D.
CH2M

CH2M HILL ENGINEERS, INC
155 Grand Avenue, Suite 800
Oakland, CA 94612

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Acronyms and Abbreviations

bgs	below ground surface
BLM	Bureau of Land Management
CEQA	California Environmental Quality Act
HZ-1	Embarcadero-Martin 230 kV transmission line No. 1
kV	kilovolt
LORS	laws, ordinances, regulations, and standards
PIR	Paleontological Inventory Report
PFYCS	Potential Fossil Yield Classification System
project	Egbert Switching Station Project
SVP	Society for Vertebrate Paleontology
UCMP	University of California at Berkeley Museum of Paleontology

Chapter 1 Summary of Findings

This Paleontological Inventory Report (PIR) was completed by senior paleontological resources specialist Dr. MariaElena Conversa of CH2M to assist PG&E in complying with laws, ordinances, regulations, and standards (LORS) pertaining to paleontological resources for the Egbert Switching Station Project (project) in San Francisco and San Mateo counties, California. This project includes construction of a new switching station on approximately 1.7 acres and underground transmission lines for approximately 4 miles, typically within city streets.

This report summarizes the methods and results of a paleontological inventory report. The paleontological sensitivity of geologic units exposed at or near the ground surface within the project study area was identified by reviewing scientific literature, querying online databases, and reviewing maps, imagery, and data providing context of the project and vicinity. Potential impacts to paleontological resources by project construction were analyzed, and portions of the project are determined to have a paleontological resource potential (i.e., sensitivity) ranging from very low to moderate (the Bureau of Land Management [BLM] Potential Fossil Yield Classification System [PFYC] Classes 1–3a), and the likelihood of impacting scientifically significant vertebrate fossils during project construction is low.

Chapter 2 Introduction

2.1 Project Location and Description

The project is located on the eastern side of the San Francisco Peninsula, and crosses the southeastern part of San Francisco, the eastern side of Daly City, and the northern part of the city of Brisbane (see Figures 1a and 1b). The three main components are to (1) construct the proposed Egbert Switching Station, (2) extend the existing underground Jefferson-Martin 230 kilovolt (kV) transmission line to the proposed Egbert Switching Station, and (3) loop the existing underground Martin-Embarcadero 230 kV transmission line No. 1 (HZ-1) through the proposed Egbert Switching Station, creating the proposed Egbert-Embarcadero 230 kV line and the proposed Martin-Egbert 230 kV line. The aspects of the project that involve earthmoving activities and have the potential to affect paleontological resources are as follows:

- The proposed Egbert Switching Station is a new 1.7-acre, 230 kV switching station that will be constructed at 1755 Egbert Avenue, San Francisco. The depth of excavation for construction of the facility is up to 2 feet below ground surface (bgs) across the site. In addition, multiple piles will be driven to support perimeter walls and other structures. Approximately 25 piles will be driven up to 20 feet bgs, and approximately 60 more piles will be driven up to 15 feet bgs.

- The project would re-route transmission lines by installing approximately 4 miles of new underground transmission line. Installation will require open trenching up to 10 feet bgs. Approximately 420 feet of transmission line is expected to be installed under United States Highway 101 (U.S. Highway 101) by auger bore. The re-route of the existing underground 230 kV transmission lines will include the following:

    - Installing two new line segments (the proposed Egbert-Embarcadero and Martin-Egbert lines) between Egbert Switching Station and the HZ-1 line near the intersection of Bayshore Boulevard and Bacon Street (see Figure 1a). One new line will be spliced into the HZ-1 line north of the intersection in Bayshore Boulevard to create the proposed Egbert-Embarcadero line (0.3 mile of new 230 kV line). The other line will be spliced into the HZ-1 line on the western side of the Bacon Street and Bayshore Boulevard intersection to create the proposed Martin-Egbert line (0.5 mile of new 230 kV line). The electrical interconnection will occur at existing vaults; line remnant that is bypassed will be removed from service. The project will also require the excavation of two freeze pits.

  - Re-routing the existing Jefferson-Martin transmission line from Martin Substation and to the proposed Egbert Switching Station, creating the proposed Jefferson-Egbert 230 kV line. The length of proposed underground transmission line construction would be approximately 3.2 miles, as shown on Figures 1a and 1b.

- Construction will require equipment staging areas as well as work areas within the existing Martin Substation, the proposed Egbert Switching Station, and along the transmission line routes. The potential staging areas currently identified are paved or graveled and no subsurface disturbance is expected for these locations; therefore; there is no potential for impact to paleontological resources and because they are potential locations, they are not included on the PIR figures.

2.2 Purpose of Investigation

The objective of this PIR is to assess the paleontological sensitivity of the sediment that would be affected by ground-disturbing activities associated with the project and to determine what effects may occur from construction and operation of the project.

Chapter 3 Regulatory Setting

This chapter summarizes the state and local LORS that apply to paleontological resources in the project vicinity.

3.1 State LORS

3.1.1 California Environmental Quality Act

CEQA encourages the protection of all aspects of the environment by requiring state and local agencies to prepare multidisciplinary analyses of the environmental impacts of a proposed project, and to make decisions based on the findings of those analyses.

CEQA includes in its definition of historical resources, "any object [or] site …that has yielded or may be likely to yield information important in prehistory" (California Code of Regulations, Title 14, § 15064.5[3]), which is typically interpreted as including fossil materials and other paleontological resources. More specifically, destruction of a "unique paleontological resource or site or unique geologic feature constitutes a significant impact under CEQA" (State CEQA Guidelines Appendix G). CEQA does not provide an explicit definition of a "unique paleontological resource," but a definition is implied by comparable language within the act relating to archeological resources: "The procedures, types of activities, persons, and public agencies required to comply with CEQA are defined in: Guidelines for the Implementation of CEQA, as amended March 29, 1999" (California Code of Regulations, Title 14, § 15000 et seq[3]). One of the questions listed in the CEQA Environmental Checklist (Section 15023, Appendix G, Section XIV, Part A) is, "Will the proposed project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?"

Treatment of paleontological resources under CEQA is generally conducted according to guidance from the Society for Vertebrate Paleontology (SVP) or other agencies (e.g., BLM and U.S. Forest Service), and typically includes identification, assessment, and development of mitigation measures for potential impacts to significant or unique resources.

3.1.2 California Public Resources Code

The State of California Public Resources Code (Chapter 1.7), Sections 5097.5 and 30244, includes additional state level requirements for the assessment and management of paleontological resources. These statutes require reasonable mitigation of adverse impacts to paleontological resources resulting from development on state lands, define the removal of paleontological sites or features from state lands as a misdemeanor, and prohibit the removal of any paleontological site or feature from state land without permission of the applicable jurisdictional agency. Section 30244 requires reasonable mitigation for impacts on paleontological resources that occur as a result of development on public lands. Further, the California Penal Code Section 622.5 sets the penalties for damage or removal of paleontological resources.

Appendix G (part V) of the CEQA Guidelines provides guidance relative to significant impacts on paleontological resources, which states that a project will normally result in a significant impact on the environment if it will disrupt or adversely affect a paleontological resource or site or unique geologic feature, except as part of a scientific study.

3.2 Local Regulations

City and county general plans may include objectives, policies, and actions for the identification and protection of paleontological resources. However, because the California Public Utilities Commission has exclusive jurisdiction over utility project siting, design, and construction, PG&E is not subject to local discretionary regulations. A description of regulations that designates local paleontological resources may be provided for informational purposes and to assist with CEQA review where applicable.

The San Francisco General Plan (1996), Daly City General Plan (2013), and City of Brisbane General Plan (1994) were reviewed. None of the general plans contains requirements, goals, or objectives related to paleontological resources.

Chapter 4 Methods

4.1 Professional Standards

SVP is a scientific organization of professional paleontologists that has established standard guidelines (1996, 2010) for professional practices regarding paleontological resource assessments and surveys; monitoring and mitigation; data and fossil recovery; sampling procedures, specimen preparation, identification, and analysis; and museum curation. These guidelines were developed at an institutional level that is dedicated to scholarship and education rather than resource management. Nevertheless, professional paleontologists generally rely on SVP guidance when complying with federal and state regulations. PG&E assumes that professional paleontologists will follow SVP guidance where applicable; however, in the event of conflicts, the guidelines herein shall supersede SVP protocols on PG&E projects.

4.2 Literature Review and Records Search

The analysis for this PIR was performed by reviewing scientific literature and querying online databases including the University of California at Berkeley Museum of Paleontology (UCMP, 2017) to identify previous paleontological finds in the project vicinity. In addition, geological maps, 7.5-minute U.S. Geological Survey topographic maps, Google Earth imagery, and digital elevation data were reviewed to determine the physiographic and geologic context of the project site and vicinity.

4.3 Key Personnel

This investigation was conducted by MariaElena Conserva, Ph.D. Her resume is provided as Appendix A.

Chapter 5 Results

5.1 Setting

The project is located on the eastern side of the San Francisco Peninsula, and crosses the boundaries of the cities of San Francisco (San Francisco County), Daly City, and Brisbane (San Mateo County) (see Figures 1a and 1b). Land use in the project vicinity is mostly urbanized. The project is within industrial and commercial zones as well as residential zones. The proposed Jefferson-Egbert 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 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 about 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 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 study area and San Bruno Mountain on the southern end (Bonilla, 1998; Brabb et al., 1998). Lower-lying portions of the 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, there are about 60 to 64 million years represented by no sediments whatsoever. 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.

5.2 Geologic Units within Study Area

A study area within 0.25 mile of the project components was established to capture the project and surrounding areas. An inventory of the geologic units (Bonilla, 1998) within the study area is presented below and in Figures 1a and 1b. Rocks and sediments in the vicinity of the project can be divided into three age groups, and are presented chronologically from youngest to oldest.

5.2.1 Holocene (10,000 years ago to Present)

Low-lying portions in the study area that are covered by the most recent sediment, including artificial fill, are included in this category. This sediment is considered to be less than 10,000 years old, which is less than the minimum age widely considered as fossil-bearing rock (PG&E, 2014), and consists of the following:

- **Artificial Fill (Qaf and Qaf/tf):** material imported from other areas and placed by humans. As discussed above, the eastern shoreline of the San Francisco Peninsula has been pushed eastward in many locations, including a portion of the study area, by using fill to create more land. The fill may include clay, silt, sand, rock fragments, organic matter, and human-made debris. In the area marked Qaf/tf, the fill was placed on tidal flats. Areas marked Qafs designate Native American shell mounds.

- **Dune Sand (Qd):** mostly loose, well-sorted, fine-grained sand. The sand is mostly gray in color but is orange to reddish brown in some places. Lower depths extend into the Pleistocene.

- **Landslide Deposits (Ql):** sediment deposited in this location as the result of landslides. The composition and structure of the sediment depends on that of the geologic unit involved in the landslide.

5.2.2 Pleistocene (2.4 million to 10,000 years ago)

The majority of the project footprint lies on older sediment determined to be from the Pleistocene epoch that includes the time period from 2.4 million years ago to 10,000 years ago (Bonilla, 1998), as follows:

- **Sedimentary Deposits (Qu):** sediments mapped as undifferentiated sedimentary deposits of Pleistocene age (Bonilla, 1998).
- **Slope Debris and Ravine Fill (Qsr):** stony silty-to-sandy clay, or locally silty to clayey sand or gravel. These deposits are yellowish-orange to medium gray, and are unstratified or poorly stratified.

5.2.3 Jurassic and Cretaceous (200 million to 65 million years ago)

The oldest geologic units in the study area, Cretaceous and Jurassic rocks associated with the Franciscan Complex, are from 200 million to 65 million years in age. These geologic units probably originated as oceanic crust and pelagic deposits overlain by Late Jurassic to Late Cretaceous turbidites (Brabb et al., 1998). They are generally considered low-grade metamorphic rocks, and contain high-pressure, low-temperature metamorphic minerals. The Franciscan Complex in the study area consists of the following geologic units:

- **Sandstone and Shale 1 (KJs):** interbedded sandstone and shale that is hard where freshly exposed or intact, and is soft where weathered or sheared. These rocks are commonly medium dark gray where freshly exposed, olive gray to yellowish brown where moderately weathered, and yellowish orange to yellowish gray where highly weathered.
- **Sandstone and Shale 2 (KJsk):** sandstone and shale as described above for KJs but containing more than 2 percent potassium feldspar.
- **Greenstone (KJg):** altered volcanic rocks that are fine grained and mostly basalt. Greenstone is hard and grayish olive to olive gray in color where freshly exposed. Where weathered, it is soft and dark yellowish orange to light brown.
- **Chert (KJc):** 2- to 3-inch-thick chert layers that are interbedded with shale layers less than 1 inch thick, generally grayish red.
- **Sheared Rocks (KJu):** small to large fragments of hard rock matrix of sheared rock. Derived mostly from shale and sandstone of Franciscan Complex and serpentine that are fractured and faulted due to mechanical stress.

- **Metamorphic Rocks (KJm):** hard to firm, fine to coarse grained schistose, gneissose, or granulose.
- **Serpentine (sp):** hard to soft rock that is greenish gray and contains small bodies of gabbro and diabase.

5.3 Locality Search Results

The online and print databases were reviewed for macrofossil (plant, vertebrate, and invertebrate fossil) localities for San Francisco and San Mateo Counties (UCMP, 2017; Paleobiology Database, 2017; and Jefferson, 1991). UCMP search results are provided in Appendix B. In terms of Holocene sediment, in San Francisco County, there are 84 records for "recent" age invertebrate fossils (see Table B-1). Location information is given only for about half of them. The only fossil locality (Location identification D6255) was determined to be near the project site at approximately 1.25 miles north of the study area. In San Mateo County, there are 305 records for "recent" fossil localities. The locations of all but 13 of these are identified, and they are not located anywhere near the study area. Most of these Holocene-age fossils are invertebrates from the coastal Pacific side of the San Francisco Peninsula.

The UCMP has 15 records of Pleistocene epoch fossil localities in San Francisco County (see Table B-2). Of these, 10 were found in named formations not mapped anywhere near the study area. Of the remaining 5 localities, only 1 record (UCMP 3410) was found within 4 miles of the study area. This locality was also reported in Jefferson (1991) and the Paleobiology Database (2017). San Mateo County has 24 records of Pleistocene epoch fossil localities (see Table B-3). Of these, all but four records can be ruled out as being from locations that are far away from the study area or are from named formations that don't occur near the study area. Of the remaining four records, three do not have location or formation information; and the remaining locality is labeled as being from South San Francisco, which is 2 to 3 miles from the study area.

Only one fossil locality in each of the San Francisco and San Mateo counties is recorded as from the Franciscan Complex (see Tables B-4 and B-5). The exact locations of these fossil localities were not recorded, and the Franciscan Complex is widespread throughout the San Francisco Peninsula; therefore, there is no evidence that the fossils were found in or near the study area.

Chapter 6 Paleontological Significance and Sensitivity

To assess potential impacts to a paleontological resource, one must consider the sensitivity for underlying geologic formations to produce significant fossils. PG&E uses definitions of significance and sensitivity based on the Federal Land Management and Policy Act of 1976 as well as standards developed by agencies and professional societies including the BLM, SVP, and the California Department of Transportation (PG&E, 2014).

6.1 Definition of Significance and Significance Criteria

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.

The significance of fossils refers to scientific importance. The Federal Land Management and Policy Act of 1976 defines significant fossils as unique, rare, or particularly well preserved; an unusual assemblage of common fossils; or providing important new data concerning several key research interests in the study of evolution.

PG&E (2014) considers a fossil to be significant if it is identifiable and well preserved, and if it meets one of the following criteria:

- A type specimen (i.e., the individual from which a species or subspecies has been described)
- A member of a rare species
- A species that is part of a diverse assemblage (i.e., a site where more than one fossil has been discovered) wherein other species are also identifiable, and from which important information regarding life histories of individuals can be drawn
- An element different from, or more complete than, those now available for its species

- A complete specimen

More specifically, PG&E uses the following research criteria to determine whether a fossil is significant:

- Taxonomy: fossils that are scientifically judged to be important for representing rare or unknown taxa, such as defining a new species.
- Evolution: fossils that are scientifically judged to represent important stages in evolutionary relationships, to fill gaps, or to enhance under-represented intervals in the stratigraphic record.
- Biostratigraphy: fossils that are scientifically judged to be important for determining or constraining relative geologic age, or for use in regional to interregional stratigraphic correlation.
- Paleoecology: fossils that are scientifically judged to be important for reconstructing ancient organism community structure and interpretation of ancient sedimentary environment.
- Taphonomy: fossils that are scientifically judged to be exceptionally well or unusually or uniquely preserved, or are relatively rare in the stratigraphy.

6.2 Definition of Sensitivity and Sensitivity Criteria

PG&E uses the PFYC developed by the BLM 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), 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.

Class 1 – Very Low

These geologic units are not likely to contain fossil remains. They include the following:

- Igneous or metamorphic units
- Units Precambrian in age or older
- Artificial or imported fill material

Class 2 – Low

These sedimentary geologic units are not likely to contain vertebrate or scientifically significant nonvertebrate 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
- Sediments that exhibit significant physical and chemical changes

Class 3 – Moderate or Unknown

These are fossiliferous sedimentary geologic units where fossil content varies in significance, abundance, and occurrence, or are sedimentary units of unknown fossil potential. These units are broken down into sub-classifications and exhibit the following characteristics:

- Class 3a – Moderate Potential:
  - Marine in origin with sporadic occurrences of vertebrate fossils
  - Vertebrate and scientifically significant invertebrate or plant fossils occur intermittently, with low predictability
  - The potential to impact a significant fossil is relatively low, although there is potential to impact common fossils

- Class 3b – Unknown Potential:
  - Exhibits features and conditions that suggest significant fossils could be present, but is poorly studied and/or poorly documented
  - The potential to impact a significant fossil is unknown; potential yield cannot be assigned without additional assessment

Class 4 – High

These are geologic units with a high occurrence of significant fossils. Vertebrate fossils or scientifically significant invertebrate or plant fossils are known and have been documented, but may vary in occurrence and predictability. Ground-disturbing activities have the potential to adversely affect resources if present. These units are broken down into sub-classifications and exhibit the following characteristics:

- Class 4a – High Exposed:
  - Unit is exposed with little or no soil or vegetative cover
  - Extensive outcrop areas with exposed bedrock
  - The potential for encountering or disturbing a significant paleontological resource is moderate to high
- Class 4b – High Buried:
  - Bedrock has high potential, but has moderating circumstances
  - Extensive soil or vegetation cover is present; bedrock exposures are limited or not expected to be impacted
  - Areas of exposed outcrop are smaller than two contiguous acres
  - Outcrops forming cliffs of sufficient height and slope so that impacts are minimized by topography
  - Other characteristics are present that lower the vulnerability of known and unidentified paleontological resources

- The potential for encountering or disturbing a significant paleontological resource is moderate to high, but may be reduced by other environmental factors

Class 5 – Very High

These geologic units consistently and predictably produce vertebrate or scientifically significant invertebrate or plant fossils. Significant fossils are known and can be reasonably expected to occur within the impacted area. Ground-disturbing activities have the potential to adversely affect resources if present. These units are broken down into sub-classifications, and exhibit the following characteristics:

- Class 5a – Very High Exposed:
  - Unit is exposed with little or no soil or vegetative cover
  - Extensive outcrop areas with exposed bedrock
  - Frequent exposure and collection of fossils
  - The potential for encountering or disturbing a significant paleontological resource is high
- Class 5b – Very High Buried:
  - Bedrock has very high potential, but has moderating circumstances
  - Extensive soil or vegetation cover is present; bedrock exposures are limited or not expected to be impacted
  - Areas of exposed outcrop are smaller than two contiguous acres
  - Outcrops forming cliffs of sufficient height and slope so that impacts are minimized by topography
  - Other characteristics are present that lower the vulnerability of known and unidentified paleontological resources
  - The potential for encountering or disturbing a significant paleontological resource is high, but may be reduced by other environmental factors

6.3 Determination of Sensitivity for Geologic Units within Study Area

The PFYC criteria in Section 6.2 was applied to the geologic units in the study area. In Table 1, the geologic age of each unit is indicated in column 1. The sensitivity rating is listed in column 3, and the basis for the rating using the PFYC criteria is in column 4. These ratings are discussed in greater depth in conjunction with the UCMP data and literature review in Section 7.1. Figures 2a and 2b present a mapped version of this data.

TABLE 1
Paleontological Sensitivity of Geologic Units within the Study Area
Egbert Switching Station Project

Geologic Age	Geologic Region	Paleontological Sensitivity – PFYC Category	Basis for Sensitivity Rating
Holocene	Artificial Fill (Qaf and Qaf/tf)	1: Very low	Consists of artificial fill
	Dune Sand (Qd)	2: Low	Recent aeolian deposits; less than 10,000 years old
	Landslide Deposits (Ql)	2: Low	Fossils are rare at shallow depths; no adjacent fossiliferous units; less than 10,000 years old
Pleistocene	Sedimentary Deposits (Qu)	3a: Moderate	Fossils are rare at shallow depths
	Slope Debris and Ravine Fill (Qsr)	2: Low	Slope debris coming out of slopes with low paleontological sensitivity; subaerial deposition
Cretaceous and Jurassic (Franciscan Complex)	Sandstone and shale (KJs and KJsk)	2: Low	Fossils are rare
	Greenstone (KJg)	1: Very low	Metamorphic unit
	Chert (KJc)	2: Low	Fossils are rare
	Sheared Rocks (KJu)	1: Very low	Mechanically altered
	Metamorphic Rocks (KJm)	1: Very low	Metamorphic unit
	Serpentine (sp)	1: Very low	Metamorphic unit

Chapter 7 Findings

A review of paleontological databases (Section 5.3), scientific literature, and geologic maps was conducted to assess the geologic units in the study area.

Holocene units in the study area are determined to be of very low to low sensitivity, as shown in Table 1. Most Holocene sediment in the 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 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 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 1, 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 (PG&E, 2014).

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. The Islais Creek channel is approximately 1.25 miles from the study area. This site yielded a sparse Rancholabrean-age fossil fauna (Radbruch and Schlocker, 1958). 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 mile northeast of the study area. Two localities in South San Francisco (UCMP localities V-6203 and V-6319) have also produced Rancholabrean faunas, including bison and elk or moose.

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 study area (Rodda and Baghai, 1993; UCMP, 2017). Fossils in undifferentiated sediment such as Qu are rarely encountered at shallow depths (less than 20 feet bgs). Excavations associated with the project in Qu would be a maximum of 10 bgs. As discussed above, 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.

Fossils have been found in the Franciscan Complex in the greater Bay Area, but they are not very common. 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.

Chapter 8 References

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Figures

Appendix A
Resumes of Key Personnel

Appendix B
UCMP Specimen Search Results

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
005-031-010	560 CARTER ST	DALY CITY	CA	94014	1 LINCOLN CT	SAN FRANCISCO	CA	94112
005-031-070	PHYSICAL ADDRESS NOT AVAILABLE				57 REY ST	SAN FRANCISCO	CA	94134
005-031-080	PHYSICAL ADDRESS NOT AVAILABLE				268 BUSH ST 2927	SAN FRANCISCO	CA	94104
005-031-090	PHYSICAL ADDRESS NOT AVAILABLE				57 REY ST	SAN FRANCISCO	CA	94134
005-031-100	PHYSICAL ADDRESS NOT AVAILABLE				57 REY ST	SAN FRANCISCO	CA	94134
005-031-110	PHYSICAL ADDRESS NOT AVAILABLE				268 BUSH ST 2927	SAN FRANCISCO	CA	94104
005-031-120	PHYSICAL ADDRESS NOT AVAILABLE				57 REY ST	SAN FRANCISCO	CA	94134
005-031-130	PHYSICAL ADDRESS NOT AVAILABLE				268 BUSH ST 2927	SAN FRANCISCO	CA	94104
005-031-140	PHYSICAL ADDRESS NOT AVAILABLE				57 REY ST	SAN FRANCISCO	CA	94134
005-031-150	PHYSICAL ADDRESS NOT AVAILABLE				268 BUSH ST 2927	SAN FRANCISCO	CA	94104
005-031-290	620 CARTER ST	DALY CITY	CA	94014	323 KINGS RD	BRISBANE	CA	94005
005-041-010	PHYSICAL ADDRESS NOT AVAILABLE				325 S CHESTER AVE	BAKERSFIELD	CA	93304
005-041-020	PHYSICAL ADDRESS NOT AVAILABLE				268 BUSH ST 2927	SAN FRANCISCO	CA	94104
005-041-030	PHYSICAL ADDRESS NOT AVAILABLE				57 REY ST	SAN FRANCISCO	CA	94134
005-041-040	PHYSICAL ADDRESS NOT AVAILABLE				268 BUSH ST 2927	SAN FRANCISCO	CA	94104
005-041-050	PHYSICAL ADDRESS NOT AVAILABLE				268 BUSH ST 2927	SAN FRANCISCO	CA	94104
005-041-060	PHYSICAL ADDRESS NOT AVAILABLE				57 REY ST	SAN FRANCISCO	CA	94134
005-041-090	PHYSICAL ADDRESS NOT AVAILABLE				268 BUSH ST 2927	SAN FRANCISCO	CA	94104
005-041-100	PHYSICAL ADDRESS NOT AVAILABLE				57 REY ST	SAN FRANCISCO	CA	94134
005-041-110	PHYSICAL ADDRESS NOT AVAILABLE				268 BUSH ST 2927	SAN FRANCISCO	CA	94104
005-041-120	PHYSICAL ADDRESS NOT AVAILABLE				57 REY ST	SAN FRANCISCO	CA	94134
005-041-130	PHYSICAL ADDRESS NOT AVAILABLE				19208 WOODBRIDGE DR	WOODLAND	CA	95695
005-041-250	730 CARTER ST	DALY CITY	CA	94014	421 RIO VERDE ST	DALY CITY	CA	94014
005-041-260	STEVE CARTER WAY	DALY CITY	CA	94014	268 BUSH ST 2927	SAN FRANCISCO	CA	94104
005-050-020	2150 GENEVA AVE	DALY CITY	CA	94014	150 PELICAN WAY	SAN RAFAEL	CA	94901
005-050-240	PHYSICAL ADDRESS NOT AVAILABLE				333 90TH ST	DALY CITY	CA	94015
005-050-270	2600 GENEVA AVE	DALY CITY	CA	94014	100 HOWE AVE 100	SACRAMENTO	CA	95825
005-061-010	2321 GENEVA AVE	DALY CITY	CA	94014	19208 WOODBRIDGE DR	WOODLAND	CA	95695
005-260-180	PHYSICAL ADDRESS NOT AVAILABLE				2800 POST OAK BLVD 4200	HOUSTON	TX	77056
005-260-290	PHYSICAL ADDRESS NOT AVAILABLE				1211 NIMITZ DR	DALY CITY	CA	94015
005-260-310	PHYSICAL ADDRESS NOT AVAILABLE				2415 1ST AVE MSA-156 C/O DMV	SACRAMENTO	CA	95818
005-260-390	PHYSICAL ADDRESS NOT AVAILABLE				455 COUNTY CTR 5TH	REDWOOD CITY	CA	94063
005-260-450	PHYSICAL ADDRESS NOT AVAILABLE				1211 NIMITZ DR	DALY CITY	CA	94015
005-260-460	PHYSICAL ADDRESS NOT AVAILABLE				1050 HILLSIDE BLVD	DALY CITY	CA	94014
005-380-020	PHYSICAL ADDRESS NOT AVAILABLE				333 90TH ST	DALY CITY	CA	94015
005-380-100	PHYSICAL ADDRESS NOT AVAILABLE				533 AIRPORT BLVD 501	BURLINGAME	CA	94010
005-380-110	PHYSICAL ADDRESS NOT AVAILABLE				533 AIRPORT BLVD 501	BURLINGAME	CA	94010
005-380-160	1301 CARTER ST	DALY CITY	CA	94014	1211 NIMITZ DR	DALY CITY	CA	94015
005-380-180	1101 CARTER ST	DALY CITY	CA	94014	51 FEDERAL ST 202	SAN FRANCISCO	CA	94107
005-390-240	500 ALEXIS CIR	DALY CITY	CA	94014	500 ALEXIS CIR	DALY CITY	CA	94014
005-390-250	502 ALEXIS CIR	DALY CITY	CA	94014	502 ALEXIS CIR	DALY CITY	CA	94014
005-390-260	504 ALEXIS CIR	DALY CITY	CA	94014	504 ALEXIS CIR	DALY CITY	CA	94014
005-390-270	506 ALEXIS CIR	DALY CITY	CA	94014	398 BAY RIDGE DR	DALY CITY	CA	94014
005-390-280	508 ALEXIS CIR	DALY CITY	CA	94014	508 ALEXIS CIR	DALY CITY	CA	94014
005-390-290	510 ALEXIS CIR	DALY CITY	CA	94014	510 ALEXIS CIR	DALY CITY	CA	94014
005-390-490	619 ALEXIS CIR	DALY CITY	CA	94014	619 ALEXIS CIR	DALY CITY	CA	94014
005-390-500	617 ALEXIS CIR	DALY CITY	CA	94014	617 ALEXIS CIR	DALY CITY	CA	94014
005-390-510	615 ALEXIS CIR	DALY CITY	CA	94014	615 ALEXIS CIR	DALY CITY	CA	94014
005-390-520	611 ALEXIS CIR	DALY CITY	CA	94014	611 ALEXIS CIR	DALY CITY	CA	94014
005-390-530	609 ALEXIS CIR	DALY CITY	CA	94014	609 ALEXIS CIR	DALY CITY	CA	94014

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
005-390-540	607 ALEXIS CIR	DALY CITY	CA	94014	607 ALEXIS CIR	DALY CITY	CA	94014
005-390-770	610 ALEXIS CIR	DALY CITY	CA	94014	610 ALEXIS CIR	DALY CITY	CA	94014
005-390-780	612 ALEXIS CIR	DALY CITY	CA	94014	612 ALEXIS CIR	DALY CITY	CA	94014
005-390-790	614 ALEXIS CIR	DALY CITY	CA	94014	614 ALEXIS CIR	DALY CITY	CA	94014
005-390-800	616 ALEXIS CIR	DALY CITY	CA	94014	616 ALEXIS CIR	DALY CITY	CA	94014
005-390-810	618 ALEXIS CIR	DALY CITY	CA	94014	618 ALEXIS CIR	DALY CITY	CA	94014
005-390-820	620 ALEXIS CIR	DALY CITY	CA	94014	113 CHESTNUT AVE	SOUTH SAN FRANCISCO	CA	94080
005-390-830	622 ALEXIS CIR	DALY CITY	CA	94014	622 ALEXIS CIR	DALY CITY	CA	94014
005-390-840	624 ALEXIS CIR	DALY CITY	CA	94014	624 ALEXIS CIR	DALY CITY	CA	94014
005-390-850	626 ALEXIS CIR	DALY CITY	CA	94014	626 ALEXIS CIR	DALY CITY	CA	94014
005-390-860	628 ALEXIS CIR	DALY CITY	CA	94014	628 ALEXIS CIR	DALY CITY	CA	94014
005-390-870	630 ALEXIS CIR	DALY CITY	CA	94014	630 ALEXIS CIR	DALY CITY	CA	94014
005-390-880	632 ALEXIS CIR	DALY CITY	CA	94014	632 ALEXIS CIR	DALY CITY	CA	94014
005-390-890	634 ALEXIS CIR	DALY CITY	CA	94014	634 ALEXIS CIR	DALY CITY	CA	94014
005-390-900	636 ALEXIS CIR	DALY CITY	CA	94014	636 ALEXIS CIR	DALY CITY	CA	94014
005-390-910	638 ALEXIS CIR	DALY CITY	CA	94014	638 ALEXIS CIR	DALY CITY	CA	94014
005-390-920	640 ALEXIS CIR	DALY CITY	CA	94014	640 ALEXIS CIR	DALY CITY	CA	94014
005-390-930	642 ALEXIS CIR	DALY CITY	CA	94014	642 ALEXIS CIR	DALY CITY	CA	94014
005-510-999	PHYSICAL ADDRESS NOT AVAILABLE				MAILING ADDRESS NOT AVAILABLE			
005-521-010	399 BAY RIDGE DR	DALY CITY	CA	94014	399 BAY RIDGE DR	DALY CITY	CA	94014
005-521-020	397 BAY RIDGE DR	DALY CITY	CA	94014	397 BAY RIDGE DR	DALY CITY	CA	94014
005-521-030	395 BAY RIDGE DR	DALY CITY	CA	94014	5614 MARIOLYN CT	ELK GROVE	CA	95757
005-521-040	393 BAY RIDGE DR	DALY CITY	CA	94014	393 BAY RIDGE DR	DALY CITY	CA	94014
005-521-050	391 BAY RIDGE DR	DALY CITY	CA	94014	391 BAY RIDGE DR	DALY CITY	CA	94014
005-521-060	389 BAY RIDGE DR	DALY CITY	CA	94014	389 BAY RIDGE DR	DALY CITY	CA	94014
005-521-070	387 BAY RIDGE DR	DALY CITY	CA	94014	387 BAY RIDGE DR	DALY CITY	CA	94014
005-521-080	385 BAY RIDGE DR	DALY CITY	CA	94014	385 BAY RIDGE DR	DALY CITY	CA	94014
005-521-090	1 NANCY LN	DALY CITY	CA	94014	81 CAMINO ALTO	MILLBRAE	CA	94030
005-521-100	3 NANCY LN	DALY CITY	CA	94014	3 NANCY LN	DALY CITY	CA	94014
005-521-110	5 NANCY LN	DALY CITY	CA	94014	5 NANCY LN	DALY CITY	CA	94014
005-521-120	7 NANCY LN	DALY CITY	CA	94014	7 NANCY LN	DALY CITY	CA	94014
005-521-130	9 NANCY LN	DALY CITY	CA	94014	7635 ORANGE BLOSSOM DR	CUPERTINO	CA	95014
005-521-140	11 NANCY LN	DALY CITY	CA	94014	11 NANCY LN	DALY CITY	CA	94014
005-521-150	15 NANCY LN	DALY CITY	CA	94014	15 NANCY LN	DALY CITY	CA	94014
005-521-160	30 NANCY LN	DALY CITY	CA	94014	30 NANCY LN	DALY CITY	CA	94014
005-521-170	28 NANCY LN	DALY CITY	CA	94014	28 NANCY LN	DALY CITY	CA	94014
005-521-180	26 NANCY LN	DALY CITY	CA	94014	26 NANCY LN	DALY CITY	CA	94014
005-521-190	22 NANCY LN	DALY CITY	CA	94014	22 NANCY LN	DALY CITY	CA	94014
005-521-200	20 NANCY LN	DALY CITY	CA	94014	20 NANCY LN	DALY CITY	CA	94014
005-521-210	18 NANCY LN	DALY CITY	CA	94014	18 NANCY LN	DALY CITY	CA	94014
005-521-220	16 NANCY LN	DALY CITY	CA	94014	16 NANCY LN	DALY CITY	CA	94014
005-521-230	12 NANCY LN	DALY CITY	CA	94014	12 NANCY LN	DALY CITY	CA	94014
005-521-240	10 NANCY LN	DALY CITY	CA	94014	10 NANCY LN	DALY CITY	CA	94014
005-521-250	8 NANCY LN	DALY CITY	CA	94014	150 LA PRENDA	MILLBRAE	CA	94030
005-521-260	6 NANCY LN	DALY CITY	CA	94014	6 NANCY LN	DALY CITY	CA	94014
005-521-270	2 NANCY LN	DALY CITY	CA	94014	1001 SHRADER ST	SAN FRANCISCO	CA	94117
005-521-280	369 BAY RIDGE DR	DALY CITY	CA	94014	369 BAY RIDGE DR	DALY CITY	CA	94014
005-521-290	367 BAY RIDGE DR	DALY CITY	CA	94014	367 BAY RIDGE DR	DALY CITY	CA	94014
005-521-300	365 BAY RIDGE DR	DALY CITY	CA	94014	365 BAY RIDGE DR	DALY CITY	CA	94014
005-521-310	363 BAY RIDGE DR	DALY CITY	CA	94014	363 BAY RIDGE DR	DALY CITY	CA	94014

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
005-521-320	361 BAY RIDGE DR	DALY CITY	CA	94014	361 BAY RIDGE DR	DALY CITY	CA	94014
005-521-330	359 BAY RIDGE DR	DALY CITY	CA	94014	359 BAY RIDGE DR	DALY CITY	CA	94014
005-521-360	353 BAY RIDGE DR	DALY CITY	CA	94014	353 BAY RIDGE DR	DALY CITY	CA	94014
005-521-370	351 BAY RIDGE DR	DALY CITY	CA	94014	351 BAY RIDGE DR	DALY CITY	CA	94014
005-521-380	PHYSICAL ADDRESS NOT AVAILABLE				55 FRANCISCO ST 700	SAN FRANCISCO	CA	94133
005-522-010	398 BAY RIDGE DR	DALY CITY	CA	94014	398 BAY RIDGE DR	DALY CITY	CA	94014
005-522-020	396 BAY RIDGE DR	DALY CITY	CA	94014	396 BAY RIDGE DR	DALY CITY	CA	94014
005-522-030	392 BAY RIDGE DR	DALY CITY	CA	94014	392 BAY RIDGE DR	DALY CITY	CA	94014
005-522-040	390 BAY RIDGE DR	DALY CITY	CA	94014	390 BAY RIDGE DR	DALY CITY	CA	94014
005-522-050	388 BAY RIDGE DR	DALY CITY	CA	94014	388 BAY RIDGE DR	DALY CITY	CA	94014
005-522-060	386 BAY RIDGE DR	DALY CITY	CA	94014	386 BAY RIDGE DR	DALY CITY	CA	94014
005-522-070	382 BAY RIDGE DR	DALY CITY	CA	94014	382 BAY RIDGE DR	DALY CITY	CA	94014
005-522-080	380 BAY RIDGE DR	DALY CITY	CA	94014	380 BAY RIDGE DR	DALY CITY	CA	94014
005-522-090	378 BAY RIDGE DR	DALY CITY	CA	94014	378 BAY RIDGE DR	DALY CITY	CA	94014
005-530-680	323 BAY RIDGE DR	DALY CITY	CA	94014	323 BAY RIDGE DR	DALY CITY	CA	94014
005-530-690	325 BAY RIDGE DR	DALY CITY	CA	94014	325 BAY RIDGE DR	DALY CITY	CA	94014
005-530-700	327 BAY RIDGE DR	DALY CITY	CA	94014	327 BAY RIDGE DR	DALY CITY	CA	94014
005-530-710	329 BAY RIDGE DR	DALY CITY	CA	94014	329 BAY RIDGE DR	DALY CITY	CA	94014
005-530-720	333 BAY RIDGE DR	DALY CITY	CA	94014	333 BAY RIDGE DR	DALY CITY	CA	94014
005-530-730	335 BAY RIDGE DR	DALY CITY	CA	94014	335 BAY RIDGE DR	DALY CITY	CA	94014
005-530-740	337 BAY RIDGE DR	DALY CITY	CA	94014	337 BAY RIDGE DR	DALY CITY	CA	94014
005-530-750	339 BAY RIDGE DR	DALY CITY	CA	94014	339 BAY RIDGE DR	DALY CITY	CA	94014
005-540-010	808 STEVE COURTER WAY	DALY CITY	CA	94014	808 STEVE COURTER WAY	DALY CITY	CA	94014
005-540-020	822 STEVE COURTER WAY	DALY CITY	CA	94014	822 STEVE COURTER WAY	DALY CITY	CA	94014
005-540-030	828 STEVE COURTER WAY	DALY CITY	CA	94014	828 STEVE COURTER WAY	DALY CITY	CA	94014
005-540-040	832 STEVE COURTER WAY	DALY CITY	CA	94014	PO BOX 2182	BRISBANE	CA	94005
005-540-050	838 STEVE COURTER WAY	DALY CITY	CA	94014	212 CERRO DR	DALY CITY	CA	94015
005-540-060	903 MARTIN TRL	DALY CITY	CA	94014	903 MARTIN TRL	DALY CITY	CA	94014
005-540-070	907 MARTIN TRL	DALY CITY	CA	94014	907 MARTIN TRL	DALY CITY	CA	94014
005-540-080	923 MARTIN TRL	DALY CITY	CA	94014	923 MARTIN TRL	DALY CITY	CA	94014
005-540-090	927 MARTIN TRL	DALY CITY	CA	94014	927 MARTIN TRL	DALY CITY	CA	94014
005-540-100	933 MARTIN TRL	DALY CITY	CA	94014	933 MARTIN TRL	DALY CITY	CA	94014
005-540-110	937 MARTIN TRL	DALY CITY	CA	94014	937 MARTIN TRL	DALY CITY	CA	94014
005-540-120	953 MARTIN TRL	DALY CITY	CA	94014	953 MARTIN TRL	DALY CITY	CA	94014
005-540-130	957 MARTIN TRL	DALY CITY	CA	94014	957 MARTIN TRL	DALY CITY	CA	94014
005-540-140	963 MARTIN TRL	DALY CITY	CA	94014	963 MARTIN TRL	DALY CITY	CA	94014
005-540-150	967 MARTIN TRL	DALY CITY	CA	94014	967 MARTIN TRL	DALY CITY	CA	94014
005-540-160	973 MARTIN TRL	DALY CITY	CA	94014	973 MARTIN TRL	DALY CITY	CA	94014
005-540-170	977 MARTIN TRL	DALY CITY	CA	94014	977 MARTIN TRL	DALY CITY	CA	94014
005-540-180	983 MARTIN TRL	DALY CITY	CA	94014	983 MARTIN TRL	DALY CITY	CA	94014
005-540-190	987 MARTIN TRL	DALY CITY	CA	94014	987 MARTIN TRL	DALY CITY	CA	94014
005-540-200	998 MARTIN TRL	DALY CITY	CA	94014	998 MARTIN TRL	DALY CITY	CA	94014
005-540-210	996 MARTIN TRL	DALY CITY	CA	94014	996 MARTIN TRL	DALY CITY	CA	94014
005-540-220	992 MARTIN TRL	DALY CITY	CA	94014	992 MARTIN TRL	DALY CITY	CA	94014
005-540-230	988 MARTIN TRL	DALY CITY	CA	94014	988 MARTIN TRL	DALY CITY	CA	94014
005-540-240	986 MARTIN TRL	DALY CITY	CA	94014	986 MARTIN TRL	DALY CITY	CA	94014
005-540-250	982 MARTIN TRL	DALY CITY	CA	94014	982 MARTIN TRL	DALY CITY	CA	94014
005-540-260	978 MARTIN TRL	DALY CITY	CA	94014	28 BUENA VISTA RD	SOUTH SAN FRANCISCO	CA	94080
005-540-270	976 MARTIN TRL	DALY CITY	CA	94014	976 MARTIN TRL	DALY CITY	CA	94014
005-540-280	972 MARTIN TRL	DALY CITY	CA	94014	972 MARTIN TRL	DALY CITY	CA	94014

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
005-540-290	968 MARTIN TRL	DALY CITY	CA	94014	968 MARTIN TRL	DALY CITY	CA	94014
005-540-300	962 MARTIN TRL	DALY CITY	CA	94014	962 MARTIN TRL	DALY CITY	CA	94014
005-540-310	958 MARTIN TRL	DALY CITY	CA	94014	958 MARTIN TRL	DALY CITY	CA	94014
005-540-320	952 MARTIN TRL	DALY CITY	CA	94014	952 MARTIN TRL	DALY CITY	CA	94014
005-540-330	938 MARTIN TRL	DALY CITY	CA	94014	1646 25TH AVE	SAN FRANCISCO	CA	94122
005-540-340	932 MARTIN TRL	DALY CITY	CA	94014	932 MARTIN TRL	DALY CITY	CA	94014
005-540-350	928 MARTIN TRL	DALY CITY	CA	94014	928 MARTIN TRL	DALY CITY	CA	94014
005-540-360	858 STEVE COURTER WAY	DALY CITY	CA	94014	858 STEVE COURTER WAY	DALY CITY	CA	94014
005-540-370	872 STEVE COURTER WAY	DALY CITY	CA	94014	872 STEVE COURTER WAY	DALY CITY	CA	94014
005-540-380	878 STEVE COURTER WAY	DALY CITY	CA	94014	878 STEVE COURTER WAY	DALY CITY	CA	94014
005-540-390	882 STEVE COURTER WAY	DALY CITY	CA	94014	7333 RASMUSSEN WAY	ROHNERT PARK	CA	94928
005-540-400	888 STEVE COURTER WAY	DALY CITY	CA	94014	888 STEVE COURTER WAY	DALY CITY	CA	94014
005-540-410	903 FARRIER PL	DALY CITY	CA	94014	903 FARRIER PL	DALY CITY	CA	94014
005-540-420	905 FARRIER PL	DALY CITY	CA	94014	905 FARRIER PL	DALY CITY	CA	94014
005-540-430	907 FARRIER PL	DALY CITY	CA	94014	907 FARRIER PL	DALY CITY	CA	94014
005-540-440	923 FARRIER PL	DALY CITY	CA	94014	923 FARRIER PL	DALY CITY	CA	94014
005-540-450	927 FARRIER PL	DALY CITY	CA	94014	927 FARMER PL	DALY CITY	CA	94015
005-540-460	933 FARRIER PL	DALY CITY	CA	94014	933 FARRIER PL	DALY CITY	CA	94014
005-540-470	935 FARRIER PL	DALY CITY	CA	94014	935 FARRIER PL	DALY CITY	CA	94014
005-540-480	937 FARRIER PL	DALY CITY	CA	94014	937 FARRIER PL	DALY CITY	CA	94014
005-540-490	953 FARRIER PL	DALY CITY	CA	94014	953 FARRIER PL	DALY CITY	CA	94014
005-540-500	957 FARRIER PL	DALY CITY	CA	94014	367 MINORCA WAY	MILLBRAE	CA	94030
005-540-510	963 FARRIER PL	DALY CITY	CA	94014	963 FARRIER PL	DALY CITY	CA	94014
005-540-520	967 FARRIER PL	DALY CITY	CA	94014	967 FARRIER PL	DALY CITY	CA	94014
005-540-530	973 FARRIER PL	DALY CITY	CA	94014	973 FARRIER PL	DALY CITY	CA	94014
005-540-540	977 FARRIER PL	DALY CITY	CA	94014	977 FARRIER PL	DALY CITY	CA	94014
005-540-550	983 FARRIER PL	DALY CITY	CA	94014	983 FARRIER PL	DALY CITY	CA	94014
005-540-560	985 FARRIER PL	DALY CITY	CA	94014	985 FARRIER PL	DALY CITY	CA	94014
005-540-570	987 FARRIER PL	DALY CITY	CA	94014	987 FARRIER PL	DALY CITY	CA	94014
005-540-580	989 FARRIER PL	DALY CITY	CA	94014	989 FARRIER PL	DALY CITY	CA	94014
005-540-590	988 FARRIER PL	DALY CITY	CA	94014	988 FARRIER PL	DALY CITY	CA	94014
005-540-600	986 FARRIER PL	DALY CITY	CA	94014	986 FARRIER PL	DALY CITY	CA	94014
005-540-610	982 FARRIER PL	DALY CITY	CA	94014	982 FARRIER PL	DALY CITY	CA	94014
005-540-620	978 FARRIER PL	DALY CITY	CA	94014	978 FARRIER PL	DALY CITY	CA	94014
005-540-999	PHYSICAL ADDRESS NOT AVAILABLE				MAILING ADDRESS NOT AVAILABLE			
005-540-999	PHYSICAL ADDRESS NOT AVAILABLE				MAILING ADDRESS NOT AVAILABLE			
005-540-999	PHYSICAL ADDRESS NOT AVAILABLE				MAILING ADDRESS NOT AVAILABLE			
005-550-210	165 ELDERBERRY LN	BRISBANE	CA	94005	1185 CHESS DR 200	FOSTER CITY	CA	94404
103-270-999	PHYSICAL ADDRESS NOT AVAILABLE				MAILING ADDRESS NOT AVAILABLE			
103-280-010	2101 WILDFLOWER CT	DALY CITY	CA	94014	2101 WILDFLOWER CT	DALY CITY	CA	94014
103-280-020	2102 WILDFLOWER CT	DALY CITY	CA	94014	157 HILLCREST DR	DALY CITY	CA	94014
103-280-030	2103 WILDFLOWER CT	DALY CITY	CA	94014	2103 WILDFLOWER CT	DALY CITY	CA	94014
103-280-040	2104 WILDFLOWER CT	DALY CITY	CA	94014	2104 WILDFLOWER CT	DALY CITY	CA	94014
103-280-050	2105 WILDFLOWER CT	DALY CITY	CA	94014	2105 WILDFLOWER CT	DALY CITY	CA	94014
103-280-060	2106 WILDFLOWER CT	DALY CITY	CA	94014	438 LELAND AVE	SAN FRANCISCO	CA	94134
103-280-070	2107 WILDFLOWER CT	DALY CITY	CA	94014	2107 WILDFLOWER CT	DALY CITY	CA	94014
103-280-080	2108 WILDFLOWER CT	DALY CITY	CA	94014	2108 WILDFLOWER CT	DALY CITY	CA	94014
103-280-090	2109 WILDFLOWER CT	DALY CITY	CA	94014	2109 WILDFLOWER CT	DALY CITY	CA	94014
103-280-100	2110 WILDFLOWER CT	DALY CITY	CA	94014	139 S LAKE MERCED HLS 1C	SAN FRANCISCO	CA	94132
103-280-110	2111 WILDFLOWER CT DT	DALY CITY	CA	94014	2111 WILDFLOWER CT DT	DALY CITY	CA	94014

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
103-280-120	2112 WILDFLOWER CT	DALY CITY	CA	94014	2112 WILDFLOWER CT	DALY CITY	CA	94014
103-280-130	2201 WILDFLOWER CT	DALY CITY	CA	94014	2201 WILDFLOWER CT	DALY CITY	CA	94014
103-280-140	2202 WILDFLOWER CT	DALY CITY	CA	94014	2202 WILDFLOWER CT	DALY CITY	CA	94014
103-280-150	2203 WILDFLOWER CT	DALY CITY	CA	94014	2203 WILDFLOWER CT	DALY CITY	CA	94014
103-280-160	2204 WILDFLOWER CT	DALY CITY	CA	94014	2204 WILDFLOWER CT	DALY CITY	CA	94014
103-280-170	2205 WILDFLOWER CT	DALY CITY	CA	94014	2205 WILDFLOWER CT	DALY CITY	CA	94014
103-280-180	2206 WILDFLOWER CT	DALY CITY	CA	94014	2206 WILDFLOWER CT	DALY CITY	CA	94014
103-280-190	2207 WILDFLOWER CT	DALY CITY	CA	94014	2207 WILDFLOWER CT	DALY CITY	CA	94014
103-280-200	2208 WILDFLOWER CT	DALY CITY	CA	94014	2208 WILDFLOWER CT	DALY CITY	CA	94014
103-280-210	2209 WILDFLOWER CT	DALY CITY	CA	94014	2209 WILDFLOWER CT	DALY CITY	CA	94014
103-280-220	2210 WILDFLOWER CT	DALY CITY	CA	94014	670 HUGHS WAY	MCKINLEYVILLE	CA	95519
103-280-230	2211 WILDFLOWER CT	DALY CITY	CA	94014	2211 WILDFLOWER CT	DALY CITY	CA	94014
103-280-240	2212 WILDFLOWER CT	DALY CITY	CA	94014	2212 WILDFLOWER CT	DALY CITY	CA	94014
103-290-010	2301 LUPINE CT	DALY CITY	CA	94014	2301 LUPINE CT	DALY CITY	CA	94014
103-290-020	2302 LUPINE CT	DALY CITY	CA	94014	836 VITA CASITAS	GREENBRAE	CA	94904
103-290-030	2303 LUPINE CT	DALY CITY	CA	94014	2303 LUPINE CT	DALY CITY	CA	94014
103-290-040	2304 LUPINE CT	DALY CITY	CA	94014	2304 LUPINE CT	DALY CITY	CA	94014
103-290-050	2305 LUPINE CT	DALY CITY	CA	94014	2305 LUPINE CT	DALY CITY	CA	94014
103-290-060	2306 LUPINE CT	DALY CITY	CA	94014	2306 LUPINE CT	DALY CITY	CA	94014
103-290-070	2307 LUPINE CT	DALY CITY	CA	94014	2307 LUPINE CT	DALY CITY	CA	94014
103-290-080	2308 LUPINE CT	DALY CITY	CA	94014	2308 LUPINE CT	DALY CITY	CA	94014
103-290-090	2309 LUPINE CT	DALY CITY	CA	94014	2309 LUPINE CT	DALY CITY	CA	94014
103-290-100	2310 LUPINE CT	DALY CITY	CA	94014	2310 LUPINE CT	DALY CITY	CA	94014
103-290-110	2311 LUPINE CT	DALY CITY	CA	94014	2311 LUPINE CT	DALY CITY	CA	94014
103-290-120	2312 LUPINE CT	DALY CITY	CA	94014	2312 LUPINE CT	DALY CITY	CA	94014
103-290-130	2401 LUPINE CT	DALY CITY	CA	94014	2401 LUPINE CT	DALY CITY	CA	94014
103-290-140	2402 LUPINE CT	DALY CITY	CA	94014	2402 LUPINE CT	DALY CITY	CA	94014
103-290-150	2403 LUPINE CT	DALY CITY	CA	94014	2403 LUPINE CT	DALY CITY	CA	94014
103-290-160	2404 LUPINE CT	DALY CITY	CA	94014	806 CALMAR AVE	OAKLAND	CA	94610
103-290-170	2405 LUPINE CT	DALY CITY	CA	94014	2405 LUPINE CT	DALY CITY	CA	94014
103-290-180	2406 LUPINE CT	DALY CITY	CA	94014	2406 LUPINE CT	DALY CITY	CA	94014
103-290-190	2407 LUPINE CT	DALY CITY	CA	94014	2407 LUPINE CT	DALY CITY	CA	94014
103-290-200	2408 LUPINE CT	DALY CITY	CA	94014	1777 EISENHOWER ST	SAN MATEO	CA	94403
103-290-210	2409 LUPINE CT	DALY CITY	CA	94014	2409 LUPINE CT	DALY CITY	CA	94014
103-290-220	2410 LUPINE CT	DALY CITY	CA	94014	2410 LUPINE CT	DALY CITY	CA	94014
103-290-230	2411 LUPINE CT	DALY CITY	CA	94014	2411 LUPINE CT	DALY CITY	CA	94014
103-290-240	2412 LUPINE CT	DALY CITY	CA	94014	2412 LUPINE CT	DALY CITY	CA	94014
5415-005	PHYSICAL ADDRESS NOT AVAILABLE				101 W AMECAN CANYON RD 508	AMERICAN CANYON	CA	94503
5415-007	1700 EGBERT AVE	SAN FRANCISCO	CA	94124	PO BOX 320099	ALEXANDRIA	VA	22320
5415-008	PHYSICAL ADDRESS NOT AVAILABLE				MAILING ADDRESS NOT AVAILABLE			
5415-011	PHYSICAL ADDRESS NOT AVAILABLE				101 W AMECAN CANYON RD 508	AMERICAN CANYON	CA	94503
5415-013	PHYSICAL ADDRESS NOT AVAILABLE				1250 SAN CARLOS AVE	SAN CARLOS	CA	94070
5428B-001	95 BITTING AVE	SAN FRANCISCO	CA	94124	95 BITTING AVE	SAN FRANCISCO	CA	94124
5428B-002	89 BITTING AVE	SAN FRANCISCO	CA	94124	89 BITTING AVE	SAN FRANCISCO	CA	94124
5428B-003	85 BITTING AVE	SAN FRANCISCO	CA	94124	85 BITTING AVE	SAN FRANCISCO	CA	94124
5428B-004	79 BITTING AVE	SAN FRANCISCO	CA	94124	79 BITTING AVE	SAN FRANCISCO	CA	94124
5428B-005	75 BITTING AVE	SAN FRANCISCO	CA	94124	75 BITTING AVE	SAN FRANCISCO	CA	94124
5428B-006	69 BITTING AVE	SAN FRANCISCO	CA	94124	55 BITTING AVE	SAN FRANCISCO	CA	94124
5428B-007	61 BITTING AVE	SAN FRANCISCO	CA	94124	28 WILLIAR AVE	SAN FRANCISCO	CA	94112
5428B-008	55 BITTING AVE	SAN FRANCISCO	CA	94124	55 BITTING AVE	SAN FRANCISCO	CA	94124

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
5428B-009	51 BITTING AVE	SAN FRANCISCO	CA	94124	51 BITTING AVE	SAN FRANCISCO	CA	94124
5428C-001	338 KALMANOVITZ ST	SAN FRANCISCO	CA	94124	28 WILLIAR AVE	SAN FRANCISCO	CA	94112
5428C-002	2 BITTING AVE	SAN FRANCISCO	CA	94124	2 BITTING AVE	SAN FRANCISCO	CA	94124
5428C-003	8 BITTING AVE	SAN FRANCISCO	CA	94124	8 BITTING AVE	SAN FRANCISCO	CA	94124
5428C-004	12 BITTING AVE	SAN FRANCISCO	CA	94124	12 BITTING AVE	SAN FRANCISCO	CA	94124
5428C-005	18 BITTING AVE	SAN FRANCISCO	CA	94124	808 BURLINGAME AVE	BURLINGAME	CA	94010
5428C-006	22 BITTING AVE	SAN FRANCISCO	CA	94124	22 BITTING AVE	SAN FRANCISCO	CA	94124
5428C-007	28 BITTING AVE	SAN FRANCISCO	CA	94124	28 BITTING AVE	SAN FRANCISCO	CA	94124
5428C-008	38 BITTING AVE	SAN FRANCISCO	CA	94124	38 BITTING AVE	SAN FRANCISCO	CA	94124
5428C-009	48 BITTING AVE	SAN FRANCISCO	CA	94124	48 BITTING AVE	SAN FRANCISCO	CA	94124
5428C-010	52 BITTING AVE	SAN FRANCISCO	CA	94124	52 BITTING AVE	SAN FRANCISCO	CA	94124
5428C-011	56 BITTING AVE	SAN FRANCISCO	CA	94124	1315 SILLIMAN ST	SAN FRANCISCO	CA	94134
5428C-012	62 BITTING AVE	SAN FRANCISCO	CA	94124	62 BITTING AVE	SAN FRANCISCO	CA	94124
5428C-013	68 BITTING AVE	SAN FRANCISCO	CA	94124	68 BITTING AVE	SAN FRANCISCO	CA	94124
5428C-014	72 BITTING AVE	SAN FRANCISCO	CA	94124	72 BITTING AVE	SAN FRANCISCO	CA	94124
5428C-015	78 BITTING AVE	SAN FRANCISCO	CA	94124	501 CORDOVA ST	SAN FRANCISCO	CA	94112
5428C-016	82 BITTING AVE	SAN FRANCISCO	CA	94124	82 BITTING AVE	SAN FRANCISCO	CA	94124
5428C-017	88 BITTING AVE	SAN FRANCISCO	CA	94124	88 BITTING AVE	SAN FRANCISCO	CA	94124
5428C-018	92 BITTING AVE	SAN FRANCISCO	CA	94124	92 BITTING AVE	SAN FRANCISCO	CA	94124
5428C-019	96 BITTING AVE	SAN FRANCISCO	CA	94124	96 BITTING AVE	SAN FRANCISCO	CA	94124
5428C-020	98 BITTING AVE	SAN FRANCISCO	CA	94124	98 BITTING AVE	SAN FRANCISCO	CA	94124
5428C-021	95 LYDIA AVE	SAN FRANCISCO	CA	94124	95 LYDIA AVE	SAN FRANCISCO	CA	94124
5428C-022	91 LYDIA AVE	SAN FRANCISCO	CA	94124	91 LYDIA AVE	SAN FRANCISCO	CA	94124
5428C-023	87 LYDIA AVE	SAN FRANCISCO	CA	94124	87 LYDIA AVE	SAN FRANCISCO	CA	94124
5428C-024	81 LYDIA AVE	SAN FRANCISCO	CA	94124	81 LYDIA AVE	SAN FRANCISCO	CA	94124
5428C-025	77 LYDIA AVE	SAN FRANCISCO	CA	94124	110 SPRINGFIELD DR	SAN FRANCISCO	CA	94132
5428C-026	73 LYDIA AVE	SAN FRANCISCO	CA	94124	73 LYDIA AVE	SAN FRANCISCO	CA	94124
5428C-027	69 LYDIA AVE	SAN FRANCISCO	CA	94124	69 LYDIA AVE	SAN FRANCISCO	CA	94124
5428C-028	65 LYDIA AVE	SAN FRANCISCO	CA	94124	65 LYDIA AVE	SAN FRANCISCO	CA	94124
5428C-029	61 LYDIA AVE	SAN FRANCISCO	CA	94124	PO BOX 347186	SAN FRANCISCO	CA	94134
5428C-030	55 LYDIA AVE	SAN FRANCISCO	CA	94124	55 LYDIA AVE	SAN FRANCISCO	CA	94124
5428C-031	51 LYDIA AVE	SAN FRANCISCO	CA	94124	51 LYDIA AVE	SAN FRANCISCO	CA	94124
5428C-032	45 LYDIA AVE	SAN FRANCISCO	CA	94124	45 LYDIA AVE	SAN FRANCISCO	CA	94124
5428C-033	41 LYDIA AVE	SAN FRANCISCO	CA	94124	41 LYDIA AVE	SAN FRANCISCO	CA	94124
5428C-034	39 LYDIA AVE	SAN FRANCISCO	CA	94124	39 LYDIA AVE	SAN FRANCISCO	CA	94124
5428C-035	35 LYDIA AVE	SAN FRANCISCO	CA	94124	35 LYDIA AVE	SAN FRANCISCO	CA	94124
5428C-036	31 LYDIA AVE	SAN FRANCISCO	CA	94124	31 LYDIA AVE	SAN FRANCISCO	CA	94124
5428C-037	29 LYDIA AVE	SAN FRANCISCO	CA	94124	29 LYDIA AVE	SAN FRANCISCO	CA	94124
5428C-038	25 LYDIA AVE	SAN FRANCISCO	CA	94124	25 LYDIA AVE	SAN FRANCISCO	CA	94124
5428C-039	21 LYDIA AVE	SAN FRANCISCO	CA	94124	21 LYDIA AVE	SAN FRANCISCO	CA	94124
5428C-040	17 LYDIA AVE	SAN FRANCISCO	CA	94124	17 LYDIA AVE	SAN FRANCISCO	CA	94124
5428C-041	15 LYDIA AVE	SAN FRANCISCO	CA	94124	15 LYDIA AVE	SAN FRANCISCO	CA	94124
5428C-042	11 LYDIA AVE	SAN FRANCISCO	CA	94124	11 LYDIA AVE	SAN FRANCISCO	CA	94124
5428C-043	9 LYDIA AVE	SAN FRANCISCO	CA	94124	9 LYDIA AVE	SAN FRANCISCO	CA	94124
5428C-044	5 LYDIA AVE	SAN FRANCISCO	CA	94124	5 LYDIA AVE	SAN FRANCISCO	CA	94124
5428C-045	1 LYDIA AVE	SAN FRANCISCO	CA	94124	1 LYDIA AVE	SAN FRANCISCO	CA	94124
5428D-001	2 LYDIA AVE	SAN FRANCISCO	CA	94124	2 LYDIA AVE	SAN FRANCISCO	CA	94124
5428D-002	6 LYDIA AVE	SAN FRANCISCO	CA	94124	340 BOWDOIN ST	SAN FRANCISCO	CA	94134
5428D-003	8 LYDIA AVE	SAN FRANCISCO	CA	94124	8 LYDIA AVE	SAN FRANCISCO	CA	94124
5428D-004	10 LYDIA AVE	SAN FRANCISCO	CA	94124	1938 11TH AVE	SAN FRANCISCO	CA	94116

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
5428D-005	16 LYDIA AVE	SAN FRANCISCO	CA	94124	16 LYDIA AVE	SAN FRANCISCO	CA	94124
5428D-006	18 LYDIA AVE	SAN FRANCISCO	CA	94124	18 LYDIA AVE	SAN FRANCISCO	CA	94124
5428D-007	20 LYDIA AVE	SAN FRANCISCO	CA	94124	20 LYDIA AVE	SAN FRANCISCO	CA	94124
5428D-008	26 LYDIA AVE	SAN FRANCISCO	CA	94124	26 LYDIA AVE	SAN FRANCISCO	CA	94124
5428D-009	28 LYDIA AVE	SAN FRANCISCO	CA	94124	28 LYDIA AVE	SAN FRANCISCO	CA	94124
5428D-010	30 LYDIA AVE	SAN FRANCISCO	CA	94124	30 LYDIA AVE	SAN FRANCISCO	CA	94124
5428D-011	36 LYDIA AVE	SAN FRANCISCO	CA	94124	36 LYDIA AVE	SAN FRANCISCO	CA	94124
5428D-012	38 LYDIA AVE	SAN FRANCISCO	CA	94124	38 LYDIA AVE	SAN FRANCISCO	CA	94124
5428D-013	40 LYDIA AVE	SAN FRANCISCO	CA	94124	40 LYDIA AVE	SAN FRANCISCO	CA	94124
5428D-061	192 ORSI CIR	SAN FRANCISCO	CA	94124	192 ORSI CIR	SAN FRANCISCO	CA	94124
5428D-062	198 ORSI CIR	SAN FRANCISCO	CA	94124	198 ORSI CIR	SAN FRANCISCO	CA	94124
5428G-001	205 KALMANOVITZ ST	SAN FRANCISCO	CA	94124	205 KALMANOVITZ ST	SAN FRANCISCO	CA	94124
5428G-002	209 KALMANOVITZ ST	SAN FRANCISCO	CA	94124	209 KALMANOVITZ ST	SAN FRANCISCO	CA	94124
5428G-003	215 KALMANOVITZ ST	SAN FRANCISCO	CA	94124	215 KALMANOVITZ ST	SAN FRANCISCO	CA	94124
5428G-007	285 KALMANOVITZ ST	SAN FRANCISCO	CA	94124	285 KALMANOVITZ ST	SAN FRANCISCO	CA	94124
5428G-008	295 KALMANOVITZ ST	SAN FRANCISCO	CA	94124	295 KALMANOVITZ ST	SAN FRANCISCO	CA	94124
5428G-009	221 KALMANOVITZ ST	SAN FRANCISCO	CA	94124	221 KALMANOVITZ ST	SAN FRANCISCO	CA	94124
5428G-010	225 KALMANOVITZ ST	SAN FRANCISCO	CA	94124	225 KALMANOVITZ ST	SAN FRANCISCO	CA	94124
5428G-011	235 KALMANOVITZ ST	SAN FRANCISCO	CA	94124	235 KALMANOVITZ ST	SAN FRANCISCO	CA	94124
5428G-012	241 KALMANOVITZ ST	SAN FRANCISCO	CA	94124	241 KALMANOVITZ ST	SAN FRANCISCO	CA	94124
5428G-013	245 KALMANOVITZ ST	SAN FRANCISCO	CA	94124	245 KALMANOVITZ ST	SAN FRANCISCO	CA	94124
5428G-014	255 KALMANOVITZ ST	SAN FRANCISCO	CA	94124	255 KALMANOVITZ ST	SAN FRANCISCO	CA	94124
5428G-015	265 KALMANOVITZ ST	SAN FRANCISCO	CA	94124	265 KALMANOVITZ ST	SAN FRANCISCO	CA	94124
5428G-016	275 KALMANOVITZ ST	SAN FRANCISCO	CA	94124	275 KALMANOVITZ ST	SAN FRANCISCO	CA	94124
5429-002	5700 3RD ST	SAN FRANCISCO	CA	94124	600 THE EMBARCADERO	SAN FRANCISCO	CA	94107
5429-003	1786 CARROLL AVE	SAN FRANCISCO	CA	94124	3428 22ND ST	SAN FRANCISCO	CA	94110
5431A-001	5900 3RD ST C2001	SAN FRANCISCO	CA	94124	2120 PARK PL #200	EL SEGUNDO	CA	90245
5431A-001A	1755 EGBERT AVE	SAN FRANCISCO	CA	94124	1350 4TH ST	BERKELEY	CA	94710
5431A-001F	200 PAUL AVE	SAN FRANCISCO	CA	94124	16600 WOODRUFF AVE 200	BELLFLOWER	CA	90706
5431A-001G	202 PAUL AVE	SAN FRANCISCO	CA	94124	16600 WOODRUFF AVE 200	BELLFLOWER	CA	90706
5431A-001L	500 PAUL AVE	SAN FRANCISCO	CA	94124	1250 E MISSOURI AVE	PHOENIX	AZ	85014
5431A-001V	5990 3RD ST	SAN FRANCISCO	CA	94124	4623 ANZA ST	SAN FRANCISCO	CA	94121
5431A-001Z	PHYSICAL ADDRESS NOT AVAILABLE				1350 4TH ST	BERKELEY	CA	94710
5431A-002	1785 EGBERT AVE	SAN FRANCISCO	CA	94124	1775 EGBERT AVE	SAN FRANCISCO	CA	94124
5431A-012	1485 BAY SHORE BLVD	SAN FRANCISCO	CA	94124	482 BRYANT ST	SAN FRANCISCO	CA	94107
5431A-013	1825 EGBERT AVE	SAN FRANCISCO	CA	94124	2960 VAN NESS AVE B	SAN FRANCISCO	CA	94109
5431A-014	400 PAUL AVE	SAN FRANCISCO	CA	94124	1350 TREAT BLVD STE 569	WALNUT CREEK	CA	94596
5431A-015	400 PAUL AVE	SAN FRANCISCO	CA	94124	1350 TREAT BLVD STE 569	WALNUT CREEK	CA	94596
5431A-016	1819 EGBERT AVE	SAN FRANCISCO	CA	94124	4211 CHABOYA RD	SAN JOSE	CA	95148
5431A-017	1815 EGBERT AVE	SAN FRANCISCO	CA	94124	1815 EGBERT AVE	SAN FRANCISCO	CA	94124
5431A-019	125 PAUL AVE V	SAN FRANCISCO	CA	94124	1485 BAYSHORE BOULEVARD NBN 178	SAN FRANCISCO	CA	94124
5431A-026	PHYSICAL ADDRESS NOT AVAILABLE				1250 SAN CARLOS AVE	SAN CARLOS	CA	94070
5431A-027	PHYSICAL ADDRESS NOT AVAILABLE				1250 SAN CARLOS AVE	SAN CARLOS	CA	94070
5431A-028	PHYSICAL ADDRESS NOT AVAILABLE				1250 SAN CARLOS AVE	SAN CARLOS	CA	94070
5431A-029	PHYSICAL ADDRESS NOT AVAILABLE				1250 SAN CARLOS AVE	SAN CARLOS	CA	94070
5431A-031	PHYSICAL ADDRESS NOT AVAILABLE				1250 SAN CARLOS AVE	SAN CARLOS	CA	94070
5431A-041	5830 3RD ST	SAN FRANCISCO	CA	94124	12100 WILSHIRE BLVD 250	LOS ANGELES	CA	90025
5431A-042	1751 CARROLL AVE	SAN FRANCISCO	CA	94124	720 OLIVE ST 2500	SAINT LOUIS	MO	63101
5431A-051	300 PAUL AVE	SAN FRANCISCO	CA	94124	2999 OAK RD 400	WALNUT CREEK	CA	94597
5434A-003	1874 DONNER AVE	SAN FRANCISCO	CA	94124	1874 DONNER AVE	SAN FRANCISCO	CA	94124

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
5434A-004	1876 DONNER AVE	SAN FRANCISCO	CA	94124	1876 DONNER AVE	SAN FRANCISCO	CA	94124
5434A-005	1878 DONNER AVE	SAN FRANCISCO	CA	94124	1878 DONNER AVE	SAN FRANCISCO	CA	94124
5434A-006	1882 DONNER AVE	SAN FRANCISCO	CA	94124	1882 DONNER AVE	SAN FRANCISCO	CA	94124
5434A-007	1886 DONNER AVE	SAN FRANCISCO	CA	94124	665 GOETTINGEN ST	SAN FRANCISCO	CA	94134
5434A-008	1890 DONNER AVE	SAN FRANCISCO	CA	94124	1890 DONNER AVE	SAN FRANCISCO	CA	94124
5434A-009	1894 DONNER AVE	SAN FRANCISCO	CA	94124	1894 DONNER AVE	SAN FRANCISCO	CA	94124
5434A-023	1862 DONNER AVE	SAN FRANCISCO	CA	94124	1664 FOOTHILL PARK CIR	LAFAYETTE	CA	94549
5434A-024	1866 DONNER AVE	SAN FRANCISCO	CA	94124	1664 FOOTHILL PARK CIR	LAFAYETTE	CA	94549
5434B-001B	1955 CARROLL AVE	SAN FRANCISCO	CA	94124	605 MARKET ST	SAN FRANCISCO	CA	94105
5434B-001C	2640 NEWHALL ST V	SAN FRANCISCO	CA	94124	140 TOWN AND COUNTRY DR	DANVILLE	CA	94526
5434B-002	1901 CARROLL AVE	SAN FRANCISCO	CA	94124	741 COSTA RICA AVE	SAN MATEO	CA	94402
5434B-003	1945 CARROLL AVE	SAN FRANCISCO	CA	94124	1945 CARROLL AVE	SAN FRANCISCO	CA	94124
5434B-004	2660 NEWHALL ST	SAN FRANCISCO	CA	94124	1621 MARKET ST	SAN FRANCISCO	CA	94103
5434B-005	1828 EGBERT AVE	SAN FRANCISCO	CA	94124	140 TOWN AND COUNTRY DR	DANVILLE	CA	94526
5435-002A	1926 DONNER AVE	SAN FRANCISCO	CA	94124	1926 DONNER AVE	SAN FRANCISCO	CA	94124
5435-002B	1934 DONNER AVE	SAN FRANCISCO	CA	94124	1934 DONNER AVE	SAN FRANCISCO	CA	94124
5435-002C	1930 DONNER AVE	SAN FRANCISCO	CA	94124	1930 DONNER AVE	SAN FRANCISCO	CA	94124
5435-002D	1924 DONNER AVE	SAN FRANCISCO	CA	94124	1924 DONNER AVE	SAN FRANCISCO	CA	94124
5435-002E	2638 PHELPS ST	SAN FRANCISCO	CA	94124	2327 29TH AVE	SAN FRANCISCO	CA	94116
5435-002F	2644 PHELPS ST	SAN FRANCISCO	CA	94124	397 SWEENY ST	SAN FRANCISCO	CA	94134
5435-002G	2650 PHELPS ST	SAN FRANCISCO	CA	94124	2650 PHELPS ST	SAN FRANCISCO	CA	94124
5435-002H	1914 DONNER AVE	SAN FRANCISCO	CA	94124	1914 DONNER AVE	SAN FRANCISCO	CA	94124
5435-002I	1918 DONNER AVE	SAN FRANCISCO	CA	94124	1918 DONNER AVE	SAN FRANCISCO	CA	94124
5435-003	1936 DONNER AVE	SAN FRANCISCO	CA	94124	1936 DONNER AVE	SAN FRANCISCO	CA	94124
5435-004	1938 DONNER AVE	SAN FRANCISCO	CA	94124	1938 DONNER AVE	SAN FRANCISCO	CA	94124
5435-005	1942 DONNER AVE	SAN FRANCISCO	CA	94124	1942 DONNER AVE	SAN FRANCISCO	CA	94124
5435-006	1950 DONNER AVE	SAN FRANCISCO	CA	94124	1950 DONNER AVE	SAN FRANCISCO	CA	94124
5435-007	1954 DONNER AVE	SAN FRANCISCO	CA	94124	1954 DONNER AVE	SAN FRANCISCO	CA	94124
5435-008	1958 DONNER AVE	SAN FRANCISCO	CA	94124	1958 DONNER AVE	SAN FRANCISCO	CA	94124
5439-001	1901 DONNER AVE	SAN FRANCISCO	CA	94124	1901 DONNER AVE	SAN FRANCISCO	CA	94124
5439-001A	1905 DONNER AVE	SAN FRANCISCO	CA	94124	1905 DONNER AVE	SAN FRANCISCO	CA	94124
5439-001B	1909 DONNER AVE	SAN FRANCISCO	CA	94124	1909 DONNER AVE	SAN FRANCISCO	CA	94124
5439-002	1900 EGBERT AVE	SAN FRANCISCO	CA	94124	1896 EGBERT AVE	SAN FRANCISCO	CA	94124
5439-002B	1907 EGBERT AVE	SAN FRANCISCO	CA	94124	1907 EGBERT AVE	SAN FRANCISCO	CA	94124
5439-014A	1933 DONNER AVE	SAN FRANCISCO	CA	94124	14000 STANTON CIR	SONORA	CA	95370
5439-014B	1921 DONNER AVE	SAN FRANCISCO	CA	94124	1921 DONNER AVE	SAN FRANCISCO	CA	94124
5439-015	1919 DONNER AVE	SAN FRANCISCO	CA	94124	1919 DONNER AVE	SAN FRANCISCO	CA	94124
5439-016	1911 DONNER AVE	SAN FRANCISCO	CA	94124	1911 DONNER AVE	SAN FRANCISCO	CA	94124
5439-017	1937 DONNER AVE	SAN FRANCISCO	CA	94124	1937 DONNER AVE	SAN FRANCISCO	CA	94124
5439-018	1935 DONNER AVE	SAN FRANCISCO	CA	94124	14000 STANTON CIR	SONORA	CA	95370
5439-022	1215 BAY SHORE BLVD	SAN FRANCISCO	CA	94124	1215 BAY SHORE BLVD	SAN FRANCISCO	CA	94124
5439-023	1295 BAY SHORE BLVD	SAN FRANCISCO	CA	94124	1295 BAY SHORE BLVD	SAN FRANCISCO	CA	94124
5439-026	1291 BAY SHORE BLVD	SAN FRANCISCO	CA	94124	1291 BAY SHORE BLVD	SAN FRANCISCO	CA	94124
5439-027	1287 BAY SHORE BLVD	SAN FRANCISCO	CA	94124	1287 BAY SHORE BLVD	SAN FRANCISCO	CA	94124
5439-028	PHYSICAL ADDRESS NOT AVAILABLE				25 VAN NESS AVE	SAN FRANCISCO	CA	94102
5439-029	PHYSICAL ADDRESS NOT AVAILABLE				707 3RD ST 6TH	WEST SACRAMENTO	CA	95605
5440A-002	1830 EGBERT AVE	SAN FRANCISCO	CA	94124	39 LUPINE VALLEY CT	BRISBANE	CA	94005
5440A-003	1832 EGBERT AVE	SAN FRANCISCO	CA	94124	39 LUPINE VALLEY CT	BRISBANE	CA	94005
5440A-004	1834 EGBERT AVE	SAN FRANCISCO	CA	94124	1834 EGBERT AVE	SAN FRANCISCO	CA	94124
5440A-005	1836 EGBERT AVE	SAN FRANCISCO	CA	94124	306 HARVARD ST	SAN FRANCISCO	CA	94134

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
5440A-006	1862 EGBERT AVE	SAN FRANCISCO	CA	94124	1862 EGBERT AVE	SAN FRANCISCO	CA	94124
5440A-007	1866 EGBERT AVE	SAN FRANCISCO	CA	94124	1110 SILVER MAPLE LN	HAYWARD	CA	94544
5440A-008	1870 EGBERT AVE	SAN FRANCISCO	CA	94124	33503 QUAIL RUN RD	FREMONT	CA	94555
5440A-009	1874 EGBERT AVE	SAN FRANCISCO	CA	94124	33503 QUAIL RUN RD	FREMONT	CA	94555
5440A-010	1878 EGBERT AVE	SAN FRANCISCO	CA	94124	1878 EGBERT AVE	SAN FRANCISCO	CA	94124
5440A-011	1882 EGBERT AVE	SAN FRANCISCO	CA	94124	1882 EGBERT AVE	SAN FRANCISCO	CA	94124
5440A-012	1886 EGBERT AVE	SAN FRANCISCO	CA	94124	33503 QUAIL RUN RD	FREMONT	CA	94555
5440A-013	1890 EGBERT AVE	SAN FRANCISCO	CA	94124	1890 EGBERT AVE	SAN FRANCISCO	CA	94124
5440A-014	1896 EGBERT AVE	SAN FRANCISCO	CA	94124	1896 EGBERT AVE	SAN FRANCISCO	CA	94124
5440A-017	1887 DONNER AVE	SAN FRANCISCO	CA	94124	1887 DONNER AVE	SAN FRANCISCO	CA	94124
5440A-018	1883 DONNER AVE	SAN FRANCISCO	CA	94124	1883 DONNER AVE	SAN FRANCISCO	CA	94124
5440A-019	1879 DONNER AVE	SAN FRANCISCO	CA	94124	1879 DONNER AVE	SAN FRANCISCO	CA	94124
5440A-020	1875 DONNER AVE	SAN FRANCISCO	CA	94124	1875 DONNER AVE	SAN FRANCISCO	CA	94124
5440A-021	1871 DONNER AVE	SAN FRANCISCO	CA	94124	1871 DONNER AVE	SAN FRANCISCO	CA	94124
5440A-022	1867 DONNER AVE	SAN FRANCISCO	CA	94124	PO BOX 61	DALY CITY	CA	94016
5440A-023	1863 DONNER AVE	SAN FRANCISCO	CA	94124	PO BOX 347186	SAN FRANCISCO	CA	94134
5440A-024	1861 DONNER AVE	SAN FRANCISCO	CA	94124	1861 DONNER AVE	SAN FRANCISCO	CA	94124
5440A-025	1859 DONNER AVE V	SAN FRANCISCO	CA	94124	1859 DONNER AVE	SAN FRANCISCO	CA	94124
5440A-026	2719 PHELPS ST	SAN FRANCISCO	CA	94124	2719 PHELPS ST	SAN FRANCISCO	CA	94124
5440A-027	1895 DONNER AVE	SAN FRANCISCO	CA	94124	1895 DONNER AVE	SAN FRANCISCO	CA	94124
5447-006	1746 FITZGERALD AVE	SAN FRANCISCO	CA	94124	1746 FITZGERALD AVE	SAN FRANCISCO	CA	94124
5447-007	1750 FITZGERALD AVE	SAN FRANCISCO	CA	94124	1750 FITZGERALD AVE	SAN FRANCISCO	CA	94124
5447-008	1754 FITZGERALD AVE	SAN FRANCISCO	CA	94124	1754 FITZGERALD AVE	SAN FRANCISCO	CA	94124
5447-009	1758 FITZGERALD AVE	SAN FRANCISCO	CA	94124	1758 FITZGERALD AVE	SAN FRANCISCO	CA	94124
5447-023	1879 EGBERT AVE	SAN FRANCISCO	CA	94124	1879 EGBERT AVE	SAN FRANCISCO	CA	94124
5447-024	1875 EGBERT AVE	SAN FRANCISCO	CA	94124	1875 EGBERT AVE	SAN FRANCISCO	CA	94124
5447-025	1871 EGBERT AVE	SAN FRANCISCO	CA	94124	1871 EGBERT AVE	SAN FRANCISCO	CA	94124
5447-026	1867 EGBERT AVE	SAN FRANCISCO	CA	94124	3569 BADDING RD	CASTRO VALLEY	CA	94546
5447-027	1863 EGBERT AVE	SAN FRANCISCO	CA	94124	1863 EGBERT AVE	SAN FRANCISCO	CA	94124
5447-030	1851 EGBERT AVE	SAN FRANCISCO	CA	94124	1851 EGBERT AVE	SAN FRANCISCO	CA	94124
5447-031	1847 EGBERT AVE	SAN FRANCISCO	CA	94124	1847 EGBERT AVE	SAN FRANCISCO	CA	94124
5447-036	1855 EGBERT AVE	SAN FRANCISCO	CA	94124	1463 BACON ST	SAN FRANCISCO	CA	94134
5447-037	1887 EGBERT AVE	SAN FRANCISCO	CA	94124	1887 EGBERT AVE	SAN FRANCISCO	CA	94124
5447-038	1883 EGBERT AVE	SAN FRANCISCO	CA	94124	1883 EGBERT AVE	SAN FRANCISCO	CA	94124
5447-041	1762 FITZGERALD AVE	SAN FRANCISCO	CA	94124	1 APPIAN WAY 706-6	SOUTH SAN FRANCISCO	CA	94080
5447-044	1742 FITZGERALD AVE	SAN FRANCISCO	CA	94124	1742 FITZGERALD AVE	SAN FRANCISCO	CA	94124
5447-045	1365 BAY SHORE BLVD	SAN FRANCISCO	CA	94124	1365 BAY SHORE BLVD	SAN FRANCISCO	CA	94124
5447-047	1895 EGBERT AVE	SAN FRANCISCO	CA	94124	1895 EGBERT AVE	SAN FRANCISCO	CA	94124
5447-048	1355 BAY SHORE BLVD	SAN FRANCISCO	CA	94124	1355 BAY SHORE BLVD	SAN FRANCISCO	CA	94124
5447-053	1843 EGBERT AVE	SAN FRANCISCO	CA	94124	1843 EGBERT AVE	SAN FRANCISCO	CA	94124
5447-054	1736 FITZGERALD AVE	SAN FRANCISCO	CA	94124	39 LUPINE VALLEY CT	BRISBANE	CA	94005
5447-055	PHYSICAL ADDRESS NOT AVAILABLE				25 VAN NESS AVE	SAN FRANCISCO	CA	94102
5447-056	PHYSICAL ADDRESS NOT AVAILABLE				707 3RD ST 6TH	WEST SACRAMENTO	CA	95605
5448-006	PHYSICAL ADDRESS NOT AVAILABLE				25 VAN NESS AVE	SAN FRANCISCO	CA	94102
5448-007	PHYSICAL ADDRESS NOT AVAILABLE				707 3RD ST 6TH	WEST SACRAMENTO	CA	95605
5449-001	1200 BAY SHORE BLVD	SAN FRANCISCO	CA	94124	707 3RD ST 6TH	WEST SACRAMENTO	CA	95605
5449-024	2643 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	1575 BAYSHORE HWY STE10	BURLINGAME	CA	94010
5449-032	2695 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	79146 LIGA	LA QUINTA	CA	92253
5449-034	2675 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	1575 BAYSHORE HWY STE10	BURLINGAME	CA	94010
5450-001	1300 BAY SHORE BLVD	SAN FRANCISCO	CA	94124	707 3RD ST 6TH	WEST SACRAMENTO	CA	95605

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
5450-026	2737 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	247 CHARTER OAK AVE	SAN FRANCISCO	CA	94124
5450-027	2731 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	2731 SAN BRUNO AVE 33	SAN FRANCISCO	CA	94134
5450-028	2725 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	226 COUNTRY CLUB DR	SOUTH SAN FRANCISCO	CA	94080
5450-032	2701 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	242 OTTAWA AVE	SAN FRANCISCO	CA	94112
5450-035	2715 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	PO BOX 34730	SAN FRANCISCO	CA	94134
5451-019	PHYSICAL ADDRESS NOT AVAILABLE				25 VAN NESS AVE	SAN FRANCISCO	CA	94102
5463-003	95 EXETER ST	SAN FRANCISCO	CA	94124	95 EXETER ST	SAN FRANCISCO	CA	94124
5463-004	87 EXETER ST	SAN FRANCISCO	CA	94124	7727 MAPLE MEADOW ST	LAS VEGAS	NV	89131
5463-005	83 EXETER ST	SAN FRANCISCO	CA	94124	83 EXETER ST	SAN FRANCISCO	CA	94124
5463-006	79 EXETER ST	SAN FRANCISCO	CA	94124	1165 GILMAN AVE	SAN FRANCISCO	CA	94124
5463-007	75 EXETER ST	SAN FRANCISCO	CA	94124	75 EXETER ST	SAN FRANCISCO	CA	94124
5463-008	71 EXETER ST	SAN FRANCISCO	CA	94124	71 EXETER ST	SAN FRANCISCO	CA	94124
5463-009	67 EXETER ST	SAN FRANCISCO	CA	94124	67 EXETER ST	SAN FRANCISCO	CA	94124
5463-010	63 EXETER ST	SAN FRANCISCO	CA	94124	63 EXETER ST	SAN FRANCISCO	CA	94124
5463-013	51 EXETER ST	SAN FRANCISCO	CA	94124	51 EXETER ST	SAN FRANCISCO	CA	94124
5463-014	47 EXETER ST	SAN FRANCISCO	CA	94124	47 EXETER ST	SAN FRANCISCO	CA	94124
5463-015	41 EXETER ST	SAN FRANCISCO	CA	94124	41 EXETER ST	SAN FRANCISCO	CA	94124
5463-016	39 EXETER ST	SAN FRANCISCO	CA	94124	39 EXETER ST	SAN FRANCISCO	CA	94124
5463-017	35 EXETER ST	SAN FRANCISCO	CA	94124	35 EXETER ST	SAN FRANCISCO	CA	94124
5463-018	31 EXETER ST	SAN FRANCISCO	CA	94124	277 WHEELER AVE	SAN FRANCISCO	CA	94134
5463-019	27 EXETER ST	SAN FRANCISCO	CA	94124	1522 HUDSON AVE	SAN FRANCISCO	CA	94124
5463-020	25 EXETER ST	SAN FRANCISCO	CA	94124	25 EXETER ST	SAN FRANCISCO	CA	94124
5463-021	19 EXETER ST	SAN FRANCISCO	CA	94124	96 NUEVA AVE	SAN FRANCISCO	CA	94134
5463-022	17 EXETER ST	SAN FRANCISCO	CA	94124	17 EXETER ST	SAN FRANCISCO	CA	94124
5463-023	11 EXETER ST V	SAN FRANCISCO	CA	94124	11 EXETER ST	SAN FRANCISCO	CA	94124
5463-025A	225 PAUL AVE	SAN FRANCISCO	CA	94124	225 PAUL AVE	SAN FRANCISCO	CA	94124
5463-026	215 PAUL AVE	SAN FRANCISCO	CA	94124	215 PAUL AVE	SAN FRANCISCO	CA	94124
5463-029	235 PAUL AVE 2	SAN FRANCISCO	CA	94124	235 PAUL AVE 2	SAN FRANCISCO	CA	94124
5463-030	55 EXETER ST	SAN FRANCISCO	CA	94124	55 EXETER ST	SAN FRANCISCO	CA	94124
5464-001	301 PAUL AVE	SAN FRANCISCO	CA	94124	301 PAUL AVE	SAN FRANCISCO	CA	94124
5464-003	10 EXETER ST	SAN FRANCISCO	CA	94124	16032 CHANNEL ST	SAN LORENZO	CA	94580
5464-004	14 EXETER ST	SAN FRANCISCO	CA	94124	14 EXETER ST	SAN FRANCISCO	CA	94124
5464-005	18 EXETER ST	SAN FRANCISCO	CA	94124	18 EXETER ST	SAN FRANCISCO	CA	94124
5464-006	22 EXETER ST	SAN FRANCISCO	CA	94124	1372 UNDERWOOD AVE	SAN FRANCISCO	CA	94124
5464-007	24 EXETER ST	SAN FRANCISCO	CA	94124	24 EXETER ST	SAN FRANCISCO	CA	94124
5464-008	32 EXETER ST	SAN FRANCISCO	CA	94124	32 EXETER ST	SAN FRANCISCO	CA	94124
5464-009	36 EXETER ST	SAN FRANCISCO	CA	94124	36 EXETER ST	SAN FRANCISCO	CA	94124
5464-010	40 EXETER ST	SAN FRANCISCO	CA	94124	449 SPRUCE ST	SAN FRANCISCO	CA	94118
5464-011	46 EXETER ST	SAN FRANCISCO	CA	94124	46 EXETER ST	SAN FRANCISCO	CA	94124
5464-012	48 EXETER ST	SAN FRANCISCO	CA	94124	48 EXETER ST	SAN FRANCISCO	CA	94124
5464-013	52 EXETER ST	SAN FRANCISCO	CA	94124	52 EXETER ST	SAN FRANCISCO	CA	94124
5464-014	56 EXETER ST	SAN FRANCISCO	CA	94124	56 EXETER ST	SAN FRANCISCO	CA	94124
5464-015	60 EXETER ST	SAN FRANCISCO	CA	94124	60 EXETER ST	SAN FRANCISCO	CA	94124
5464-016	62 EXETER ST	SAN FRANCISCO	CA	94124	62 EXETER ST	SAN FRANCISCO	CA	94124
5464-017	64 EXETER ST	SAN FRANCISCO	CA	94124	870 BANBURY LN	MILLBRAE	CA	94030
5464-018	66 EXETER ST	SAN FRANCISCO	CA	94124	62 EXETER ST	SAN FRANCISCO	CA	94124
5464-019	76 EXETER ST	SAN FRANCISCO	CA	94124	76 EXETER ST	SAN FRANCISCO	CA	94124
5464-020	80 EXETER ST	SAN FRANCISCO	CA	94124	80 EXETER ST	SAN FRANCISCO	CA	94124
5464-021	84 EXETER ST	SAN FRANCISCO	CA	94124	84 EXETER ST	SAN FRANCISCO	CA	94124
5464-022	300 SALINAS AVE	SAN FRANCISCO	CA	94124	300 SALINAS AVE	SAN FRANCISCO	CA	94124

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
5464-022A	306 SALINAS AVE	SAN FRANCISCO	CA	94124	406 CONGO ST	SAN FRANCISCO	CA	94131
5464-023	312 SALINAS AVE	SAN FRANCISCO	CA	94124	19 HOLYOKE ST	SAN FRANCISCO	CA	94134
5464-024	318 SALINAS AVE	SAN FRANCISCO	CA	94124	406 CONGO ST	SAN FRANCISCO	CA	94131
5464-025	99 CRANE ST	SAN FRANCISCO	CA	94124	99 CRANE ST	SAN FRANCISCO	CA	94124
5464-026	91 CRANE ST	SAN FRANCISCO	CA	94124	91 CRANE ST	SAN FRANCISCO	CA	94124
5464-027	87 CRANE ST	SAN FRANCISCO	CA	94124	87 CRANE ST	SAN FRANCISCO	CA	94124
5464-028	83 CRANE ST	SAN FRANCISCO	CA	94124	215 ATHERWOOD AVE	REDWOOD CITY	CA	94061
5464-029	79 CRANE ST	SAN FRANCISCO	CA	94124	453 2ND AVE	SAN FRANCISCO	CA	94118
5464-030	75 CRANE ST	SAN FRANCISCO	CA	94124	75 CRANE ST	SAN FRANCISCO	CA	94124
5464-031	71 CRANE ST	SAN FRANCISCO	CA	94124	1804 PACIFIC AVE	SAN LEANDRO	CA	94577
5464-032	67 CRANE ST	SAN FRANCISCO	CA	94124	67 CRANE ST	SAN FRANCISCO	CA	94124
5464-033	63 CRANE ST	SAN FRANCISCO	CA	94124	63 CRANE ST	SAN FRANCISCO	CA	94124
5464-034	59 CRANE ST	SAN FRANCISCO	CA	94124	59 CRANE ST	SAN FRANCISCO	CA	94124
5464-035	55 CRANE ST	SAN FRANCISCO	CA	94124	55 CRANE ST	SAN FRANCISCO	CA	94124
5464-036	51 CRANE ST	SAN FRANCISCO	CA	94124	51 CRANE ST	SAN FRANCISCO	CA	94124
5464-037	47 CRANE ST	SAN FRANCISCO	CA	94124	47 CRANE ST	SAN FRANCISCO	CA	94124
5464-038	43 CRANE ST	SAN FRANCISCO	CA	94124	43 CRANE ST	SAN FRANCISCO	CA	94124
5464-039	39 CRANE ST	SAN FRANCISCO	CA	94124	39 CRANE ST	SAN FRANCISCO	CA	94124
5464-040	35 CRANE ST	SAN FRANCISCO	CA	94124	2225 SAN JOSE AVE	SAN FRANCISCO	CA	94112
5464-041	31 CRANE ST	SAN FRANCISCO	CA	94124	31 CRANE ST	SAN FRANCISCO	CA	94124
5464-042	27 CRANE ST V	SAN FRANCISCO	CA	94124	2225 SAN JOSE AVE	SAN FRANCISCO	CA	94112
5464-043	23 CRANE ST V	SAN FRANCISCO	CA	94124	502 HOLYOKE ST	SAN FRANCISCO	CA	94134
5464-044	19 CRANE ST	SAN FRANCISCO	CA	94124	19 CRANE ST	SAN FRANCISCO	CA	94124
5464-045	15 CRANE ST	SAN FRANCISCO	CA	94124	15 CRANE ST	SAN FRANCISCO	CA	94124
5464-045A	343 PAUL AVE	SAN FRANCISCO	CA	94124	343 PAUL AVE	SAN FRANCISCO	CA	94124
5464-046	339 PAUL AVE	SAN FRANCISCO	CA	94124	632 WOOLSEY ST	SAN FRANCISCO	CA	94134
5464-047	325 PAUL AVE	SAN FRANCISCO	CA	94124	325 PAUL AVE	SAN FRANCISCO	CA	94124
5464-048	321 PAUL AVE	SAN FRANCISCO	CA	94124	321 PAUL AVE	SAN FRANCISCO	CA	94124
5464-049	315 PAUL AVE	SAN FRANCISCO	CA	94124	315 PAUL AVE	SAN FRANCISCO	CA	94124
5464-050	307 PAUL AVE	SAN FRANCISCO	CA	94124	307 PAUL AVE	SAN FRANCISCO	CA	94124
5465-004	12 CRANE ST	SAN FRANCISCO	CA	94124	12 CRANE ST	SAN FRANCISCO	CA	94124
5465-005	14 CRANE ST	SAN FRANCISCO	CA	94124	2225 SAN JOSE AVE	SAN FRANCISCO	CA	94112
5465-006	20 CRANE ST V	SAN FRANCISCO	CA	94124	2225 SAN JOSE AVE	SAN FRANCISCO	CA	94112
5465-007	26 CRANE ST V	SAN FRANCISCO	CA	94124	2225 SAN JOSE AVE	SAN FRANCISCO	CA	94112
5465-008	30 CRANE ST	SAN FRANCISCO	CA	94124	30 CRANE ST	SAN FRANCISCO	CA	94124
5465-009	34 CRANE ST	SAN FRANCISCO	CA	94124	34 CRANE ST	SAN FRANCISCO	CA	94124
5465-010	36 CRANE ST	SAN FRANCISCO	CA	94124	36 CRANE ST	SAN FRANCISCO	CA	94124
5465-011	40 CRANE ST	SAN FRANCISCO	CA	94124	425 ARBOR AVE	SONOMA	CA	95476
5465-012	46 CRANE ST	SAN FRANCISCO	CA	94124	46 CRANE ST	SAN FRANCISCO	CA	94124
5465-013	50 CRANE ST	SAN FRANCISCO	CA	94124	50 CRANE ST	SAN FRANCISCO	CA	94124
5465-014	56 CRANE ST	SAN FRANCISCO	CA	94124	56 CRANE ST	SAN FRANCISCO	CA	94124
5465-015	58 CRANE ST	SAN FRANCISCO	CA	94124	26 ALTURA WAY	SOUTH SAN FRANCISCO	CA	94080
5465-016	62 CRANE ST	SAN FRANCISCO	CA	94124	62 CRANE ST	SAN FRANCISCO	CA	94124
5465-017	66 CRANE ST	SAN FRANCISCO	CA	94124	66 CRANE ST	SAN FRANCISCO	CA	94124
5465-018	70 CRANE ST	SAN FRANCISCO	CA	94124	70 CRANE ST	SAN FRANCISCO	CA	94124
5465-019	74 CRANE ST	SAN FRANCISCO	CA	94124	1023 BURWOOD WAY	ANTIOCH	CA	94509
5465-020	1691 BAY SHORE BLVD V	SAN FRANCISCO	CA	94124	1023 BURWOOD WAY	ANTIOCH	CA	94509
5465-021	1695 BAY SHORE BLVD V	SAN FRANCISCO	CA	94124	1023 BURWOOD WAY	ANTIOCH	CA	94509
5465-026	PHYSICAL ADDRESS NOT AVAILABLE				1120 N ST	SACRAMENTO	CA	95814
5465-039	1641 BAY SHORE BLVD	SAN FRANCISCO	CA	94124	15 BRITT CT	ALAMEDA	CA	94502

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
5465-040	39 WHEAT ST	SAN FRANCISCO	CA	94124	39 WHEAT ST	SAN FRANCISCO	CA	94124
5465-041	35 WHEAT ST	SAN FRANCISCO	CA	94124	35 WHEAT ST	SAN FRANCISCO	CA	94124
5465-042	31 WHEAT ST	SAN FRANCISCO	CA	94124	31 WHEAT ST	SAN FRANCISCO	CA	94124
5465-043	27 WHEAT ST	SAN FRANCISCO	CA	94124	27 WHEAT ST	SAN FRANCISCO	CA	94124
5465-044	23 WHEAT ST	SAN FRANCISCO	CA	94124	23 WHEAT ST	SAN FRANCISCO	CA	94124
5465-045	19 WHEAT ST	SAN FRANCISCO	CA	94124	19 WHEAT ST	SAN FRANCISCO	CA	94124
5465-046	9 WHEAT ST	SAN FRANCISCO	CA	94124	9 WHEAT ST	SAN FRANCISCO	CA	94124
5465-047	7 WHEAT ST	SAN FRANCISCO	CA	94124	262 RAYMOND AVE	SAN FRANCISCO	CA	94134
5465-049	449 PAUL AVE	SAN FRANCISCO	CA	94124	449 PAUL AVE	SAN FRANCISCO	CA	94124
5465-051	451 PAUL AVE 1	SAN FRANCISCO	CA	94124	451 PAUL AVE 1	SAN FRANCISCO	CA	94124
5465-052	5 WHEAT ST	SAN FRANCISCO	CA	94124	5 WHEAT ST	SAN FRANCISCO	CA	94124
5465-053	1645 BAY SHORE BLVD	SAN FRANCISCO	CA	94124	1645 BAY SHORE BLVD	SAN FRANCISCO	CA	94124
5465-054	435 PAUL AVE	SAN FRANCISCO	CA	94124	435 PAUL AVE	SAN FRANCISCO	CA	94124
5465-055	425 PAUL AVE	SAN FRANCISCO	CA	94124	429 PAUL AVE	SAN FRANCISCO	CA	94124
5465-056	415 PAUL AVE	SAN FRANCISCO	CA	94124	475 YALE ST	SAN FRANCISCO	CA	94134
5465-057	405 PAUL AVE	SAN FRANCISCO	CA	94124	405 PAUL AVE	SAN FRANCISCO	CA	94124
5466-001	501 PAUL AVE	SAN FRANCISCO	CA	94124	509 PAUL AVE	SAN FRANCISCO	CA	94124
5466-002	8 WHEAT ST	SAN FRANCISCO	CA	94124	8 WHEAT ST	SAN FRANCISCO	CA	94124
5466-003	14 WHEAT ST	SAN FRANCISCO	CA	94124	14 WHEAT ST	SAN FRANCISCO	CA	94124
5466-004	16 WHEAT ST	SAN FRANCISCO	CA	94124	309 TREASURE ISLAND DR	APTOS	CA	95003
5466-029	PHYSICAL ADDRESS NOT AVAILABLE				707 3RD ST 6TH	WEST SACRAMENTO	CA	95605
5466-040	3195 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	3544 SAN BRUNO AVE	SAN FRANCISCO	CA	94134
5466-041	3175 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	3175 SAN BRUNO AVE	SAN FRANCISCO	CA	94134
5466-042	3155 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	3155 SAN BRUNO AVE	SAN FRANCISCO	CA	94134
5466-043	PHYSICAL ADDRESS NOT AVAILABLE				1086 GENEVA AVE	SAN FRANCISCO	CA	94112
5471-013A	1184 KEY AVE	SAN FRANCISCO	CA	94124	1184 KEY AVE	SAN FRANCISCO	CA	94124
5471-014	1190 KEY AVE	SAN FRANCISCO	CA	94124	1190 KEY AVE	SAN FRANCISCO	CA	94124
5471-015	1192 KEY AVE	SAN FRANCISCO	CA	94124	1192 KEY AVE	SAN FRANCISCO	CA	94124
5471-016	1194 KEY AVE	SAN FRANCISCO	CA	94124	194 KEY AVE	SAN FRANCISCO	CA	94132
5471-023	155 SALINAS AVE	SAN FRANCISCO	CA	94124	155 SALINAS AVE	SAN FRANCISCO	CA	94124
5472-001	PHYSICAL ADDRESS NOT AVAILABLE				25 VAN NESS AVE	SAN FRANCISCO	CA	94102
5472-002	PHYSICAL ADDRESS NOT AVAILABLE				1120 N ST	SACRAMENTO	CA	95814
5473-014	PHYSICAL ADDRESS NOT AVAILABLE				707 3RD ST 6TH	WEST SACRAMENTO	CA	95605
5473-016	PHYSICAL ADDRESS NOT AVAILABLE				1120 N ST	SACRAMENTO	CA	95814
5473-017	3207 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	233 15TH AVE	SAN FRANCISCO	CA	94118
5473-018	3217 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	1687 26TH AVE	SAN FRANCISCO	CA	94122
5473-019	3227 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	450 17TH AVE	SAN FRANCISCO	CA	94121
5473-020	3237 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	19 AUGUSTA ST	SAN FRANCISCO	CA	94124
5478-007	3275 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	630 TARAVAL ST	SAN FRANCISCO	CA	94116
5478-008	3275 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	555 12TH ST 950	OAKLAND	CA	94607
6126-016	500 MANSELL ST	SAN FRANCISCO	CA	94134	500 MANSELL ST	SAN FRANCISCO	CA	94134
6147-002	826 COLBY ST	SAN FRANCISCO	CA	94134	1520 UNIVERSITY AVE	SAN JOSE	CA	95126
6147-003	832 COLBY ST	SAN FRANCISCO	CA	94134	832 COLBY ST	SAN FRANCISCO	CA	94134
6147-004	838 COLBY ST	SAN FRANCISCO	CA	94134	1530 21ST AVE	SAN FRANCISCO	CA	94122
6147-004A	844 COLBY ST	SAN FRANCISCO	CA	94134	2610 36TH AVE	SAN FRANCISCO	CA	94116
6147-005	850 COLBY ST	SAN FRANCISCO	CA	94134	4017 WHITE OAK CT	SONOMA	CA	95476
6147-011	874 COLBY ST	SAN FRANCISCO	CA	94134	874 COLBY ST	SAN FRANCISCO	CA	94134
6147-012	880 COLBY ST	SAN FRANCISCO	CA	94134	880 COLBY ST	SAN FRANCISCO	CA	94134
6147-013	886 COLBY ST	SAN FRANCISCO	CA	94134	886 COLBY ST	SAN FRANCISCO	CA	94134
6147-014	900 MANSELL ST	SAN FRANCISCO	CA	94134	900 MANSELL ST	SAN FRANCISCO	CA	94134

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
6147-018	910 MANSELL ST	SAN FRANCISCO	CA	94134	15107 NOB HILL DR	SAN JOSE	CA	95127
6147-019	920 MANSELL ST	SAN FRANCISCO	CA	94134	920 MANSELL ST	SAN FRANCISCO	CA	94134
6147-020	930 MANSELL ST	SAN FRANCISCO	CA	94134	606 CAMBRIDGE ST	SAN FRANCISCO	CA	94134
6147-021	940 MANSELL ST	SAN FRANCISCO	CA	94134	940 MANSELL ST	SAN FRANCISCO	CA	94134
6147-028	845 UNIVERSITY ST	SAN FRANCISCO	CA	94134	845 UNIVERSITY ST	SAN FRANCISCO	CA	94134
6147-029	835 UNIVERSITY ST	SAN FRANCISCO	CA	94134	835 UNIVERSITY ST	SAN FRANCISCO	CA	94134
6147-030	825 UNIVERSITY ST	SAN FRANCISCO	CA	94134	825 UNIVERSITY ST	SAN FRANCISCO	CA	94134
6147-031	815 UNIVERSITY ST	SAN FRANCISCO	CA	94134	815 UNIVERSITY ST	SAN FRANCISCO	CA	94134
6147-032	861 UNIVERSITY ST	SAN FRANCISCO	CA	94134	861 UNIVERSITY ST	SAN FRANCISCO	CA	94134
6147-033	857 UNIVERSITY ST	SAN FRANCISCO	CA	94134	857 UNIVERSITY ST	SAN FRANCISCO	CA	94134
6147-034	853 UNIVERSITY ST	SAN FRANCISCO	CA	94134	853 UNIVERSITY ST	SAN FRANCISCO	CA	94134
6147-035	849 UNIVERSITY ST	SAN FRANCISCO	CA	94134	849 UNIVERSITY ST	SAN FRANCISCO	CA	94134
6147-036	891 UNIVERSITY ST	SAN FRANCISCO	CA	94134	891 UNIVERSITY ST	SAN FRANCISCO	CA	94134
6147-037	885 UNIVERSITY ST	SAN FRANCISCO	CA	94134	261 MONTEREY RD	PACIFICA	CA	94044
6147-038	879 UNIVERSITY ST	SAN FRANCISCO	CA	94134	879 UNIVERSITY ST	SAN FRANCISCO	CA	94134
6147-039	873 UNIVERSITY ST	SAN FRANCISCO	CA	94134	873 UNIVERSITY ST	SAN FRANCISCO	CA	94134
6147-040	862 COLBY ST	SAN FRANCISCO	CA	94134	862 COLBY ST	SAN FRANCISCO	CA	94134
6147-041	868 COLBY ST	SAN FRANCISCO	CA	94134	868 COLBY ST	SAN FRANCISCO	CA	94134
6148-005	826 DARTMOUTH ST	SAN FRANCISCO	CA	94134	826 DARTMOUTH ST	SAN FRANCISCO	CA	94134
6148-006	832 DARTMOUTH ST	SAN FRANCISCO	CA	94134	832 DARTMOUTH ST	SAN FRANCISCO	CA	94134
6148-007	838 DARTMOUTH ST	SAN FRANCISCO	CA	94134	838 DARTMOUTH ST	SAN FRANCISCO	CA	94134
6148-008	844 DARTMOUTH ST	SAN FRANCISCO	CA	94134	844 DARTMOUTH ST	SAN FRANCISCO	CA	94134
6148-009	850 DARTMOUTH ST	SAN FRANCISCO	CA	94134	850 DARTMOUTH ST	SAN FRANCISCO	CA	94134
6148-010	856 DARTMOUTH ST	SAN FRANCISCO	CA	94134	856 DARTMOUTH ST	SAN FRANCISCO	CA	94134
6148-011	862 DARTMOUTH ST	SAN FRANCISCO	CA	94134	2568 OLYMPIC DR	SAN BRUNO	CA	94066
6148-012	868 DARTMOUTH ST	SAN FRANCISCO	CA	94134	868 DARTMOUTH ST	SAN FRANCISCO	CA	94134
6148-013	874 DARTMOUTH ST	SAN FRANCISCO	CA	94134	874 DARTMOUTH ST	SAN FRANCISCO	CA	94134
6148-014	880 DARTMOUTH ST	SAN FRANCISCO	CA	94134	1306 S DELAWARE ST	SAN MATEO	CA	94402
6148-015	886 DARTMOUTH ST	SAN FRANCISCO	CA	94134	886 DARTMOUTH ST	SAN FRANCISCO	CA	94134
6148-016	820 MANSELL ST	SAN FRANCISCO	CA	94134	1511 18TH AVE	SAN FRANCISCO	CA	94122
6148-017	830 MANSELL ST	SAN FRANCISCO	CA	94134	830 MANSELL ST	SAN FRANCISCO	CA	94134
6148-018	840 MANSELL ST	SAN FRANCISCO	CA	94134	840 MANSELL ST	SAN FRANCISCO	CA	94134
6148-019	850 MANSELL ST	SAN FRANCISCO	CA	94134	608 SOUTHHILL BLVD	DALY CITY	CA	94014
6148-020	893 COLBY ST	SAN FRANCISCO	CA	94134	893 COLBY ST	SAN FRANCISCO	CA	94134
6148-021	887 COLBY ST	SAN FRANCISCO	CA	94134	1547 MCKINNON AVE	SAN FRANCISCO	CA	94124
6148-022	881 COLBY ST	SAN FRANCISCO	CA	94134	881 COLBY ST	SAN FRANCISCO	CA	94134
6148-023	875 COLBY ST	SAN FRANCISCO	CA	94134	875 COLBY ST	SAN FRANCISCO	CA	94134
6148-024	869 COLBY ST	SAN FRANCISCO	CA	94134	869 COLBY ST	SAN FRANCISCO	CA	94134
6148-025	863 COLBY ST	SAN FRANCISCO	CA	94134	121 TOPEKA AVE	SAN FRANCISCO	CA	94124
6148-026	857 COLBY ST	SAN FRANCISCO	CA	94134	2171 JUNIPERO SERRA BLVD 6	DALY CITY	CA	94014
6148-027	851 COLBY ST	SAN FRANCISCO	CA	94134	232 PARIS ST	SAN FRANCISCO	CA	94112
6148-028	845 COLBY ST	SAN FRANCISCO	CA	94134	845 COLBY ST	SAN FRANCISCO	CA	94134
6148-029	839 COLBY ST	SAN FRANCISCO	CA	94134	839 COLBY ST	SAN FRANCISCO	CA	94134
6148-030	833 COLBY ST	SAN FRANCISCO	CA	94134	833 COLBY ST	SAN FRANCISCO	CA	94134
6148-031	827 COLBY ST	SAN FRANCISCO	CA	94134	827 COLBY ST	SAN FRANCISCO	CA	94134
6149-005	1226 BOWDOIN ST	SAN FRANCISCO	CA	94134	1226 BOWDOIN ST	SAN FRANCISCO	CA	94134
6149-006	1232 BOWDOIN ST	SAN FRANCISCO	CA	94134	1232 BOWDOIN ST	SAN FRANCISCO	CA	94134
6149-007	1238 BOWDOIN ST	SAN FRANCISCO	CA	94134	1238 BOWDOIN ST	SAN FRANCISCO	CA	94134
6149-008	1244 BOWDOIN ST	SAN FRANCISCO	CA	94134	8 QUINTARA ST	SAN FRANCISCO	CA	94116
6149-009	1250 BOWDOIN ST	SAN FRANCISCO	CA	94134	1250 BOWDOIN ST	SAN FRANCISCO	CA	94134

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
6149-010	1256 BOWDOIN ST	SAN FRANCISCO	CA	94134	1262 BOWDOIN ST	SAN FRANCISCO	CA	94134
6149-011	1262 BOWDOIN ST	SAN FRANCISCO	CA	94134	1262 BOWDOIN ST	SAN FRANCISCO	CA	94134
6149-012	1268 BOWDOIN ST	SAN FRANCISCO	CA	94134	1268 BOWDOIN ST	SAN FRANCISCO	CA	94134
6149-013	1274 BOWDOIN ST	SAN FRANCISCO	CA	94134	1274 BOWDOIN ST	SAN FRANCISCO	CA	94134
6149-014	1280 BOWDOIN ST	SAN FRANCISCO	CA	94134	1280 BOWDOIN ST	SAN FRANCISCO	CA	94134
6149-015	1286 BOWDOIN ST	SAN FRANCISCO	CA	94134	1286 BOWDOIN ST	SAN FRANCISCO	CA	94134
6149-016	1292 BOWDOIN ST	SAN FRANCISCO	CA	94134	1292 BOWDOIN ST	SAN FRANCISCO	CA	94134
6149-017	724 MANSELL ST	SAN FRANCISCO	CA	94134	724 MANSELL ST	SAN FRANCISCO	CA	94134
6149-018	750 MANSELL ST	SAN FRANCISCO	CA	94134	6813 S 7TH LN	PHOENIX	AZ	85041
6149-019	887 DARTMOUTH ST	SAN FRANCISCO	CA	94134	887 DARTMOUTH ST	SAN FRANCISCO	CA	94134
6149-020	883 DARTMOUTH ST	SAN FRANCISCO	CA	94134	883 DARTMOUTH ST	SAN FRANCISCO	CA	94134
6149-021	879 DARTMOUTH ST	SAN FRANCISCO	CA	94134	879 DARTMOUTH ST	SAN FRANCISCO	CA	94134
6149-022	875 DARTMOUTH ST	SAN FRANCISCO	CA	94134	875 DARTMOUTH ST	SAN FRANCISCO	CA	94134
6149-023	869 DARTMOUTH ST	SAN FRANCISCO	CA	94134	869 DARTMOUTH ST	SAN FRANCISCO	CA	94134
6149-024	863 DARTMOUTH ST	SAN FRANCISCO	CA	94134	1298 33RD AVE	SAN FRANCISCO	CA	94122
6149-025	857 DARTMOUTH ST	SAN FRANCISCO	CA	94134	798 TEMPLETON AVE	DALY CITY	CA	94014
6149-026	851 DARTMOUTH ST	SAN FRANCISCO	CA	94134	851 DARTMOUTH ST	SAN FRANCISCO	CA	94134
6149-027	845 DARTMOUTH ST	SAN FRANCISCO	CA	94134	845 DARTMOUTH ST	SAN FRANCISCO	CA	94134
6149-028	839 DARTMOUTH ST	SAN FRANCISCO	CA	94134	839 DARTMOUTH ST	SAN FRANCISCO	CA	94134
6149-029	833 DARTMOUTH ST	SAN FRANCISCO	CA	94134	833 DARTMOUTH ST	SAN FRANCISCO	CA	94134
6149-030	827 DARTMOUTH ST	SAN FRANCISCO	CA	94134	827 DARTMOUTH ST	SAN FRANCISCO	CA	94134
6150-019	638 MANSELL ST	SAN FRANCISCO	CA	94134	638 MANSELL ST	SAN FRANCISCO	CA	94134
6150-020	642 MANSELL ST	SAN FRANCISCO	CA	94134	1354 POWELL ST 168	SAN FRANCISCO	CA	94133
6150-023	1269 BOWDOIN ST	SAN FRANCISCO	CA	94134	1269 BOWDOIN ST	SAN FRANCISCO	CA	94134
6150-024	1263 BOWDOIN ST	SAN FRANCISCO	CA	94134	1263 BOWDOIN ST	SAN FRANCISCO	CA	94134
6150-025	1257 BOWDOIN ST	SAN FRANCISCO	CA	94134	1257 BOWDOIN ST	SAN FRANCISCO	CA	94134
6150-026	1251 BOWDOIN ST	SAN FRANCISCO	CA	94134	1251 BOWDOIN ST	SAN FRANCISCO	CA	94134
6150-027	1245 BOWDOIN ST	SAN FRANCISCO	CA	94134	1330 PALOU AVE	SAN FRANCISCO	CA	94124
6150-028	1239 BOWDOIN ST	SAN FRANCISCO	CA	94134	1239 BOWDOIN ST	SAN FRANCISCO	CA	94134
6150-029	1233 BOWDOIN ST	SAN FRANCISCO	CA	94134	1233 BOWDOIN ST	SAN FRANCISCO	CA	94134
6150-030	1227 BOWDOIN ST	SAN FRANCISCO	CA	94134	1227 BOWDOIN ST	SAN FRANCISCO	CA	94134
6150-031	1219 BOWDOIN ST	SAN FRANCISCO	CA	94134	1219 BOWDOIN ST	SAN FRANCISCO	CA	94134
6150-034	633 OLMSTEAD ST	SAN FRANCISCO	CA	94134	635 OLMSTEAD ST	SAN FRANCISCO	CA	94134
6150-036	650 MANSELL ST	SAN FRANCISCO	CA	94134	650 MANSELL ST	SAN FRANCISCO	CA	94134
6150-037	1275 BOWDOIN ST	SAN FRANCISCO	CA	94134	1275 BOWDOIN ST	SAN FRANCISCO	CA	94134
6150-038	646 MANSELL ST	SAN FRANCISCO	CA	94134	470 HAMILTON ST	SAN FRANCISCO	CA	94134
6153-002B	824 GOETTINGEN ST	SAN FRANCISCO	CA	94134	824 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6153-003	830 GOETTINGEN ST	SAN FRANCISCO	CA	94134	830 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6153-004	836 GOETTINGEN ST	SAN FRANCISCO	CA	94134	836 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6153-004A	842 GOETTINGEN ST	SAN FRANCISCO	CA	94134	842 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6153-005	848 GOETTINGEN ST	SAN FRANCISCO	CA	94134	848 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6153-005A	854 GOETTINGEN ST	SAN FRANCISCO	CA	94134	854 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6153-006	860 GOETTINGEN ST	SAN FRANCISCO	CA	94134	860 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6153-006A	866 GOETTINGEN ST	SAN FRANCISCO	CA	94134	866 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6153-007	872 GOETTINGEN ST	SAN FRANCISCO	CA	94134	872 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6153-007A	878 GOETTINGEN ST	SAN FRANCISCO	CA	94134	75 KUAKINI HWY K	KAILUA KONA	HI	96740
6153-008	884 GOETTINGEN ST	SAN FRANCISCO	CA	94134	884 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6153-008A	890 GOETTINGEN ST	SAN FRANCISCO	CA	94134	1849 GENEVA AVE	SAN FRANCISCO	CA	94134
6153-008B	324 MANSELL ST	SAN FRANCISCO	CA	94134	324 MANSELL ST	SAN FRANCISCO	CA	94134
6154-003	824 BRUSSELS ST	SAN FRANCISCO	CA	94134	824 BRUSSELS ST	SAN FRANCISCO	CA	94134

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
6154-003A	830 BRUSSELS ST	SAN FRANCISCO	CA	94134	830 BRUSSELS ST	SAN FRANCISCO	CA	94134
6154-004	836 BRUSSELS ST	SAN FRANCISCO	CA	94134	836 BRUSSELS ST	SAN FRANCISCO	CA	94134
6154-004A	842 BRUSSELS ST	SAN FRANCISCO	CA	94134	842 BRUSSELS ST	SAN FRANCISCO	CA	94134
6154-005	848 BRUSSELS ST	SAN FRANCISCO	CA	94134	842 BRUSSELS ST	SAN FRANCISCO	CA	94134
6154-005A	854 BRUSSELS ST	SAN FRANCISCO	CA	94134	854 BRUSSELS ST	SAN FRANCISCO	CA	94134
6154-006	860 BRUSSELS ST	SAN FRANCISCO	CA	94134	860 BRUSSELS ST	SAN FRANCISCO	CA	94134
6154-006A	866 BRUSSELS ST	SAN FRANCISCO	CA	94134	866 BRUSSELS ST	SAN FRANCISCO	CA	94134
6154-007	874 BRUSSELS ST	SAN FRANCISCO	CA	94134	371 20TH AVE	SAN FRANCISCO	CA	94121
6154-007A	880 BRUSSELS ST	SAN FRANCISCO	CA	94134	880 BRUSSELS ST	SAN FRANCISCO	CA	94134
6154-009	250 MANSELL ST	SAN FRANCISCO	CA	94134	250 MANSELL ST	SAN FRANCISCO	CA	94134
6154-009A	893 GOETTINGEN ST	SAN FRANCISCO	CA	94134	893 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6154-009B	887 GOETTINGEN ST	SAN FRANCISCO	CA	94134	887 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6154-010	881 GOETTINGEN ST	SAN FRANCISCO	CA	94134	881 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6154-010A	875 GOETTINGEN ST	SAN FRANCISCO	CA	94134	875 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6154-011	869 GOETTINGEN ST	SAN FRANCISCO	CA	94134	869 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6154-011A	863 GOETTINGEN ST	SAN FRANCISCO	CA	94134	863 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6154-013	845 GOETTINGEN ST	SAN FRANCISCO	CA	94134	845 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6154-013A	851 GOETTINGEN ST	SAN FRANCISCO	CA	94134	89 YACHT LN	DALY CITY	CA	94014
6154-014	833 GOETTINGEN ST	SAN FRANCISCO	CA	94134	89 YACHT LN	DALY CITY	CA	94014
6154-014A	827 GOETTINGEN ST	SAN FRANCISCO	CA	94134	827 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6154-020	898 BRUSSELS ST	SAN FRANCISCO	CA	94134	898 BRUSSELS ST	SAN FRANCISCO	CA	94134
6154-021	230 MANSELL ST	SAN FRANCISCO	CA	94134	230 MANSELL ST	SAN FRANCISCO	CA	94134
6154-022	853 GOETTINGEN ST	SAN FRANCISCO	CA	94134	853 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6154-023	855 GOETTINGEN ST	SAN FRANCISCO	CA	94134	855 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6154-023	855 GOETTINGEN ST	SAN FRANCISCO	CA	94134	855 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6155-002A	824 GIRARD ST	SAN FRANCISCO	CA	94134	824 GIRARD ST	SAN FRANCISCO	CA	94134
6155-003	830 GIRARD ST	SAN FRANCISCO	CA	94134	830 GIRARD ST	SAN FRANCISCO	CA	94134
6155-004	836 GIRARD ST	SAN FRANCISCO	CA	94134	836 GIRARD ST	SAN FRANCISCO	CA	94134
6155-004A	842 GIRARD ST	SAN FRANCISCO	CA	94134	842 GIRARD ST	SAN FRANCISCO	CA	94134
6155-005	848 GIRARD ST	SAN FRANCISCO	CA	94134	848 GIRARD ST	SAN FRANCISCO	CA	94134
6155-005A	862 GIRARD ST	SAN FRANCISCO	CA	94134	862 GIRARD ST	SAN FRANCISCO	CA	94134
6155-006	876 GIRARD ST	SAN FRANCISCO	CA	94134	876 GIRARD ST	SAN FRANCISCO	CA	94134
6155-007	890 GIRARD ST	SAN FRANCISCO	CA	94134	890 GIRARD ST	SAN FRANCISCO	CA	94134
6155-008	892 GIRARD ST	SAN FRANCISCO	CA	94134	38172 CAMDEN ST	FREMONT	CA	94536
6155-008A	898 GIRARD ST	SAN FRANCISCO	CA	94134	898 GIRARD ST	SAN FRANCISCO	CA	94134
6155-008B	130 MANSELL ST	SAN FRANCISCO	CA	94134	130 MANSELL ST	SAN FRANCISCO	CA	94134
6155-010	895 BRUSSELS ST	SAN FRANCISCO	CA	94134	895 BRUSSELS ST	SAN FRANCISCO	CA	94134
6155-011	873 BRUSSELS ST	SAN FRANCISCO	CA	94134	873 BRUSSELS ST	SAN FRANCISCO	CA	94134
6155-012	867 BRUSSELS ST	SAN FRANCISCO	CA	94134	870 STONEGATE DR 10	SOUTH SAN FRANCISCO	CA	94080
6155-013	861 BRUSSELS ST	SAN FRANCISCO	CA	94134	663 SILVER AVE	SAN FRANCISCO	CA	94134
6155-014	855 BRUSSELS ST	SAN FRANCISCO	CA	94134	855 BRUSSELS ST	SAN FRANCISCO	CA	94134
6155-014A	851 BRUSSELS ST	SAN FRANCISCO	CA	94134	4633 DINUBA ST	UNION CITY	CA	94587
6155-015	843 BRUSSELS ST	SAN FRANCISCO	CA	94134	843 BRUSSELS ST	SAN FRANCISCO	CA	94134
6155-015A	837 BRUSSELS ST	SAN FRANCISCO	CA	94134	837 BRUSSELS ST	SAN FRANCISCO	CA	94134
6155-016	831 BRUSSELS ST	SAN FRANCISCO	CA	94134	831 BRUSSELS ST	SAN FRANCISCO	CA	94134
6155-016A	825 BRUSSELS ST	SAN FRANCISCO	CA	94134	825 BRUSSELS ST	SAN FRANCISCO	CA	94134
6155-023	138 MANSELL ST	SAN FRANCISCO	CA	94134	138 MANSELL ST	SAN FRANCISCO	CA	94134
6155-024	899 BRUSSELS ST	SAN FRANCISCO	CA	94134	735 MANSELL ST	SAN FRANCISCO	CA	94134
6156-004	3124 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	3124 SAN BRUNO AVE	SAN FRANCISCO	CA	94134
6156-004A	3130 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	3130 SAN BRUNO AVE	SAN FRANCISCO	CA	94134

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
6156-005	3136 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	3136 SAN BRUNO AVE	SAN FRANCISCO	CA	94134
6156-006A	3154 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	3154 SAN BRUNO AVE	SAN FRANCISCO	CA	94134
6156-007	3164 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	362 GELLERT BLVD	DALY CITY	CA	94015
6156-007A	3166 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	307 MILLWOOD DR	MILLBRAE	CA	94030
6156-011	879 GIRARD ST	SAN FRANCISCO	CA	94134	879 GIRARD ST	SAN FRANCISCO	CA	94134
6156-011A	873 GIRARD ST	SAN FRANCISCO	CA	94134	873 GIRARD ST	SAN FRANCISCO	CA	94134
6156-013	857 GIRARD ST	SAN FRANCISCO	CA	94134	857 GIRARD ST	SAN FRANCISCO	CA	94134
6156-013A	851 GIRARD ST	SAN FRANCISCO	CA	94134	851 GIRARD ST	SAN FRANCISCO	CA	94134
6156-014	847 GIRARD ST	SAN FRANCISCO	CA	94134	847 GIRARD ST	SAN FRANCISCO	CA	94134
6156-014A	837 GIRARD ST	SAN FRANCISCO	CA	94134	2630 ORTEGA ST	SAN FRANCISCO	CA	94122
6156-015	835 GIRARD ST	SAN FRANCISCO	CA	94134	835 GIRARD ST	SAN FRANCISCO	CA	94134
6156-015A	819 GIRARD ST	SAN FRANCISCO	CA	94134	873 GIRARD ST	SAN FRANCISCO	CA	94134
6156-019	3148 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	3926 MISSION ST	SAN FRANCISCO	CA	94112
6156-023	30 MANSELL ST	SAN FRANCISCO	CA	94134	30 MANSELL ST	SAN FRANCISCO	CA	94134
6156-024	885 GIRARD ST	SAN FRANCISCO	CA	94134	885 GIRARD ST	SAN FRANCISCO	CA	94134
6156-025	865 GIRARD ST	SAN FRANCISCO	CA	94134	865 GIRARD ST	SAN FRANCISCO	CA	94134
6156-026	861 GIRARD ST	SAN FRANCISCO	CA	94134	861 GIRARD ST	SAN FRANCISCO	CA	94134
6156-027	3180 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	733 DWIGHT ST	SAN FRANCISCO	CA	94134
6156-028	3190 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	733 DWIGHT ST	SAN FRANCISCO	CA	94134
6157-004	1 MANSELL ST	SAN FRANCISCO	CA	94134	1 MANSELL ST	SAN FRANCISCO	CA	94134
6157-005	3230 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	3230 SAN BRUNO AVE	SAN FRANCISCO	CA	94134
6157-006	3236 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	2701 DEL PASO RD 130-2	SACRAMENTO	CA	95835
6157-006A	3244 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	3244 SAN BRUNO AVE	SAN FRANCISCO	CA	94134
6157-007	3250 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	3250 SAN BRUNO AVE	SAN FRANCISCO	CA	94134
6157-007A	3256 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	3256 SAN BRUNO AVE	SAN FRANCISCO	CA	94134
6157-008	3260 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	6505 3RD ST	SAN FRANCISCO	CA	94124
6157-008A	3270 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	3270 SAN BRUNO AVE	SAN FRANCISCO	CA	94134
6157-009	3272 SAN BRUNO AVE	SAN FRANCISCO	CA	94134	3272 SAN BRUNO AVE	SAN FRANCISCO	CA	94134
6157-013	967 GIRARD ST	SAN FRANCISCO	CA	94134	2230 VALENCIA CT	TRACY	CA	95377
6157-013A	961 GIRARD ST	SAN FRANCISCO	CA	94134	2860 SHERWOOD DR	SAN BRUNO	CA	94066
6157-014	951 GIRARD ST	SAN FRANCISCO	CA	94134	951 GIRARD ST	SAN FRANCISCO	CA	94134
6157-015B	939 GIRARD ST	SAN FRANCISCO	CA	94134	939 GIRARD ST	SAN FRANCISCO	CA	94134
6157-017	921 GIRARD ST	SAN FRANCISCO	CA	94134	809 MORNINGSIDE DR	MILLBRAE	CA	94030
6157-019	927 GIRARD ST	SAN FRANCISCO	CA	94134	519 VISTA MAR AVE	PACIFICA	CA	94044
6157-020	933 GIRARD ST	SAN FRANCISCO	CA	94134	933 GIRARD ST	SAN FRANCISCO	CA	94134
6157-021	34 MANSELL ST	SAN FRANCISCO	CA	94134	655 CAMPBELL AVE	SAN FRANCISCO	CA	94134
6157-024	945 GIRARD ST	SAN FRANCISCO	CA	94134	945 GIRARD ST	SAN FRANCISCO	CA	94134
6158-003	924 GIRARD ST	SAN FRANCISCO	CA	94134	924 GIRARD ST	SAN FRANCISCO	CA	94134
6158-003A	930 GIRARD ST	SAN FRANCISCO	CA	94134	930 GIRARD ST	SAN FRANCISCO	CA	94134
6158-004	936 GIRARD ST	SAN FRANCISCO	CA	94134	936 GIRARD ST	SAN FRANCISCO	CA	94134
6158-004A	942 GIRARD ST	SAN FRANCISCO	CA	94134	942 GIRARD ST	SAN FRANCISCO	CA	94134
6158-005	948 GIRARD ST	SAN FRANCISCO	CA	94134	948 GIRARD ST	SAN FRANCISCO	CA	94134
6158-005A	954 GIRARD ST	SAN FRANCISCO	CA	94134	954 GIRARD ST	SAN FRANCISCO	CA	94134
6158-006	956 GIRARD ST	SAN FRANCISCO	CA	94134	956 GIRARD ST	SAN FRANCISCO	CA	94134
6158-006A	958 GIRARD ST	SAN FRANCISCO	CA	94134	958 GIRARD ST	SAN FRANCISCO	CA	94134
6158-011	965 BRUSSELS ST	SAN FRANCISCO	CA	94134	965 BRUSSELS ST	SAN FRANCISCO	CA	94134
6158-012	961 BRUSSELS ST	SAN FRANCISCO	CA	94134	961 BRUSSELS ST	SAN FRANCISCO	CA	94134
6158-015	927 BRUSSELS ST	SAN FRANCISCO	CA	94134	927 BRUSSELS ST	SAN FRANCISCO	CA	94134
6158-019	145 MANSELL ST	SAN FRANCISCO	CA	94134	145 MANSELL ST	SAN FRANCISCO	CA	94134
6158-020	955 BRUSSELS ST	SAN FRANCISCO	CA	94134	955 BRUSSELS ST	SAN FRANCISCO	CA	94134

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
6158-021	951 BRUSSELS ST	SAN FRANCISCO	CA	94134	951 BRUSSELS ST	SAN FRANCISCO	CA	94134
6158-033	900 GIRARD ST	SAN FRANCISCO	CA	94134	900 GIRARD ST	SAN FRANCISCO	CA	94134
6158-034	949 BRUSSELS ST	SAN FRANCISCO	CA	94134	949 BRUSSELS ST	SAN FRANCISCO	CA	94134
6158-035	947 BRUSSELS ST V	SAN FRANCISCO	CA	94134	949 BRUSSELS ST	SAN FRANCISCO	CA	94134
6159-003	916 BRUSSELS ST	SAN FRANCISCO	CA	94134	542 18TH AVE	SAN FRANCISCO	CA	94121
6159-003A	930 BRUSSELS ST	SAN FRANCISCO	CA	94134	3766 SACRAMENTO ST	SAN FRANCISCO	CA	94118
6159-004	936 BRUSSELS ST	SAN FRANCISCO	CA	94134	954 BRUSSELS ST	SAN FRANCISCO	CA	94134
6159-004A	942 BRUSSELS ST	SAN FRANCISCO	CA	94134	942 BRUSSELS ST	SAN FRANCISCO	CA	94134
6159-011	967 GOETTINGEN ST	SAN FRANCISCO	CA	94134	967 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6159-011A	961 GOETTINGEN ST	SAN FRANCISCO	CA	94134	961 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6159-011B	955 GOETTINGEN ST	SAN FRANCISCO	CA	94134	2060 OFARRELL ST 106	SAN FRANCISCO	CA	94115
6159-012	949 GOETTINGEN ST	SAN FRANCISCO	CA	94134	949 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6159-012A	943 GOETTINGEN ST	SAN FRANCISCO	CA	94134	943 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6159-012B	937 GOETTINGEN ST	SAN FRANCISCO	CA	94134	937 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6159-013	925 GOETTINGEN ST	SAN FRANCISCO	CA	94134	925 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6159-013A	923 GOETTINGEN ST	SAN FRANCISCO	CA	94134	923 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6159-014	921 GOETTINGEN ST	SAN FRANCISCO	CA	94134	921 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6159-017	960 BRUSSELS ST	SAN FRANCISCO	CA	94134	960 BRUSSELS ST	SAN FRANCISCO	CA	94134
6159-018	966 BRUSSELS ST	SAN FRANCISCO	CA	94134	966 BRUSSELS ST	SAN FRANCISCO	CA	94134
6159-019	948 BRUSSELS ST	SAN FRANCISCO	CA	94134	948 BRUSSELS ST	SAN FRANCISCO	CA	94134
6159-020	954 BRUSSELS ST	SAN FRANCISCO	CA	94134	954 BRUSSELS ST	SAN FRANCISCO	CA	94134
6159-025	201 MANSELL ST	SAN FRANCISCO	CA	94134	201 MANSELL ST	SAN FRANCISCO	CA	94134
6160-002A	920 GOETTINGEN ST	SAN FRANCISCO	CA	94134	102 MAYS CT	VERBENA	AL	36091
6160-003	926 GOETTINGEN ST	SAN FRANCISCO	CA	94134	926 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6160-003A	932 GOETTINGEN ST	SAN FRANCISCO	CA	94134	932 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6160-004	938 GOETTINGEN ST	SAN FRANCISCO	CA	94134	938 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6160-005	944 GOETTINGEN ST	SAN FRANCISCO	CA	94134	142 WHITTIER ST	SAN FRANCISCO	CA	94112
6160-006	950 GOETTINGEN ST	SAN FRANCISCO	CA	94134	2930 DIAMOND ST 3	SAN FRANCISCO	CA	94131
6160-007	956 GOETTINGEN ST	SAN FRANCISCO	CA	94134	956 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6160-007A	962 GOETTINGEN ST	SAN FRANCISCO	CA	94134	962 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6160-007B	968 GOETTINGEN ST	SAN FRANCISCO	CA	94134	968 GOETTINGEN ST	SAN FRANCISCO	CA	94134
6160-015	967 SOMERSET ST	SAN FRANCISCO	CA	94134	967 SOMERSET ST	SAN FRANCISCO	CA	94134
6160-016	961 SOMERSET ST	SAN FRANCISCO	CA	94134	961 SOMERSET ST	SAN FRANCISCO	CA	94134
6160-017	955 SOMERSET ST	SAN FRANCISCO	CA	94134	955 SOMERSET ST	SAN FRANCISCO	CA	94134
6160-018	949 SOMERSET ST	SAN FRANCISCO	CA	94134	949 SOMERSET ST	SAN FRANCISCO	CA	94134
6160-019	943 SOMERSET ST	SAN FRANCISCO	CA	94134	943 SOMERSET ST	SAN FRANCISCO	CA	94134
6160-020	937 SOMERSET ST	SAN FRANCISCO	CA	94134	937 SOMERSET ST	SAN FRANCISCO	CA	94134
6160-021	931 SOMERSET ST	SAN FRANCISCO	CA	94134	PO BOX 16	LUCERNE	CA	95458
6160-022	925 SOMERSET ST	SAN FRANCISCO	CA	94134	925 SOMERSET ST	SAN FRANCISCO	CA	94134
6160-023	919 SOMERSET ST	SAN FRANCISCO	CA	94134	919 SOMERSET ST	SAN FRANCISCO	CA	94134
6160-028	355 MANSELL ST	SAN FRANCISCO	CA	94134	355 MANSELL ST	SAN FRANCISCO	CA	94134
6160-029	345 MANSELL ST	SAN FRANCISCO	CA	94134	345 MANSELL ST	SAN FRANCISCO	CA	94134
6160-030	335 MANSELL ST	SAN FRANCISCO	CA	94134	335 MANSELL ST	SAN FRANCISCO	CA	94134
6161-013	900 SOMERSET ST	SAN FRANCISCO	CA	94134	900 SOMERSET ST	SAN FRANCISCO	CA	94134
6161-014	926 SOMERSET ST	SAN FRANCISCO	CA	94134	926 SOMERSET ST	SAN FRANCISCO	CA	94134
6161-015	930 SOMERSET ST	SAN FRANCISCO	CA	94134	1666 CHESTNUT ST	SAN FRANCISCO	CA	94123
6161-016	938 SOMERSET ST	SAN FRANCISCO	CA	94134	938 SOMERSET ST	SAN FRANCISCO	CA	94134
6161-017	946 SOMERSET ST	SAN FRANCISCO	CA	94134	946 SOMERSET ST	SAN FRANCISCO	CA	94134
6161-018	950 SOMERSET ST	SAN FRANCISCO	CA	94134	950 SOMERSET ST	SAN FRANCISCO	CA	94134
6161-019	958 SOMERSET ST	SAN FRANCISCO	CA	94134	201 MANSELL ST	SAN FRANCISCO	CA	94134

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
6161-020	966 SOMERSET ST	SAN FRANCISCO	CA	94134	966 SOMERSET ST	SAN FRANCISCO	CA	94134
6161-021	970 SOMERSET ST	SAN FRANCISCO	CA	94134	970 SOMERSET ST	SAN FRANCISCO	CA	94134
6161-029	120 ANKENY ST	SAN FRANCISCO	CA	94134	1420 SILVER AVE	SAN FRANCISCO	CA	94134
6161-030	130 ANKENY ST	SAN FRANCISCO	CA	94134	130 ANKENY ST	SAN FRANCISCO	CA	94134
6161-031	140 ANKENY ST	SAN FRANCISCO	CA	94134	140 ANKENY ST	SAN FRANCISCO	CA	94134
6161-032	150 ANKENY ST	SAN FRANCISCO	CA	94134	150 ANKENY ST	SAN FRANCISCO	CA	94134
6161-033	160 ANKENY ST	SAN FRANCISCO	CA	94134	160 ANKENY ST	SAN FRANCISCO	CA	94134
6161-034	180 ANKENY ST	SAN FRANCISCO	CA	94134	180 ANKENY ST	SAN FRANCISCO	CA	94134
6161-035	901 HOLYOKE ST	SAN FRANCISCO	CA	94134	PO BOX 881152	SAN FRANCISCO	CA	94188
6161-036	915 HOLYOKE ST	SAN FRANCISCO	CA	94134	915 HOLYOKE ST	SAN FRANCISCO	CA	94134
6161-037	925 HOLYOKE ST	SAN FRANCISCO	CA	94134	925 HOLYOKE ST	SAN FRANCISCO	CA	94134
6161-038	935 HOLYOKE ST	SAN FRANCISCO	CA	94134	935 HOLYOKE ST	SAN FRANCISCO	CA	94134
6161-039	945 HOLYOKE ST	SAN FRANCISCO	CA	94134	945 HOLYOKE ST	SAN FRANCISCO	CA	94134
6161-040	955 HOLYOKE ST	SAN FRANCISCO	CA	94134	955 HOLYOKE ST	SAN FRANCISCO	CA	94134
6161-041	965 HOLYOKE ST	SAN FRANCISCO	CA	94134	965 HOLYOKE ST	SAN FRANCISCO	CA	94134
6161-043	110 ANKENY ST	SAN FRANCISCO	CA	94134	110 ANKENY ST	SAN FRANCISCO	CA	94134
6162-017	975 HAMILTON ST	SAN FRANCISCO	CA	94134	975 HAMILTON ST	SAN FRANCISCO	CA	94134
6162-018	955 HAMILTON ST	SAN FRANCISCO	CA	94134	955 HAMILTON ST	SAN FRANCISCO	CA	94134
6162-019	915 HAMILTON ST	SAN FRANCISCO	CA	94134	915 HAMILTON ST	SAN FRANCISCO	CA	94134
6162-020	901 HAMILTON ST	SAN FRANCISCO	CA	94134	901 HAMILTON ST	SAN FRANCISCO	CA	94134
6162-021	280 ANKENY ST	SAN FRANCISCO	CA	94134	280 ANKENY ST	SAN FRANCISCO	CA	94134
6162-022	250 ANKENY ST	SAN FRANCISCO	CA	94134	1727 BROADWAY 2A	BROOKLYN	NY	11207
6162-023	220 ANKENY ST	SAN FRANCISCO	CA	94134	220 ANKENY ST	SAN FRANCISCO	CA	94134
6162-024	200 ANKENY ST	SAN FRANCISCO	CA	94134	200 ANKENY ST	SAN FRANCISCO	CA	94134
6163-005	924 HAMILTON ST	SAN FRANCISCO	CA	94134	924 HAMILTON ST	SAN FRANCISCO	CA	94134
6163-006	928 HAMILTON ST	SAN FRANCISCO	CA	94134	928 HAMILTON ST	SAN FRANCISCO	CA	94134
6163-007	932 HAMILTON ST	SAN FRANCISCO	CA	94134	115 LEARY CT	SAN RAMON	CA	94582
6163-008	936 HAMILTON ST	SAN FRANCISCO	CA	94134	936 HAMILTON ST	SAN FRANCISCO	CA	94134
6163-009	940 HAMILTON ST	SAN FRANCISCO	CA	94134	227 CONCORD ST	SAN FRANCISCO	CA	94112
6163-010	946 HAMILTON ST	SAN FRANCISCO	CA	94134	946 HAMILTON ST	SAN FRANCISCO	CA	94134
6163-026	1323 BOWDOIN ST	SAN FRANCISCO	CA	94134	8545 LAST POINT AVE	LAS VEGAS	NV	89129
6163-027	1319 BOWDOIN ST	SAN FRANCISCO	CA	94134	1319 BOWDOIN ST	SAN FRANCISCO	CA	94134
6163-028	1315 BOWDOIN ST	SAN FRANCISCO	CA	94134	1315 BOWDOIN ST	SAN FRANCISCO	CA	94134
6163-029	1309 BOWDOIN ST	SAN FRANCISCO	CA	94134	1309 BOWDOIN ST	SAN FRANCISCO	CA	94134
6163-030	1305 BOWDOIN ST	SAN FRANCISCO	CA	94134	1305 BOWDOIN ST	SAN FRANCISCO	CA	94134
6163-036	914 HAMILTON ST	SAN FRANCISCO	CA	94134	914 HAMILTON ST	SAN FRANCISCO	CA	94134
6163-037	681 MANSELL ST	SAN FRANCISCO	CA	94134	681 MANSELL ST	SAN FRANCISCO	CA	94134
6163-040	70 DELTA ST	SAN FRANCISCO	CA	94134	70 DELTA ST	SAN FRANCISCO	CA	94134
6163-041	82 DELTA ST V	SAN FRANCISCO	CA	94134	227 CONCORD ST	SAN FRANCISCO	CA	94112
6164-017	939 DARTMOUTH ST	SAN FRANCISCO	CA	94134	939 DARTMOUTH ST	SAN FRANCISCO	CA	94134
6164-018	933 DARTMOUTH ST	SAN FRANCISCO	CA	94134	2431 26TH AVE	SAN FRANCISCO	CA	94116
6164-022	909 DARTMOUTH ST	SAN FRANCISCO	CA	94134	909 DARTMOUTH ST	SAN FRANCISCO	CA	94134
6164-024	70 DELTA ST	SAN FRANCISCO	CA	94134	70 DELTA ST	SAN FRANCISCO	CA	94134
6164-025	1300 BOWDOIN ST	SAN FRANCISCO	CA	94134	1300 BOWDOIN ST	SAN FRANCISCO	CA	94134
6164-028	1310 BOWDOIN ST	SAN FRANCISCO	CA	94134	1310 BOWDOIN ST	SAN FRANCISCO	CA	94134
6164-032	725 MANSELL ST	SAN FRANCISCO	CA	94134	725 MANSELL ST	SAN FRANCISCO	CA	94134
6164-033	735 MANSELL ST	SAN FRANCISCO	CA	94134	735 MANSELL ST	SAN FRANCISCO	CA	94134
6164-034	1316 BOWDOIN ST	SAN FRANCISCO	CA	94134	1316 BOWDOIN ST	SAN FRANCISCO	CA	94134
6164-035	1330 BOWDOIN ST	SAN FRANCISCO	CA	94134	10291 SHELDON RD	ELK GROVE	CA	95624
6165-001	155 ANKENY ST	SAN FRANCISCO	CA	94134	659 CAMPBELL AVE	SAN FRANCISCO	CA	94134

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
6165-002	10 MILL ST	SAN FRANCISCO	CA	94134	10 MILL ST	SAN FRANCISCO	CA	94134
6165-031	27 DELTA ST	SAN FRANCISCO	CA	94134	27 DELTA ST	SAN FRANCISCO	CA	94134
6165-032	23 DELTA ST	SAN FRANCISCO	CA	94134	23 DELTA ST	SAN FRANCISCO	CA	94134
6165-033	19 DELTA ST	SAN FRANCISCO	CA	94134	19 DELTA ST	SAN FRANCISCO	CA	94134
6165-034	15 DELTA ST	SAN FRANCISCO	CA	94134	15 DELTA ST	SAN FRANCISCO	CA	94134
6165-035	11 DELTA ST	SAN FRANCISCO	CA	94134	PO BOX 347309	SAN FRANCISCO	CA	94134
6165-036	225 ANKENY ST	SAN FRANCISCO	CA	94134	225 ANKENY ST	SAN FRANCISCO	CA	94134
6165-037	173 ANKENY ST	SAN FRANCISCO	CA	94134	173 ANKENY ST	SAN FRANCISCO	CA	94134
6165-038	165 ANKENY ST	SAN FRANCISCO	CA	94134	165 ANKENY ST	SAN FRANCISCO	CA	94134
6165-039	159 ANKENY ST	SAN FRANCISCO	CA	94134	159 ANKENY ST	SAN FRANCISCO	CA	94134
6165-041	35 DELTA ST	SAN FRANCISCO	CA	94134	35 DELTA ST	SAN FRANCISCO	CA	94134
6165-050	14 MILL ST	SAN FRANCISCO	CA	94134	14 MILL ST	SAN FRANCISCO	CA	94134
6165-051	20 MILL ST	SAN FRANCISCO	CA	94134	20 MILL ST	SAN FRANCISCO	CA	94134
6166-034	149 ANKENY ST	SAN FRANCISCO	CA	94134	149 ANKENY ST	SAN FRANCISCO	CA	94134
6179-002	70 DELTA ST	SAN FRANCISCO	CA	94134	70 DELTA ST	SAN FRANCISCO	CA	94134
6220-002	61 JOHN F SHELLEY DR	SAN FRANCISCO	CA	94134	25 VAN NESS AVE 400	SAN FRANCISCO	CA	94102
6221-001	PHYSICAL ADDRESS NOT AVAILABLE				25 VAN NESS AVE 400	SAN FRANCISCO	CA	94102
6221-004	500 RAYMOND AVE	SAN FRANCISCO	CA	94134	1360 MISSION ST 300	SAN FRANCISCO	CA	94103
6221-005	1971 VISITATION AVE	SAN FRANCISCO	CA	94134	135 VAN NESS AVE #300	SAN FRANCISCO	CA	94102
6243-014	562 LELAND AVE	SAN FRANCISCO	CA	94134	562 LELAND AVE	SAN FRANCISCO	CA	94134
6243-015	568 LELAND AVE	SAN FRANCISCO	CA	94134	568 LELAND AVE	SAN FRANCISCO	CA	94134
6243-016	572 LELAND AVE	SAN FRANCISCO	CA	94134	572 LELAND AVE	SAN FRANCISCO	CA	94134
6243-017	578 LELAND AVE	SAN FRANCISCO	CA	94134	578 LELAND AVE	SAN FRANCISCO	CA	94134
6243-018	584 LELAND AVE	SAN FRANCISCO	CA	94134	12611 MARLEIGH DR	BOWIE	MD	20720
6243-019	590 LELAND AVE	SAN FRANCISCO	CA	94134	4200 CALIFORNIA ST 116	SAN FRANCISCO	CA	94118
6243-024	575 RAYMOND AVE	SAN FRANCISCO	CA	94134	575 RAYMOND AVE	SAN FRANCISCO	CA	94134
6243-025	571 RAYMOND AVE	SAN FRANCISCO	CA	94134	571 RAYMOND AVE	SAN FRANCISCO	CA	94134
6243-026	569 RAYMOND AVE	SAN FRANCISCO	CA	94134	569 RAYMOND AVE	SAN FRANCISCO	CA	94134
6243-027	563 RAYMOND AVE	SAN FRANCISCO	CA	94134	563 RAYMOND AVE	SAN FRANCISCO	CA	94134
6243-028	559 RAYMOND AVE	SAN FRANCISCO	CA	94134	559 RAYMOND AVE	SAN FRANCISCO	CA	94134
6243-029	555 RAYMOND AVE	SAN FRANCISCO	CA	94134	555 RAYMOND AVE	SAN FRANCISCO	CA	94134
6243-030	551 RAYMOND AVE	SAN FRANCISCO	CA	94134	551 RAYMOND AVE	SAN FRANCISCO	CA	94134
6243-031	547 RAYMOND AVE	SAN FRANCISCO	CA	94134	547 RAYMOND AVE	SAN FRANCISCO	CA	94134
6243-061	590 LELAND AVE	SAN FRANCISCO	CA	94134	590 LELAND AVE	SAN FRANCISCO	CA	94134
6243-062	590 LELAND AVE	SAN FRANCISCO	CA	94134	590 LELAND AVE	SAN FRANCISCO	CA	94134
6243-063	590 LELAND AVE	SAN FRANCISCO	CA	94134	590 LELAND AVE	SAN FRANCISCO	CA	94134
6243-064	590 LELAND AVE	SAN FRANCISCO	CA	94134	590 LELAND AVE	SAN FRANCISCO	CA	94134
6243-065	590 LELAND AVE	SAN FRANCISCO	CA	94134	590 LELAND AVE	SAN FRANCISCO	CA	94134
6259-005	360 SAWYER ST	SAN FRANCISCO	CA	94134	360 SAWYER ST	SAN FRANCISCO	CA	94134
6259-006	366 SAWYER ST	SAN FRANCISCO	CA	94134	366 SAWYER ST	SAN FRANCISCO	CA	94134
6259-007	372 SAWYER ST	SAN FRANCISCO	CA	94134	485 ANDOVER ST	SAN FRANCISCO	CA	94110
6259-008	380 SAWYER ST	SAN FRANCISCO	CA	94134	380 SAWYER ST	SAN FRANCISCO	CA	94134
6259-008A	1620 VISITACION AVE	SAN FRANCISCO	CA	94134	1620 VISITACION AVE	SAN FRANCISCO	CA	94134
6259-010	69 HAHN ST	SAN FRANCISCO	CA	94134	69 HAHN ST	SAN FRANCISCO	CA	94134
6259-011	61 HAHN ST	SAN FRANCISCO	CA	94134	61 HAHN ST	SAN FRANCISCO	CA	94134
6259-012	53 HAHN ST	SAN FRANCISCO	CA	94134	1368 22ND AVE	SAN FRANCISCO	CA	94122
6259-013	45 HAHN ST	SAN FRANCISCO	CA	94134	45 HAHN ST	SAN FRANCISCO	CA	94134
6259-014	39 HAHN ST	SAN FRANCISCO	CA	94134	39 HAHN ST	SAN FRANCISCO	CA	94134
6259-015	27 HAHN ST	SAN FRANCISCO	CA	94134	27 HAHN ST	SAN FRANCISCO	CA	94134
6259-016	21 HAHN ST	SAN FRANCISCO	CA	94134	21 HAHN ST	SAN FRANCISCO	CA	94134

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
6259-029	332 SAWYER ST	SAN FRANCISCO	CA	94134	332 SAWYER ST	SAN FRANCISCO	CA	94134
6259-030	340 SAWYER ST	SAN FRANCISCO	CA	94134	340 SAWYER ST	SAN FRANCISCO	CA	94134
6259-031	348 SAWYER ST	SAN FRANCISCO	CA	94134	348 SAWYER ST	SAN FRANCISCO	CA	94134
6259-032	1628 VISITACION AVE	SAN FRANCISCO	CA	94134	1628 VISITACION AVE	SAN FRANCISCO	CA	94134
6259-033	71 HAHN ST	SAN FRANCISCO	CA	94134	71 HAHN ST	SAN FRANCISCO	CA	94134
6260-001	2 HAHN ST	SAN FRANCISCO	CA	94134	2 HAHN ST	SAN FRANCISCO	CA	94134
6260-002	24 HAHN ST	SAN FRANCISCO	CA	94134	24 HAHN ST	SAN FRANCISCO	CA	94134
6260-003	28 HAHN ST	SAN FRANCISCO	CA	94134	447 WESTMOOR AVE	DALY CITY	CA	94015
6260-003A	30 HAHN ST	SAN FRANCISCO	CA	94134	30 HAHN ST	SAN FRANCISCO	CA	94134
6260-004	42 HAHN ST	SAN FRANCISCO	CA	94134	42 HAHN ST	SAN FRANCISCO	CA	94134
6260-004A	48 HAHN ST	SAN FRANCISCO	CA	94134	48 HAHN ST	SAN FRANCISCO	CA	94134
6260-005	60 HAHN ST	SAN FRANCISCO	CA	94134	60 HAHN ST	SAN FRANCISCO	CA	94134
6260-006	64 HAHN ST	SAN FRANCISCO	CA	94134	64 HAHN ST	SAN FRANCISCO	CA	94134
6260-007	66 HAHN ST	SAN FRANCISCO	CA	94134	66 HAHN ST	SAN FRANCISCO	CA	94134
6260-015	575 LELAND AVE	SAN FRANCISCO	CA	94134	575 LELAND AVE	SAN FRANCISCO	CA	94134
6260-016	569 LELAND AVE	SAN FRANCISCO	CA	94134	569 LELAND AVE	SAN FRANCISCO	CA	94134
6260-017	563 LELAND AVE	SAN FRANCISCO	CA	94134	989 FRANKLIN ST 620	OAKLAND	CA	94607
6260-018	557 LELAND AVE	SAN FRANCISCO	CA	94134	557 LELAND AVE	SAN FRANCISCO	CA	94134
6297-001	400 SAWYER ST	SAN FRANCISCO	CA	94134	400 SAWYER ST	SAN FRANCISCO	CA	94134
6297-002	406 SAWYER ST	SAN FRANCISCO	CA	94134	406 SAWYER ST	SAN FRANCISCO	CA	94134
6297-003	410 SAWYER ST	SAN FRANCISCO	CA	94134	410 SAWYER ST	SAN FRANCISCO	CA	94134
6297-004	414 SAWYER ST	SAN FRANCISCO	CA	94134	414 SAWYER ST	SAN FRANCISCO	CA	94134
6297-005	420 SAWYER ST	SAN FRANCISCO	CA	94134	420 SAWYER ST	SAN FRANCISCO	CA	94134
6297-006	424 SAWYER ST	SAN FRANCISCO	CA	94134	424 SAWYER ST	SAN FRANCISCO	CA	94134
6297-007	430 SAWYER ST	SAN FRANCISCO	CA	94134	430 SAWYER ST	SAN FRANCISCO	CA	94134
6297-008	434 SAWYER ST	SAN FRANCISCO	CA	94134	434 SAWYER ST	SAN FRANCISCO	CA	94134
6297-009	440 SAWYER ST	SAN FRANCISCO	CA	94134	440 SAWYER ST	SAN FRANCISCO	CA	94134
6297-010	444 SAWYER ST	SAN FRANCISCO	CA	94134	444 SAWYER ST	SAN FRANCISCO	CA	94134
6297-011	450 SAWYER ST	SAN FRANCISCO	CA	94134	450 SAWYER ST	SAN FRANCISCO	CA	94134
6297-012	454 SAWYER ST	SAN FRANCISCO	CA	94134	454 SAWYER ST	SAN FRANCISCO	CA	94134
6297-013	460 SAWYER ST	SAN FRANCISCO	CA	94134	460 SAWYER ST	SAN FRANCISCO	CA	94134
6297-014	464 SAWYER ST	SAN FRANCISCO	CA	94134	464 SAWYER ST	SAN FRANCISCO	CA	94134
6297-015	470 SAWYER ST	SAN FRANCISCO	CA	94134	470 SAWYER ST	SAN FRANCISCO	CA	94134
6297-016	474 SAWYER ST	SAN FRANCISCO	CA	94134	474 SAWYER ST	SAN FRANCISCO	CA	94134
6297-017	480 SAWYER ST	SAN FRANCISCO	CA	94134	480 SAWYER ST	SAN FRANCISCO	CA	94134
6297-018	484 SAWYER ST	SAN FRANCISCO	CA	94134	405 N 12TH ST	SAN JOSE	CA	95112
6297-019	1400 SUNNYDALE AVE	SAN FRANCISCO	CA	94134	1400 SUNNYDALE AVE	SAN FRANCISCO	CA	94134
6297-020	1410 SUNNYDALE AVE	SAN FRANCISCO	CA	94134	1410 SUNNYDALE AVE	SAN FRANCISCO	CA	94134
6297-021	1416 SUNNYDALE AVE	SAN FRANCISCO	CA	94134	1416 SUNNYDALE AVE	SAN FRANCISCO	CA	94134
6297-022	1422 SUNNYDALE AVE	SAN FRANCISCO	CA	94134	1422 SUNNYDALE AVE	SAN FRANCISCO	CA	94134
6297-027	1430 SUNNYDALE AVE	SAN FRANCISCO	CA	94134	1430 SUNNYDALE AVE	SAN FRANCISCO	CA	94134
6297-028	1450 SUNNYDALE AVE	SAN FRANCISCO	CA	94134	1450 SUNNYDALE AVE	SAN FRANCISCO	CA	94134
6297-029	181 HAHN ST	SAN FRANCISCO	CA	94134	181 HAHN ST	SAN FRANCISCO	CA	94134
6297-030	177 HAHN ST	SAN FRANCISCO	CA	94134	177 HAHN ST	SAN FRANCISCO	CA	94134
6297-031	171 HAHN ST	SAN FRANCISCO	CA	94134	1487 SHAFTER AVE	SAN FRANCISCO	CA	94124
6297-032	167 HAHN ST	SAN FRANCISCO	CA	94134	167 HAHN ST	SAN FRANCISCO	CA	94134
6297-033	161 HAHN ST	SAN FRANCISCO	CA	94134	161 HAHN ST	SAN FRANCISCO	CA	94134
6297-034	157 HAHN ST	SAN FRANCISCO	CA	94134	157 HAHN ST	SAN FRANCISCO	CA	94134
6297-035	151 HAHN ST	SAN FRANCISCO	CA	94134	151 HAHN ST	SAN FRANCISCO	CA	94134
6297-036	147 HAHN ST	SAN FRANCISCO	CA	94134	147 HAHN ST	SAN FRANCISCO	CA	94134

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
6297-037	141 HAHN ST	SAN FRANCISCO	CA	94134	141 HAHN ST	SAN FRANCISCO	CA	94134
6297-038	137 HAHN ST	SAN FRANCISCO	CA	94134	137 HAHN ST	SAN FRANCISCO	CA	94134
6297-039	131 HAHN ST	SAN FRANCISCO	CA	94134	131 HAHN ST	SAN FRANCISCO	CA	94134
6297-040	127 HAHN ST	SAN FRANCISCO	CA	94134	127 HAHN ST	SAN FRANCISCO	CA	94134
6297-041	121 HAHN ST	SAN FRANCISCO	CA	94134	121 HAHN ST	SAN FRANCISCO	CA	94134
6297-042	117 HAHN ST	SAN FRANCISCO	CA	94134	117 HAHN ST	SAN FRANCISCO	CA	94134
6297-043	111 HAHN ST	SAN FRANCISCO	CA	94134	111 HAHN ST	SAN FRANCISCO	CA	94134
6297-044	107 HAHN ST	SAN FRANCISCO	CA	94134	107 HAHN ST	SAN FRANCISCO	CA	94134
6297-045	101 HAHN ST	SAN FRANCISCO	CA	94134	101 HAHN ST	SAN FRANCISCO	CA	94134
6297-046	1635- ISITACION AVE	SAN FRANCISCO	CA	94134	140 NEW MONTGOMERY ST	SAN FRANCISCO	CA	94105
6297-047	1621 VISITACION AVE	SAN FRANCISCO	CA	94134	1621 VISITACION AVE	SAN FRANCISCO	CA	94134
6310-001	1500 SUNNYDALE AVE	SAN FRANCISCO	CA	94134	1815 EGBERT AVE	SAN FRANCISCO	CA	94124
6311-001	1501 SUNNYDALE AVE	SAN FRANCISCO	CA	94134	1815 EGBERT AVE	SAN FRANCISCO	CA	94124
6312-001	1 BLYTHEDALE AVE	SAN FRANCISCO	CA	94134	1815 EGBERT AVE	SAN FRANCISCO	CA	94124
6313-001	101 BLYTHEDALE AVE	SAN FRANCISCO	CA	94134	1815 EGBERT AVE	SAN FRANCISCO	CA	94124
6314-001	1 BROOKDALE AVE	SAN FRANCISCO	CA	94134	1815 EGBERT AVE	SAN FRANCISCO	CA	94124
6315-001	2 SANTOS ST	SAN FRANCISCO	CA	94134	1815 EGBERT AVE	SAN FRANCISCO	CA	94124
6321-008H	81 PASADENA ST	SAN FRANCISCO	CA	94134	81 PASADENA ST	SAN FRANCISCO	CA	94134
6321-008I	77 PASADENA ST	SAN FRANCISCO	CA	94134	77 PASADENA ST	SAN FRANCISCO	CA	94134
6321-008J	73 PASADENA ST	SAN FRANCISCO	CA	94134	334 27TH AVE 3	SAN FRANCISCO	CA	94121
6321-008K	69 PASADENA ST	SAN FRANCISCO	CA	94134	69 PASADENA ST	SAN FRANCISCO	CA	94134
6321-008L	63 PASADENA ST	SAN FRANCISCO	CA	94134	63 PASADENA ST	SAN FRANCISCO	CA	94134
6321-008M	57 PASADENA ST	SAN FRANCISCO	CA	94134	57 PASADENA ST	SAN FRANCISCO	CA	94134
6321-008N	51 PASADENA ST	SAN FRANCISCO	CA	94134	1451 28TH AVE	SAN FRANCISCO	CA	94122
6321-009	45 PASADENA ST	SAN FRANCISCO	CA	94134	222 88TH ST 103	DALY CITY	CA	94015
6321-010	41 PASADENA ST	SAN FRANCISCO	CA	94134	41 PASADENA ST	SAN FRANCISCO	CA	94134
6321-011	37 PASADENA ST	SAN FRANCISCO	CA	94134	2300 BRIDGEWAY	SAUSALITO	CA	94965
6321-012	31 PASADENA ST	SAN FRANCISCO	CA	94134	31 PASADENA ST	SAN FRANCISCO	CA	94134
6321-013	27 PASADENA ST	SAN FRANCISCO	CA	94134	27 PASADENA ST	SAN FRANCISCO	CA	94134
6321-014	23 PASADENA ST	SAN FRANCISCO	CA	94134	23 PASADENA ST	SAN FRANCISCO	CA	94134
6321-015	19 PASADENA ST	SAN FRANCISCO	CA	94134	19 PASADENA ST	SAN FRANCISCO	CA	94134
6321-016	645 VELASCO AVE	SAN FRANCISCO	CA	94134	645 VELASCO AVE	SAN FRANCISCO	CA	94134
6322-001	701 VELASCO AVE	SAN FRANCISCO	CA	94134	701 VELASCO AVE	SAN FRANCISCO	CA	94134
6322-002	18 PASADENA ST	SAN FRANCISCO	CA	94134	18 PASADENA ST	SAN FRANCISCO	CA	94134
6322-003	22 PASADENA ST	SAN FRANCISCO	CA	94134	22 PASADENA ST	SAN FRANCISCO	CA	94134
6322-004	26 PASADENA ST	SAN FRANCISCO	CA	94134	26 PASADENA ST	SAN FRANCISCO	CA	94134
6322-005	30 PASADENA ST	SAN FRANCISCO	CA	94134	292 18TH AVE	SAN FRANCISCO	CA	94121
6322-008A	50 PASADENA ST	SAN FRANCISCO	CA	94134	50 PASADENA ST	SAN FRANCISCO	CA	94134
6322-008B	56 PASADENA ST	SAN FRANCISCO	CA	94134	56 PASADENA ST	SAN FRANCISCO	CA	94134
6322-008C	62 PASADENA ST	SAN FRANCISCO	CA	94134	62 PASADENA ST	SAN FRANCISCO	CA	94134
6322-008D	68 PASADENA ST	SAN FRANCISCO	CA	94134	68 PASADENA ST	SAN FRANCISCO	CA	94134
6322-008E	72 PASADENA ST	SAN FRANCISCO	CA	94134	72 PASADENA ST	SAN FRANCISCO	CA	94134
6322-008F	76 PASADENA ST	SAN FRANCISCO	CA	94134	76 PASADENA ST	SAN FRANCISCO	CA	94134
6322-008G	88 PASADENA ST	SAN FRANCISCO	CA	94134	88 PASADENA ST	SAN FRANCISCO	CA	94134
6322-008H	2245 GENEVA AVE	SAN FRANCISCO	CA	94134	2145 GENEVA AVE	SAN FRANCISCO	CA	94134
6322-008I	2239 GENEVA AVE V	SAN FRANCISCO	CA	94134	2145 GENEVA AVE	SAN FRANCISCO	CA	94134
6322-008J	2233 GENEVA AVE V	SAN FRANCISCO	CA	94134	2145 GENEVA AVE	SAN FRANCISCO	CA	94134
6322-008K	2201 GENEVA AVE	SAN FRANCISCO	CA	94134	64 GOLDEN ASTER CT	BRISBANE	CA	94005
6322-008P	281 SANTOS ST	SAN FRANCISCO	CA	94134	281 SANTOS ST	SAN FRANCISCO	CA	94134
6322-008Q	277 SANTOS ST	SAN FRANCISCO	CA	94134	277 SANTOS ST	SAN FRANCISCO	CA	94134

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APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
6322-008R	273 SANTOS ST	SAN FRANCISCO	CA	94134	273 SANTOS ST	SAN FRANCISCO	CA	94134
6322-008S	267 SANTOS ST	SAN FRANCISCO	CA	94134	15 HALSEY CT	ELKTON	MD	21921
6322-008T	265 SANTOS ST	SAN FRANCISCO	CA	94134	265 SANTOS ST	SAN FRANCISCO	CA	94134
6322-008U	261 SANTOS ST	SAN FRANCISCO	CA	94134	261 SANTOS ST	SAN FRANCISCO	CA	94134
6322-008V	257 SANTOS ST	SAN FRANCISCO	CA	94134	257 SANTOS ST	SAN FRANCISCO	CA	94134
6322-012	233 SANTOS ST	SAN FRANCISCO	CA	94134	PO BOX 460634	SAN FRANCISCO	CA	94146
6322-013	227 SANTOS ST	SAN FRANCISCO	CA	94134	743 TURQUOISE DR	HERCULES	CA	94547
6322-014	223 SANTOS ST	SAN FRANCISCO	CA	94134	223 SANTOS ST	SAN FRANCISCO	CA	94134
6322-015	219 SANTOS ST	SAN FRANCISCO	CA	94134	219 SANTOS ST	SAN FRANCISCO	CA	94134
6322-016	215 SANTOS ST	SAN FRANCISCO	CA	94134	215 SANTOS ST	SAN FRANCISCO	CA	94134
6322-017	211 SANTOS ST	SAN FRANCISCO	CA	94134	PO BOX 320012	SAN FRANCISCO	CA	94132
6322-020	745 VELASCO AVE	SAN FRANCISCO	CA	94134	330 HARKNESS AVE	SAN FRANCISCO	CA	94134
6322-021	715 VELASCO AVE	SAN FRANCISCO	CA	94134	715 VELASCO AVE	SAN FRANCISCO	CA	94134
6322-022	709 VELASCO AVE	SAN FRANCISCO	CA	94134	709 VELASCO AVE	SAN FRANCISCO	CA	94134
6322-024	44 PASADENA ST	SAN FRANCISCO	CA	94134	969 NAPLES ST	SAN FRANCISCO	CA	94112
6322-025	36 PASADENA ST	SAN FRANCISCO	CA	94134	36 PASADENA ST	SAN FRANCISCO	CA	94134
6322-026	40 PASADENA ST	SAN FRANCISCO	CA	94134	40 PASADENA ST	SAN FRANCISCO	CA	94134
6322-027	239 SANTOS ST	SAN FRANCISCO	CA	94134	239 SANTOS ST	SAN FRANCISCO	CA	94134
6322-028	251 SANTOS ST	SAN FRANCISCO	CA	94134	251 SANTOS ST	SAN FRANCISCO	CA	94134
6322-029	255 SANTOS ST	SAN FRANCISCO	CA	94134	255 SANTOS ST	SAN FRANCISCO	CA	94134
6323-001	202 SANTOS ST	SAN FRANCISCO	CA	94134	917 ATCHISON ST	PASADENA	CA	91104
6323-001A	208 SANTOS ST	SAN FRANCISCO	CA	94134	2601 SAN MATEO ST	RICHMOND	CA	94804
6323-001B	212 SANTOS ST	SAN FRANCISCO	CA	94134	212 SANTOS ST	SAN FRANCISCO	CA	94134
6323-002	218 SANTOS ST	SAN FRANCISCO	CA	94134	109 LOUISBURG ST	SAN FRANCISCO	CA	94112
6323-003	224 SANTOS ST	SAN FRANCISCO	CA	94134	461 2ND AVE	SAN FRANCISCO	CA	94118
6323-004	230 SANTOS ST	SAN FRANCISCO	CA	94134	230 SANTOS ST	SAN FRANCISCO	CA	94134
6323-005	236 SANTOS ST	SAN FRANCISCO	CA	94134	236 SANTOS ST	SAN FRANCISCO	CA	94134
6323-006	240 SANTOS ST	SAN FRANCISCO	CA	94134	2601 SAN MATEO ST	RICHMOND	CA	94804
6323-007	246 SANTOS ST	SAN FRANCISCO	CA	94134	246 SANTOS ST	SAN FRANCISCO	CA	94134
6323-008	250 SANTOS ST	SAN FRANCISCO	CA	94134	250 SANTOS ST	SAN FRANCISCO	CA	94134
6323-008A	254 SANTOS ST	SAN FRANCISCO	CA	94134	254 SANTOS ST	SAN FRANCISCO	CA	94134
6323-008B	260 SANTOS ST	SAN FRANCISCO	CA	94134	2022 KEITH ST	SAN FRANCISCO	CA	94124
6323-008C	264 SANTOS ST	SAN FRANCISCO	CA	94134	264 SANTOS ST	SAN FRANCISCO	CA	94134
6323-008D	268 SANTOS ST	SAN FRANCISCO	CA	94134	268 SANTOS ST	SAN FRANCISCO	CA	94134
6323-008E	272 SANTOS ST	SAN FRANCISCO	CA	94134	272 SANTOS ST	SAN FRANCISCO	CA	94134
6323-008F	276 SANTOS ST	SAN FRANCISCO	CA	94134	276 SANTOS ST	SAN FRANCISCO	CA	94134
6323-008G	280 SANTOS ST	SAN FRANCISCO	CA	94134	280 SANTOS ST	SAN FRANCISCO	CA	94134
6323-008H	2145 GENEVA AVE	SAN FRANCISCO	CA	94134	2145 GENEVA AVE	SAN FRANCISCO	CA	94134
6323-008M	2115 GENEVA AVE	SAN FRANCISCO	CA	94134	2145 GENEVA AVE	SAN FRANCISCO	CA	94134
6323-008N	2109 GENEVA AVE	SAN FRANCISCO	CA	94134	2145 GENEVA AVE	SAN FRANCISCO	CA	94134
6323-008O	2101 GENEVA AVE	SAN FRANCISCO	CA	94134	2145 GENEVA AVE	SAN FRANCISCO	CA	94134
6323-008P	77 CARRIZAL ST	SAN FRANCISCO	CA	94134	77 CARRIZAL ST	SAN FRANCISCO	CA	94134
6323-008Q	73 CARRIZAL ST	SAN FRANCISCO	CA	94134	73 CARRIZAL ST	SAN FRANCISCO	CA	94134
6323-008R	69 CARRIZAL ST	SAN FRANCISCO	CA	94134	69 CARRIZAL ST	SAN FRANCISCO	CA	94134
6323-008S	65 CARRIZAL ST	SAN FRANCISCO	CA	94134	65 CARRIZAL ST	SAN FRANCISCO	CA	94134
6323-008T	61 CARRIZAL ST	SAN FRANCISCO	CA	94134	61 CARRIZAL ST	SAN FRANCISCO	CA	94134
6323-008U	55 CARRIZAL ST	SAN FRANCISCO	CA	94134	55 CARRIZAL ST	SAN FRANCISCO	CA	94134
6323-008V	51 CARRIZAL ST	SAN FRANCISCO	CA	94134	51 CARRIZAL ST	SAN FRANCISCO	CA	94134
6323-009	45 CARRIZAL ST	SAN FRANCISCO	CA	94134	45 CARRIZAL ST	SAN FRANCISCO	CA	94134
6323-010	41 CARRIZAL ST	SAN FRANCISCO	CA	94134	41 CARRIZAL ST	SAN FRANCISCO	CA	94134

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
6323-011	37 CARRIZAL ST	SAN FRANCISCO	CA	94134	37 CARRIZAL ST	SAN FRANCISCO	CA	94134
6323-012	33 CARRIZAL ST	SAN FRANCISCO	CA	94134	33 CARRIZAL ST	SAN FRANCISCO	CA	94134
6323-013	29 CARRIZAL ST	SAN FRANCISCO	CA	94134	29 CARRIZAL ST	SAN FRANCISCO	CA	94134
6323-014	25 CARRIZAL ST	SAN FRANCISCO	CA	94134	25 CARRIZAL ST	SAN FRANCISCO	CA	94134
6323-015	21 CARRIZAL ST	SAN FRANCISCO	CA	94134	21 CARRIZAL ST	SAN FRANCISCO	CA	94134
6323-016	PHYSICAL ADDRESS NOT AVAILABLE				25 VAN NESS AVE	SAN FRANCISCO	CA	94102
6323-017	15 CARRIZAL ST	SAN FRANCISCO	CA	94134	15 CARRIZAL ST	SAN FRANCISCO	CA	94134
6323-018	9 CARRIZAL ST	SAN FRANCISCO	CA	94134	9 CARRIZAL ST	SAN FRANCISCO	CA	94134
6323-019	3 CARRIZAL ST	SAN FRANCISCO	CA	94134	1195 QUESADA AVE	SAN FRANCISCO	CA	94124
6323-020	827 VELASCO AVE	SAN FRANCISCO	CA	94134	827 VELASCO AVE	SAN FRANCISCO	CA	94134
6324-001	101 PARQUE DR	SAN FRANCISCO	CA	94134	101 PARQUE DR	SAN FRANCISCO	CA	94134
6324-001A	26 CARRIZAL ST	SAN FRANCISCO	CA	94134	26 CARRIZAL ST	SAN FRANCISCO	CA	94134
6324-001B	34 CARRIZAL ST	SAN FRANCISCO	CA	94134	34 CARRIZAL ST	SAN FRANCISCO	CA	94134
6324-001C	40 CARRIZAL ST	SAN FRANCISCO	CA	94134	40 CARRIZAL ST	SAN FRANCISCO	CA	94134
6324-001D	46 CARRIZAL ST	SAN FRANCISCO	CA	94134	46 CARRIZAL ST	SAN FRANCISCO	CA	94134
6324-002	52 CARRIZAL ST	SAN FRANCISCO	CA	94134	52 CARRIZAL ST	SAN FRANCISCO	CA	94134
6324-003	56 CARRIZAL ST	SAN FRANCISCO	CA	94134	56 CARRIZAL ST	SAN FRANCISCO	CA	94134
6324-004	60 CARRIZAL ST	SAN FRANCISCO	CA	94134	60 CARRIZAL ST	SAN FRANCISCO	CA	94134
6324-005	64 CARRIZAL ST	SAN FRANCISCO	CA	94134	64 CARRIZAL ST	SAN FRANCISCO	CA	94134
6324-006	68 CARRIZAL ST	SAN FRANCISCO	CA	94134	68 CARRIZAL ST	SAN FRANCISCO	CA	94134
6324-007	72 CARRIZAL ST	SAN FRANCISCO	CA	94134	1991 20TH AVE	SAN FRANCISCO	CA	94116
6324-008	76 CARRIZAL ST	SAN FRANCISCO	CA	94134	76 CARRIZAL ST	SAN FRANCISCO	CA	94134
6324-009	80 CARRIZAL ST	SAN FRANCISCO	CA	94134	80 CARRIZAL ST	SAN FRANCISCO	CA	94134
6324-010	2033 GENEVA AVE	SAN FRANCISCO	CA	94134	2027 GENEVA AVE	SAN FRANCISCO	CA	94134
6324-011	2027 GENEVA AVE	SAN FRANCISCO	CA	94134	2027 GENEVA AVE	SAN FRANCISCO	CA	94134
6324-012	2021 GENEVA AVE	SAN FRANCISCO	CA	94134	2021 GENEVA AVE	SAN FRANCISCO	CA	94134
6324-013	2015 GENEVA AVE	SAN FRANCISCO	CA	94134	2015 GENEVA AVE	SAN FRANCISCO	CA	94134
6324-014	2009 GENEVA AVE	SAN FRANCISCO	CA	94134	2009 GENEVA AVE	SAN FRANCISCO	CA	94134
6324-015	2001 GENEVA AVE	SAN FRANCISCO	CA	94134	10 OLMSTEAD ST	SAN FRANCISCO	CA	94134
6324-016	81 ESQUINA DR	SAN FRANCISCO	CA	94134	81 ESQUINA DR	SAN FRANCISCO	CA	94134
6324-017	75 ESQUINA DR	SAN FRANCISCO	CA	94134	75 ESQUINA DR	SAN FRANCISCO	CA	94134
6324-018	69 ESQUINA DR	SAN FRANCISCO	CA	94134	69 ESQUINA DR	SAN FRANCISCO	CA	94134
6324-019	63 ESQUINA DR	SAN FRANCISCO	CA	94134	63 ESQUINA DR	SAN FRANCISCO	CA	94134
6324-020	57 ESQUINA DR	SAN FRANCISCO	CA	94134	148 DEL MONTE ST	SAN FRANCISCO	CA	94112
6324-021	51 ESQUINA DR	SAN FRANCISCO	CA	94134	51 ESQUINA DR	SAN FRANCISCO	CA	94134
6324-022	45 ESQUINA DR	SAN FRANCISCO	CA	94134	45 ESQUINA DR	SAN FRANCISCO	CA	94134
6324-032	109 PARQUE DR	SAN FRANCISCO	CA	94134	109 PARQUE DR	SAN FRANCISCO	CA	94134
6325-003	56 ESQUINA DR	SAN FRANCISCO	CA	94134	56 ESQUINA DR	SAN FRANCISCO	CA	94134
6325-004	60 ESQUINA DR	SAN FRANCISCO	CA	94134	60 ESQUINA DR	SAN FRANCISCO	CA	94134
6325-005	64 ESQUINA DR	SAN FRANCISCO	CA	94134	64 ESQUINA DR	SAN FRANCISCO	CA	94134
6325-006	68 ESQUINA DR	SAN FRANCISCO	CA	94134	68 ESQUINA DR	SAN FRANCISCO	CA	94134
6325-007	72 ESQUINA DR	SAN FRANCISCO	CA	94134	72 ESQUINA DR	SAN FRANCISCO	CA	94134
6325-008	76 ESQUINA DR	SAN FRANCISCO	CA	94134	76 ESQUINA DR	SAN FRANCISCO	CA	94134
6325-009	80 ESQUINA DR	SAN FRANCISCO	CA	94134	80 ESQUINA DR	SAN FRANCISCO	CA	94134
6325-010	1983 GENEVA AVE	SAN FRANCISCO	CA	94134	1983 GENEVA AVE	SAN FRANCISCO	CA	94134
6325-011	1977 GENEVA AVE	SAN FRANCISCO	CA	94134	1977 GENEVA AVE	SAN FRANCISCO	CA	94134
6325-012	1971 GENEVA AVE	SAN FRANCISCO	CA	94134	1971 GENEVA AVE	SAN FRANCISCO	CA	94134
6325-013	1965 GENEVA AVE	SAN FRANCISCO	CA	94134	341 EVERGREEN DR	SOUTH SAN FRANCISCO	CA	94080
6325-014	1959 GENEVA AVE	SAN FRANCISCO	CA	94134	1959 GENEVA AVE	SAN FRANCISCO	CA	94134
6325-015	1951 GENEVA AVE	SAN FRANCISCO	CA	94134	1951 GENEVA AVE	SAN FRANCISCO	CA	94134

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
6325-016	81 CIELITO DR	SAN FRANCISCO	CA	94134	81 CIELITO DR	SAN FRANCISCO	CA	94134
6325-017	77 CIELITO DR	SAN FRANCISCO	CA	94134	525 PARIS ST	SAN FRANCISCO	CA	94112
6325-018	73 CIELITO DR	SAN FRANCISCO	CA	94134	73 CIELITO DR	SAN FRANCISCO	CA	94134
6325-019	69 CIELITO DR	SAN FRANCISCO	CA	94134	69 CIELITO DR	SAN FRANCISCO	CA	94134
6325-020	65 CIELITO DR	SAN FRANCISCO	CA	94134	65 CIELITO DR	SAN FRANCISCO	CA	94134
6325-021	61 CIELITO DR	SAN FRANCISCO	CA	94134	61 CIELITO DR	SAN FRANCISCO	CA	94134
6325-022	57 CIELITO DR	SAN FRANCISCO	CA	94134	57 CIELITO DR	SAN FRANCISCO	CA	94134
6326-003	56 CIELITO DR	SAN FRANCISCO	CA	94134	47 E MOLTKE ST	DALY CITY	CA	94014
6326-004	60 CIELITO DR	SAN FRANCISCO	CA	94134	60 CIELITO DR	SAN FRANCISCO	CA	94134
6326-005	64 CIELITO DR	SAN FRANCISCO	CA	94134	64 CIELITO DR	SAN FRANCISCO	CA	94134
6326-006	68 CIELITO DR	SAN FRANCISCO	CA	94134	68 CIELITO DR	SAN FRANCISCO	CA	94134
6326-007	72 CIELITO DR	SAN FRANCISCO	CA	94134	72 CIELITO DR	SAN FRANCISCO	CA	94134
6326-008	76 CIELITO DR	SAN FRANCISCO	CA	94134	76 CIELITO DR	SAN FRANCISCO	CA	94134
6326-009	80 CIELITO DR	SAN FRANCISCO	CA	94134	80 CIELITO DR	SAN FRANCISCO	CA	94134
6326-010	1933B-1933A GENEVA AVE	SAN FRANCISCO	CA	94134	1933 GENEVA AVE	SAN FRANCISCO	CA	94134
6326-011	1927 GENEVA AVE	SAN FRANCISCO	CA	94134	1927 GENEVA AVE	SAN FRANCISCO	CA	94134
6326-012	1921 GENEVA AVE	SAN FRANCISCO	CA	94134	1921 GENEVA AVE	SAN FRANCISCO	CA	94134
6326-013	1915 GENEVA AVE	SAN FRANCISCO	CA	94134	1915 GENEVA AVE	SAN FRANCISCO	CA	94134
6326-014	1909 GENEVA AVE	SAN FRANCISCO	CA	94134	3095 ALLENWOOD DR	SAN JOSE	CA	95148
6326-015	1901 GENEVA AVE	SAN FRANCISCO	CA	94134	1901 GENEVA AVE	SAN FRANCISCO	CA	94134
6326-016	281 PARQUE DR	SAN FRANCISCO	CA	94134	281 PARQUE DR	SAN FRANCISCO	CA	94134
6326-017	277 PARQUE DR	SAN FRANCISCO	CA	94134	277 PARQUE DR	SAN FRANCISCO	CA	94134
6326-018	273 PARQUE DR	SAN FRANCISCO	CA	94134	273 PARQUE DR	SAN FRANCISCO	CA	94134
6326-019	269 PARQUE DR	SAN FRANCISCO	CA	94134	269 PARQUE DR	SAN FRANCISCO	CA	94134
6326-020	265 PARQUE DR	SAN FRANCISCO	CA	94134	265 PARQUE DR	SAN FRANCISCO	CA	94134
6326-021	261 PARQUE DR	SAN FRANCISCO	CA	94134	3704 WOODLAND PL	RICHMOND	CA	94806
6326-022	257 PARQUE DR	SAN FRANCISCO	CA	94134	257 PARQUE DR	SAN FRANCISCO	CA	94134
6327-001	256 PARQUE DR	SAN FRANCISCO	CA	94134	256 PARQUE DR	SAN FRANCISCO	CA	94134
6327-002	260 PARQUE DR	SAN FRANCISCO	CA	94134	2637 POINT SAL CT	ANTIOCH	CA	94531
6327-003	264 PARQUE DR	SAN FRANCISCO	CA	94134	264 PARQUE DR	SAN FRANCISCO	CA	94134
6327-004	268 PARQUE DR	SAN FRANCISCO	CA	94134	226 NAGLEE AVE	SAN FRANCISCO	CA	94112
6327-005	272 PARQUE DR	SAN FRANCISCO	CA	94134	272 PARQUE DR	SAN FRANCISCO	CA	94134
6327-006	276 PARQUE DR	SAN FRANCISCO	CA	94134	276 PARQUE DR	SAN FRANCISCO	CA	94134
6327-007	280 PARQUE DR	SAN FRANCISCO	CA	94134	280 PARQUE DR	SAN FRANCISCO	CA	94134
6327-008	1895 GENEVA AVE	SAN FRANCISCO	CA	94134	1895 GENEVA AVE	SAN FRANCISCO	CA	94134
6327-009	1889 GENEVA AVE	SAN FRANCISCO	CA	94134	1889 GENEVA AVE	SAN FRANCISCO	CA	94134
6327-010	1885 GENEVA AVE	SAN FRANCISCO	CA	94134	5092 GEORGIA ST	VALLEJO	CA	94591
6327-011	1879 GENEVA AVE	SAN FRANCISCO	CA	94134	1879 GENEVA AVE	SAN FRANCISCO	CA	94134
6327-012	1875 GENEVA AVE	SAN FRANCISCO	CA	94134	1875 GENEVA AVE	SAN FRANCISCO	CA	94134
6327-013	1869 GENEVA AVE	SAN FRANCISCO	CA	94134	1869 GENEVA AVE	SAN FRANCISCO	CA	94134
6327-014	1865 GENEVA AVE	SAN FRANCISCO	CA	94134	67 MORTON DR	DALY CITY	CA	94015
6327-015	1859 GENEVA AVE	SAN FRANCISCO	CA	94134	1859 GENEVA AVE	SAN FRANCISCO	CA	94134
6327-016	1855 GENEVA AVE	SAN FRANCISCO	CA	94134	1855 GENEVA AVE	SAN FRANCISCO	CA	94134
6327-017	1849 GENEVA AVE	SAN FRANCISCO	CA	94134	1849 GENEVA AVE	SAN FRANCISCO	CA	94134
6327-018	1845 GENEVA AVE	SAN FRANCISCO	CA	94134	1845 GENEVA AVE	SAN FRANCISCO	CA	94134
6327-019	1839 GENEVA AVE	SAN FRANCISCO	CA	94134	1839 GENEVA AVE	SAN FRANCISCO	CA	94134
6327-020	1835 GENEVA AVE	SAN FRANCISCO	CA	94134	1835 GENEVA AVE	SAN FRANCISCO	CA	94134
6327-021	1829 GENEVA AVE	SAN FRANCISCO	CA	94134	426 15TH AVE	SAN FRANCISCO	CA	94118
6327-022	1825 GENEVA AVE	SAN FRANCISCO	CA	94134	1825 GENEVA AVE	SAN FRANCISCO	CA	94134
6327-023	1819 GENEVA AVE	SAN FRANCISCO	CA	94134	2148 STAGHORN WAY	LIVERMORE	CA	94550

Appendix A List of Parcels within 300 Feet

APN_FORMATTED	PHYSICAL_ADDRESS	PHYSICAL_CITY	PHYSICAL_STATE	PHYSICAL_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
6327-030	253 BROOKDALE AVE	SAN FRANCISCO	CA	94134	253 BROOKDALE AVE	SAN FRANCISCO	CA	94134
6327-031	247 BROOKDALE AVE	SAN FRANCISCO	CA	94134	247 BROOKDALE AVE	SAN FRANCISCO	CA	94134
6327-032	243 BROOKDALE AVE	SAN FRANCISCO	CA	94134	PO BOX 330191	SAN FRANCISCO	CA	94133
6327-033	241 BROOKDALE AVE	SAN FRANCISCO	CA	94134	241 BROOKDALE AVE	SAN FRANCISCO	CA	94134
6327-034	239 BROOKDALE AVE	SAN FRANCISCO	CA	94134	239 BROOKDALE AVE	SAN FRANCISCO	CA	94134
6327-035	237 BROOKDALE AVE	SAN FRANCISCO	CA	94134	237 BROOKDALE AVE	SAN FRANCISCO	CA	94134
6327-036	235 BROOKDALE AVE	SAN FRANCISCO	CA	94134	521 HAZEL AVE	SAN BRUNO	CA	94066
6327-037	233 BROOKDALE AVE	SAN FRANCISCO	CA	94134	521 HAZEL AVE	SAN BRUNO	CA	94066
6327-038	231 BROOKDALE AVE	SAN FRANCISCO	CA	94134	231 BROOKDALE AVE	SAN FRANCISCO	CA	94134
6332-013	100 PARQUE DR	SAN FRANCISCO	CA	94134	100 PARQUE DR	SAN FRANCISCO	CA	94134
6332-014	108 PARQUE DR	SAN FRANCISCO	CA	94134	108 PARQUE DR	SAN FRANCISCO	CA	94134
6356-002	508 SAWYER ST	SAN FRANCISCO	CA	94134	508 SAWYER ST	SAN FRANCISCO	CA	94134
6356-003	510 SAWYER ST	SAN FRANCISCO	CA	94134	510 SAWYER ST	SAN FRANCISCO	CA	94134
6356-004	514 SAWYER ST	SAN FRANCISCO	CA	94134	514 SAWYER ST	SAN FRANCISCO	CA	94134
6356-005	518 SAWYER ST	SAN FRANCISCO	CA	94134	518 SAWYER ST	SAN FRANCISCO	CA	94134
6356-006	522 SAWYER ST	SAN FRANCISCO	CA	94134	522 SAWYER ST	SAN FRANCISCO	CA	94134
6356-007	526 SAWYER ST	SAN FRANCISCO	CA	94134	526 SAWYER ST	SAN FRANCISCO	CA	94134
6356-046	239 HAHN ST	SAN FRANCISCO	CA	94134	239 HAHN ST	SAN FRANCISCO	CA	94134
6356-047	235 HAHN ST	SAN FRANCISCO	CA	94134	235 HAHN ST	SAN FRANCISCO	CA	94134
6356-048	233 HAHN ST	SAN FRANCISCO	CA	94134	233 HAHN ST	SAN FRANCISCO	CA	94134
6356-049	229 HAHN ST	SAN FRANCISCO	CA	94134	1328 PARKER ST	BERKELEY	CA	94702
6356-050	225 HAHN ST	SAN FRANCISCO	CA	94134	225 HAHN ST	SAN FRANCISCO	CA	94134
6356-058	1429 SUNNYDALE AVE	SAN FRANCISCO	CA	94134	1429 SUNNYDALE AVE	SAN FRANCISCO	CA	94134
6356-059	500 SAWYER ST	SAN FRANCISCO	CA	94134	500 SAWYER ST	SAN FRANCISCO	CA	94134
6356-060	506 SAWYER ST	SAN FRANCISCO	CA	94134	506 SAWYER ST	SAN FRANCISCO	CA	94134
6356-061	504 V ST	SAN FRANCISCO	CA	94134	1145 PALOMAR DR	PALOMAR PARK	CA	94062
6356-062	504 SAWYER ST V	SAN FRANCISCO	CA	94134	1145 PALOMAR DR	PALOMAR PARK	CA	94062
6356-063	504 SAWYER ST V	SAN FRANCISCO	CA	94134	1145 PALOMAR DR	REDWOOD CITY	CA	94062
6356-064	504 SAWYER ST V	SAN FRANCISCO	CA	94134	1145 PALOMAR DR	PALOMAR PARK	CA	94062
6356-065	1437 SUNNYDALE AVE V	SAN FRANCISCO	CA	94134	1145 PALOMAR DR	PALOMAR PARK	CA	94062
6356-066	209 HAHN ST V	SAN FRANCISCO	CA	94134	454 S AIRPORT BLVD	SOUTH SAN FRANCISCO	CA	94080
6356-067	217 HAHN ST V	SAN FRANCISCO	CA	94134	454 S AIRPORT BLVD	SOUTH SAN FRANCISCO	CA	94080
6356-068	221 HAHN ST V	SAN FRANCISCO	CA	94134	454 S AIRPORT BLVD	SOUTH SAN FRANCISCO	CA	94080
6423-236	1828-1838-1848-1858 GENEVA AVE	SAN FRANCISCO	CA	94134	5505 CANCHA DE GOLF	RANCHO SANTA FE	CA	92091
6428-001	103 V CARTER	SAN FRANCISCO	CA	94112	1758 42ND AVE	SAN FRANCISCO	CA	94122
6428-003	522 CARTER ST	SAN FRANCISCO	CA	94134	57 POST ST #508	SAN FRANCISCO	CA	94104
6428-004	522 CARTER ST	SAN FRANCISCO	CA	94134	57 POST ST #508	SAN FRANCISCO	CA	94104
6428-006	105 WALBRIDGE ST	SAN FRANCISCO	CA	94134	1 POST ST	SAN FRANCISCO	CA	94104
6428-007	103 V CARTER ST	SAN FRANCISCO	CA	94112	1758 42ND AVE	SAN FRANCISCO	CA	94122
6428-008	500 CARTER ST	SAN FRANCISCO	CA	94134	1360 MISSION ST 300	SAN FRANCISCO	CA	94103

Table 1
Construction Emissions Summary
PG&E: Egbert Switching Station Project

Construction Phase	Average Daily Emissions (lbs/day) [a]								
	ROG	CO	NOx	SOx	PM_{10} [b]	$PM_{2.5}$ [b]			
Project Emissions									
Construction Year 2020	3.09	33.42	35.37	0.09	3.79	1.98			
Construction Year 2021	2.44	27.85	24.38	0.06	3.22	1.64			
Construction Year 2022	0.13	1.42	1.54	0.01	0.46	0.16			
Maximum Average Daily Emissions (lbs/day)	**3.09**	**33.42**	**35.37**	**0.09**	**3.79**	**1.98**			
BAAQMD Significance Threshold (lbs/day)	**54**	**N/A**	**54**	**N/A**	**82**	**54**			
Maximum Average Daily Emissions (tons/day) [c]	**0.002**	**0.02**	**0.02**	**0.00005**	**0.002**	**0.001**			
Phase	**Emissions by Phase (lbs/phase)** [d]						**2020 Duration (Months)**	**2021 Duration (Months)**	**2022 Duration (Months)**
Transmission Line Construction									
Installation									
Mobilization	1.41	21.67	22.46	0.08	5.69	2.03	1	0	0
Manholes	59.54	730.92	648.26	1.90	104.77	45.70	6	0	0
Trenching [e]	843.65	9,337.07	7,628.59	17.11	794.46	482.19	7	8	0
Cable Installation and Splicing [f]	25.86	189.92	234.23	0.69	63.45	26.67	0	6	0
Inspectors	0.22	13.85	1.23	0.05	7.08	1.92	8	10	0
Truck Drivers	33.66	432.09	1,529.35	5.28	134.58	41.56	7	3	0
Trenchless Installation									
Bore Pit Excavation, Stage Equipment and Bore, Pull in Casing and Duct Bundle, Grouting Space Between Casing and Ducts, and Restoration	87.98	698.75	893.52	2.11	46.30	35.82	3	0	0
Truck Drivers	0.27	3.50	12.38	0.04	1.09	0.34	2	0	0
Transmission Line Construction Total	**1,052.6**	**11,427.8**	**10,970.0**	**27.3**	**1,157.4**	**636.2**			
2020 Total [g]	**566.57**	**6,120.76**	**6,207.73**	**15.84**	**625.95**	**338.84**			
2021 Total [g]	**486.03**	**5,307.01**	**4,762.30**	**11.43**	**531.46**	**297.37**			
2022 Total [g]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**			
Switching Station Construction									
General Construction	3.22	173.51	24.38	0.73	89.96	24.67	9	10	0
Civil Site Preparation	11.92	138.83	332.71	1.08	42.54	16.82	2	0	0
Building Foundations, Excavation, and Install	20.94	241.65	302.17	0.78	31.75	16.15	3	0	0
Remaining Equipment Foundations	9.81	114.21	101.06	0.20	11.32	7.01	2	0	0
Ground Grid and Conduits	6.11	56.34	59.44	0.10	6.55	4.25	2	0	0
Building Delivery and Erection	39.90	283.27	466.53	0.67	31.00	21.52	2	1	0
Set Series and Shunt Reactors on Pads	2.58	13.39	30.77	0.04	1.98	1.35	0	1	0
Screen Walls	6.43	46.29	74.35	0.10	4.53	3.40	0	1	0
Install GIS Equipment and Wire [h]	29.20	542.65	327.39	1.16	85.62	33.05	0	7	0
Install GIS Equipment and Wire; Control Room and Batter	1.36	14.41	15.91	0.06	5.39	1.86	0	5	0
Testing and Commissioning	2.57	74.43	40.62	0.14	5.48	2.07	0	3	0
Exterior Walls, Final Grading, and Paving	10.25	120.33	110.75	0.22	12.29	7.42	0	3	0
Cleaning and Landscaping	4.94	58.32	52.88	0.11	6.44	3.72	0	1	0
Truck Drivers	1.02	13.05	46.20	0.16	4.07	1.26	6	0	0
Inspectors	0.31	19.22	1.71	0.07	9.82	2.67	9	10	0
Construction Trailers	0.00	0.00	0.00	0.00	0.00	0.00	12	12	0
Switching Station Construction Total	**150.56**	**1,909.90**	**1,986.87**	**5.63**	**348.75**	**147.23**			
2020 Total [g]	**78.07**	**844.23**	**1,164.96**	**3.15**	**164.16**	**72.79**			
2021 Total [g]	**72.49**	**1,065.67**	**821.91**	**2.48**	**184.59**	**74.43**			
2022 Total [g]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**			
Substation-Remote Ends Construction									
General Construction	0.63	32.97	4.96	0.14	17.14	4.71	0	4	1
Martin Substation Series and Shunt Reactor Removal	7.07	62.53	83.80	0.21	16.18	6.23	0	2	1
Jefferson, Martin, and Embarcadero Indoor Work	0.13	8.08	0.73	0.03	3.82	1.04	0	2	0
Inspectors	0.02	1.31	0.12	0.01	0.67	0.18	0	2	1
Truck Drivers	0.08	1.08	3.81	0.01	0.34	0.10	0	1	1
Construction Trailers	0.00	0.00	0.00	0.00	0.00	0.00	0	12	12
Substation-Remote Ends Construction Total	**7.93**	**105.97**	**93.43**	**0.39**	**38.14**	**12.26**			
2020 Total [g]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**			
2021 Total [g]	**5.40**	**77.56**	**62.56**	**0.29**	**28.93**	**9.13**			
2022 Total [g]	**2.53**	**28.41**	**30.87**	**0.11**	**9.21**	**3.13**			

Notes:
N/A = Not Available (i.e., no significance threshold exists)
a To facilitate comparison to the BAAQMD's significance thresholds, the project's annual construction emissions were divided by the maximum number of days construction activity would occur during the year, as determined using the schedule depicted in Table 5, Preliminary Construction Schedule.
[b] PM_{10} and $PM_{2.5}$ emissions represent both exhaust and fugitive dust emissions, even though the BAAQMD's significance thresholds are specific to exhaust.
[c] Maximum average daily emissions are provided in units of tons/day to allow comparison against the regional emissions inventory for the San Francisco Bay Area Air Basin.
[d] Emissions presented are the sum of all emissions occurring within the construction phase, regardless of whether an activity is occurring sequentially or concurrently.
[e] 'Trenching' includes: Trenching Jefferson-Egbert and Martin-Egbert/Egbert-Embarcadero lines. Fugitive dust emissions associated with grading of a potential unpaved staging area are also conservatively
[f] 'Cable Installation and Splicing' includes: Cable Install Jefferson-Egbert and Martin-Egbert/Egbert-Embarcadero lines and Cable Splicing Jefferson-Egbert and Martin-Egbert/Egbert-Embarcadero lines.
g Emissions were allotted to specific years based on the schedule depicted in Table 5, Preliminary Construction Schedule.

[h] 'Install GIS Equipment and Wire' includes: Install GIS Equipment and Wire, Control Room and Battery Room Equipment, 230 kV Bus Work, 230 kV Cable Installation/Tie-in, and Dress/Test/Wire Equipment.

Table 2

Construction Emissions Summary with APMs AQ-1 and AQ-2

PG&E: Egbert Switching Station Project

Construction Phase	ROG	CO	NOx	SOx	PM_{10} [b]	$PM_{2.5}$ [b]			
	Average Daily Emissions (lbs/day) [a]								
Project Emissions									
Construction Year 2020	2.10	23.75	26.62	0.07	3.30	1.54			
Construction Year 2021	1.61	19.70	17.31	0.05	2.84	1.29			
Construction Year 2022	0.09	1.18	1.12	0.00	0.42	0.14			
Maximum Average Daily Emissions (lbs/day)	**2.10**	**23.75**	**26.62**	**0.07**	**3.30**	**1.54**			
BAAQMD Significance Threshold (lbs/day)	**54**	**N/A**	**54**	**N/A**	**82**	**54**			
Maximum Average Daily Emissions (tons/day) [c]	**0.001**	**0.01**	**0.01**	**0.00004**	**0.002**	**0.001**			
Phase	**Emissions by Phase (lbs/phase) [d]**						**2020 Duration (Months)**	**2021 Duration (Months)**	**2022 Duration (Months)**
Transmission Line Construction									
Installation									
Mobilization	1.20	19.39	20.35	0.08	5.55	1.90	1	0	0
Manholes	36.89	489.97	411.26	1.38	94.79	36.51	6	0	0
Trenching [e]	532.09	6,171.92	5,038.27	12.17	657.06	351.86	7	8	0
Cable Installation and Splicing [f]	16.66	155.36	148.11	0.57	57.84	21.50	0	6	0
Inspectors	0.22	13.85	1.23	0.05	7.08	1.92	8	10	0
Truck Drivers	33.66	432.09	1,529.35	5.28	134.58	41.56	7	3	0
Trenchless Installation									
Bore Pit Excavation, Stage Equipment and Bore, Pull in Casing and Duct Bundle, Grouting Space Between Casing and Ducts, and Restoration	62.93	516.82	653.22	1.60	36.54	26.52	3	0	0
Truck Drivers	0.27	3.50	12.38	0.04	1.09	0.34	2	0	0
Transmission Line Construction Total	**683.92**	**7,802.90**	**7,814.18**	**21.18**	**994.54**	**482.10**			
2020 Total [g]	**373.26**	**4,218.53**	**4,519.50**	**12.50**	**541.96**	**259.41**			
2021 Total [g]	**310.66**	**3,584.37**	**3,294.68**	**8.68**	**452.57**	**222.69**			
2022 Total [g]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**			
Switching Station Construction									
General Construction	3.22	173.51	24.38	0.73	89.96	24.67	9	10	0
Civil Site Preparation	10.81	128.34	323.23	1.07	32.06	11.56	2	0	0
Building Foundations, Excavation, and Install	17.38	204.19	267.74	0.73	29.38	14.11	3	0	0
Remaining Equipment Foundations	7.91	93.53	81.97	0.17	10.12	5.91	2	0	0
Ground Grid and Conduits	4.93	46.26	48.48	0.09	5.80	3.56	2	0	0
Building Delivery and Erection	32.01	230.96	374.35	0.55	26.96	17.81	2	1	0
Set Series and Shunt Reactors on Pads	2.07	11.01	24.70	0.03	1.73	1.12	0	1	0
Screen Walls	5.16	37.51	59.69	0.09	3.87	2.78	0	1	0
Install GIS Equipment and Wire [h]	23.84	461.80	265.36	1.04	82.61	30.29	0	7	0
Install GIS Equipment and Wire; Control Room and Batte	1.13	13.35	13.22	0.06	5.28	1.76	0	5	0
Testing and Commissioning	2.10	61.30	32.89	0.12	5.31	1.91	0	3	0
Exterior Walls, Final Grading, and Paving	8.28	98.90	90.96	0.20	11.05	6.27	0	3	0
Cleaning and Landscaping	3.99	48.07	43.40	0.10	5.84	3.17	0	1	0
Truck Drivers	1.02	13.05	46.20	0.16	4.07	1.26	6	0	0
Inspectors	0.31	19.22	1.71	0.07	9.82	2.67	9	10	0
Construction Trailers	0.00	0.00	0.00	0.00	0.00	0.00	12	12	0
Switching Station Construction Total	**124.15**	**1,640.99**	**1,698.29**	**5.20**	**323.85**	**128.84**			
2020 Total [g]	**65.05**	**730.64**	**1,029.55**	**2.96**	**146.67**	**61.21**			
2021 Total [g]	**59.10**	**910.35**	**668.74**	**2.23**	**177.18**	**67.64**			
2022 Total [g]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**			
Substation-Remote Ends Construction									
General Construction	0.63	32.97	4.96	0.14	17.14	4.71	0	4	1
Martin Substation Series and Shunt Reactor Removal	4.86	48.22	58.40	0.17	13.55	5.07	0	2	1
Jefferson, Martin, and Embarcadero Indoor Work	0.13	8.08	0.73	0.03	3.82	1.04	0	2	0
Inspectors	0.02	1.31	0.12	0.01	0.67	0.18	0	2	1
Truck Drivers	0.08	1.08	3.81	0.01	0.34	0.10	0	1	1
Construction Trailers	0.00	0.00	0.00	0.00	0.00	0.00	0	12	12
Substation-Remote Ends Construction Total	**5.72**	**91.67**	**68.02**	**0.36**	**35.51**	**11.11**			
2020 Total [g]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**			
2021 Total [g]	**3.93**	**68.02**	**45.62**	**0.27**	**27.17**	**8.36**			
2022 Total [g]	**1.79**	**23.64**	**22.40**	**0.09**	**8.33**	**2.75**			

Notes:

N/A = Not Available (i.e., no significance threshold exists)

a To facilitate comparison to the BAAQMD's significance thresholds, the project's annual construction emissions were divided by the maximum number of days construction activity would occur during the year, as determined using the schedule depicted in Table 5, Preliminary Construction Schedule.

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

[c] Maximum average daily emissions are provided in units of tons/day to allow comparison against the regional emissions inventory for the San Francisco Bay Area Air Basin.

[d] Emissions presented are the sum of all emissions occurring within the construction phase, regardless of whether an activity is occurring sequentially or concurrently.

[e] 'Trenching' includes: Trenching Jefferson-Egbert and Martin-Egbert/Egbert-Embarcadero lines. Fugitive dust emissions associated with grading of a potential unpaved staging area are also conservatively included.

[f] 'Cable Installation and Splicing' includes: Cable Install Jefferson-Egbert and Martin-Egbert/Egbert-Embarcadero lines and Cable Splicing Jefferson-Egbert and Martin-Egbert/Egbert-Embarcadero lines.

g Emissions were allotted to specific years based on the schedule depicted in Table 5, Preliminary Construction Schedule.

[h] 'Install GIS Equipment and Wire' includes: Install GIS Equipment and Wire, Control Room and Battery Room Equipment, 230 kV Bus Work, 230 kV Cable Installation/Tie-in, and Dress/Test/Wire Equipment.

Table 3

Construction GHG Emissions Summary

PG&E: Egbert Switching Station Project

Project Emissions		
Construction Year	**CO_2 Emissions (metric tons/year)** [a]	**CO_2e Emissions (metric tons/year)** [a, b]
Construction Year 2020	860.55	903.56
Construction Year 2021	630.09	661.56
Construction Year 2022	5.38	5.62
Maximum Annual Emissions	**860.55**	**903.56**
Project Total Emissions	**1,496.02**	**1,570.73**
30-Year Amortized Construction Emissions with Operation Emissions [c]	**N/A**	**179**
SCAQMD Significance Threshold	**N/A**	**10,000**

Emissions by Phase					
Construction Phase	**CO_2 Emissions (metric tons/phase)** [d]	**CO_2e Emissions (metric tons/phase)** [b, d]	**2020 Duration (Months)**	**2021 Duration (Months)**	**2022 Duration (Months)**
Transmission Line Construction					
Installation					
Mobilization	3.95	4.15	1	0	0
Manholes	83.82	88.01	6	0	0
Trenching [e]	753.08	790.73	7	8	0
Cable Installation and Splicing [f]	30.30	31.82	0	6	0
Inspectors	2.44	2.56	8	10	0
Truck Drivers	236.37	248.19	7	3	0
Trenchless Installation					
Bore Pit Excavation, Stage Equipment and Bore, Pull in Casing and Duct Bundle, Grouting Space Between Casing and Ducts, and Restoration	99.12	104.08	3	0	0
Truck Drivers	2.26	2.38	2	0	0
Transmission Line Construction Total	**1,211.35**	**1,271.91**			
2020 Total [g]	**707.13**	**742.49**			
2021 Total [g]	**504.21**	**529.42**			
2022 Total [g]	**0.00**	**0.00**			
Switching Station Construction					
General Construction	33.04	34.70	9	10	0
Civil Site Preparation	56.46	59.28	2	0	0
Building Foundations, Excavation, and Install	38.16	40.07	3	0	0
Remaining Equipment Foundations	8.84	9.28	2	0	0
Ground Grid and Conduits	4.67	4.90	2	0	0
Building Delivery and Erection	28.87	30.31	2	1	0
Set Series and Shunt Reactors on Pads	1.73	1.81	0	1	0
Screen Walls	4.50	4.73	0	1	0
Install GIS Equipment and Wire; Control Room and Battery R	51.11	53.66	0	7	0
Install and Test Oil Pump House, SSVTs	2.69	2.82	0	5	0
Testing and Commissioning	6.82	7.16	0	3	0
Exterior Walls, Final Grading, and Paving	10.98	11.53	0	3	0
Cleaning and Landscaping	5.09	5.34	0	1	0
Truck Drivers	8.44	8.86	6	0	0
Inspectors	3.38	3.55	9	10	0
Construction Trailers	0.71	0.71	12	12	0
Switching Station Construction Total	**265.48**	**278.72**			
2020 Total [g]	**153.42**	**161.07**			
2021 Total [g]	**112.06**	**117.65**			
2022 Total [g]	**0.00**	**0.00**			
Substation-Remote Ends Construction					
General Construction	6.37	6.69	0	4	1
Martin Substation Series and Shunt Reactor Removal	9.43	9.91	0	2	1
Jefferson, Martin, and Embarcadero Indoor Work	1.40	1.46	0	2	0
Inspectors	0.23	0.24	0	2	1
Truck Drivers	0.70	0.73	0	1	1
Construction Trailers	1.06	1.06	0	12	12
Substation-Remote Ends Construction Total	**19.19**	**20.10**			
2020 Total [g]	**0.00**	**0.00**			
2021 Total [g]	**13.82**	**14.48**			
2022 Total [g]	**5.38**	**5.62**			

Notes:

N/A = Not Available (i.e., no significance threshold exists)

[a] GHG emissions are evaluated on an annual basis. Therefore, emissions presented are the sum of all emissions occurring within a given year, regardless of whether an activity is occurring sequentially or concurrently during that year.

[b] Only carbon dioxide (CO_2) emission factors were available for all types of construction equipment utilized for this project. Emissions of methane (CH_4) and nitrous oxide (N_2O) from combustion sources are expected to be much lower than emissions of CO_2, contributing in the range of 2 to 4 percent of the total carbon dioxide equivalent (CO_2e)

[c] To facilitate comparison to the SCAQMD's significance threshold, the project's total construction emissions were divided by 30 years and added to the project's operation

[d] The emissions per phase are calculated based on the total duration of the construction phase, regardless of which month(s) or year(s) the phase occurs.

[e] 'Trenching' includes: Trenching Jefferson-Egbert, Martin-Egbert and Egbert-Embarcadero lines.

[f] 'Cable Installation and Splicing' includes: Cable Install Jefferson-Egbert, Martin-Egbert and Egbert-Embarcadero lines and Cable Splicing Jefferson-Egbert, Martin-Egbert and Egbert-Embarcadero lines.

g Emissions were allotted to specific years based on the schedule depicted in Table 5, Preliminary Construction Schedule.

[h] 'Install GIS Equipment and Wire' includes: Install GIS Equipment and Wire, Control Room and Battery Room Equipment, 230 kV Bus Work, 230 kV Cable Installation/Tie-in, and

Table 4

Construction GHG Emissions Summary with APM GHG-1

PG&E: Egbert Switching Station Project

Project Emissions with APM GHG-1		
Construction Year	**CO_2 Emissions (metric tons/year) [a]**	**CO_2e Emissions (metric tons/year) [a, b]**
Construction Year 2020	707.78	742.80
Construction Year 2021	500.62	525.25
Construction Year 2022	4.92	5.14
Maximum Annual Emissions	**707.78**	**742.80**
Project Total Emissions	**1,213.32**	**1,273.19**
30-Year Amortized Construction Emissions with Operation Emissions [c]	**N/A**	**106**
SCAQMD Significance Threshold	**N/A**	**10,000**

Emissions by Phase with APM GHG-1					
Construction Phase	**CO_2 Emissions (metric tons/phase) [d]**	**CO_2e Emissions (metric tons/phase) [b, d]**	**2020 Duration (Months)**	**2021 Duration (Months)**	**2022 Duration (Months)**
Transmission Line Construction					
Installation					
Mobilization	3.81	4.00	1	0	0
Manholes	61.50	64.57	6	0	0
Trenching [e]	541.99	569.09	7	8	0
Cable Installation and Splicing [f]	25.25	26.52	0	6	0
Inspectors	2.44	2.56	8	10	0
Truck Drivers	236.37	248.19	7	3	0
Trenchless Installation					
Bore Pit Excavation, Stage Equipment and Bore, Pull in Casing and Duct Bundle, Grouting Space Between Casing and Ducts, and Restoration	75.38	79.15	3	0	0
Truck Drivers	2.26	2.38	2	0	0
Transmission Line Construction Total	**949.00**	**996.45**			
2020 Total [g]	**562.42**	**590.54**			
2021 Total [g]	**386.58**	**405.91**			
2022 Total [g]	**0.00**	**0.00**			
Switching Station Construction					
General Construction	33.04	34.70	9	10	0
Civil Site Preparation	55.79	58.58	2	0	0
Building Foundations, Excavation, and Install	35.89	37.68	3	0	0
Remaining Equipment Foundations	7.60	7.98	2	0	0
Ground Grid and Conduits	4.06	4.27	2	0	0
Building Delivery and Erection	23.96	25.16	2	1	0
Set Series and Shunt Reactors on Pads	1.44	1.52	0	1	0
Screen Walls	3.71	3.90	0	1	0
Install GIS Equipment and Wire; Control Room and Battery	45.95	48.25	0	7	0
Install and Test Oil Pump House, SSVTs	2.56	2.69	0	5	0
Testing and Commissioning	5.94	6.24	0	3	0
Exterior Walls, Final Grading, and Paving	9.53	10.01	0	3	0
Cleaning and Landscaping	4.47	4.70	0	1	0
Truck Drivers	8.44	8.86	6	0	0
Inspectors	3.38	3.55	9	10	0
Construction Trailers	0.71	0.71	12	12	0
Switching Station Construction Total	**246.49**	**258.78**			
2020 Total [g]	**145.36**	**152.26**			
2021 Total [g]	**101.13**	**105.82**			
2022 Total [g]	**0.00**	**0.00**			
Substation-Remote Ends Construction					
General Construction	6.37	6.69	0	4	1
Martin Substation Series and Shunt Reactor Removal	8.07	8.47	0	2	1
Jefferson, Martin, and Embarcadero Indoor Work	1.40	1.46	0	2	0
Inspectors	0.23	0.24	0	2	1
Truck Drivers	0.70	0.73	0	1	1
Construction Trailers	1.06	1.06	0	12	12
Substation-Remote Ends Construction Total	**17.83**	**18.67**			
2020 Total [g]	**0.00**	**0.00**			
2021 Total [g]	**12.91**	**13.53**			
2022 Total [g]	**4.92**	**5.14**			

Notes:

N/A = Not Available (i.e., no significance threshold exists)

[a] GHG emissions are evaluated on an annual basis. Therefore, emissions presented are the sum of all emissions occurring within a given year, regardless of whether an activity is occurring sequentially or concurrently during that year.

[b] Only CO_2 emission factors were available for all types of construction equipment utilized for this project. Emissions of CH_4 and N_2O from combustion sources are expected to be much lower than emissions of CO_2, contributing in the range of 2 to 4 percent of the total CO_2e emissions (CARB, 2017e). Therefore, the CO_2 emissions were conservatively increased by 5 percent to calculate CO_2e emissions, accounting for the potential CH_4 and N_2O emissions associated with construction activities.

[c] To facilitate comparison to the SCAQMD's significance threshold, the project's total construction emissions were divided by 30 years and added to the project's operation emissions.

[d] The emissions per phase are calculated based on the total duration of the construction phase, regardless of which month(s) or year(s) the phase occurs.

[e] 'Trenching' includes: Trenching Jefferson-Egbert, Martin-Egbert and Egbert-Embarcadero lines.

[f] 'Cable Installation and Splicing' includes: Cable Install Jefferson-Egbert, Martin-Egbert and Egbert-Embarcadero lines and Cable Splicing Jefferson-Egbert, Martin-Egbert and Egbert-Embarcadero lines.

g Emissions were allotted to specific years based on the schedule depicted in Table 5, Preliminary Construction Schedule.

[h] 'Install GIS Equipment and Wire' includes: Install GIS Equipment and Wire, Control Room and Battery Room Equipment, 230 kV Bus Work, 230 kV Cable Installation/Tie-in, and Dress/Test/Wire Equipment.

Table 5

Preliminary Construction Schedule [a]

PG&E: Egbert Switching Station Project

Construction Phase	Duration (Days)
Transmission Line Construction	
Installation	
Mobilization	4
Manholes (Manhole Crew 1) [b]	120
Trenching - Jefferson-Egbert (Civil Crew 1)	160
Trenching - Jefferson-Egbert (Civil Crew 2)	220
Trenching - Martin-Egbert/Egbert-Embarcadero (Civil Crew 1)	140
Cable Install - Jefferson-Egbert (Electric Crew 1)	40
Cable Install - Martin-Egbert/Egbert-Embarcadero (Electric Crew 2)	15
Cable Splicing - Jefferson-Egbert (Splicing Crew 1)	65
Cable Splicing - Martin-Egbert/Egbert-Embarcadero (Splicing Crew 1)	25
Inspectors [c]	317
Truck Drivers [c]	160
Trenchless Installation	30
Bore Pit Excavation	10
Stage Equipment and Bore	10
Pull in Casing and Duct Bundle	5
Grouting Space Between Casing and Ducts	5
Restoration	10
Truck Drivers [c]	20
Switching Station Construction	
General Construction	440
Civil Site Preparation	25
Building Foundations, Excavation, and Install	60
Remaining Equipment Foundations	40
Ground Grid and Conduits	20
Building Delivery and Erection	60
Set Series and Shunt Reactors on Pads	5
Screen Walls	10
Install GIS Equipment and Wire	120
Control Room and Battery Room Equipment	100
230 kV Bus Work	40
230 kV Cable Installation/Tie-in	20
Dress/Test/Wire Equipment	60
Install and Test Oil Pump House, SSVTs	40
Testing and Commissioning	60
Exterior Walls, Final Grading, and Paving	47
Cleaning and Landscaping	20
Truck Drivers [c]	99
Inspectors [c]	440
Substation-Remote Ends Construction	
General Construction	100
Martin Substation Series and Shunt Reactor Removal	60
Jefferson, Martin, and Embarcadero Indoor Work	40
Inspectors [c]	60
Truck Drivers [c]	40

Notes:

[a] This schedule depicts the periods during which construction activities could occur. It is expected that construction activities will actually occur intermittently within the identified periods. The final project construction schedule can only be determined once the Commission's staff issue a full Notice to Proceed, all applicant-proposed measures and any other environmental mitigation measures have been taken into account, materials needed for construction have been delivered and are ready for installation, and PG&E's contractors have mobilized and are ready to initiate construction.

[b] Twelve (12) manholes are to be completed at a rate of ten (10) days per manhole. Includes the excavation, install, and backfill. The manhole crew will consist of six (6) people.

[c] The durations of these construction phases were estimated based on durations of activities happening during the same time.

Table 6

Transmission Line Construction Emissions [a]

PG&E: Egbert Switching Station Project

Equipment / Vehicle List	Equipment / Vehicle Type	Quantity	Number of Days Used	Hours per Day	Miles per Day [b]	Emissions (lbs/day) [c]						Emissions (metric tons/day) [c]	Emissions (lbs/phase) [c]						Emissions (metric tons/phase) [c]
						ROG	CO	NOx	SOx	PM_{10} [d]	$PM_{2.5}$ [d]	CO_2	ROG	CO	NOx	SOx	PM_{10} [d]	$PM_{2.5}$ [d]	CO_2
Installation																			
Mobilization																			
1500 Dodge Ram Pickup	Light-duty Truck	4	4	10	90	0.010	0.631	0.058	0.002	0.275	0.075	0.107	0.042	2.524	0.233	0.009	1.101	0.299	0.427
2500 Dodge Ram Pickup	Light-duty Truck	3	4	10	90	0.008	0.473	0.044	0.002	0.275	0.075	0.080	0.031	1.893	0.175	0.007	1.101	0.299	0.321
3500 Dodge Ram Pickup	Light-duty Truck	3	4	10	90	0.008	0.473	0.044	0.002	0.275	0.075	0.080	0.031	1.893	0.175	0.007	1.101	0.299	0.321
T 880 Kenworth Dump Truck	Heavy-duty Diesel	3	4	10	90	0.062	0.797	2.820	0.010	0.331	0.102	0.515	0.248	3.187	11.281	0.039	1.324	0.409	2.061
Volvo VNX 300 Tractor	Construction Equipment	1	4	10	--	0.262	2.850	2.631	0.004	0.166	0.153	0.171	1.048	11.398	10.526	0.016	0.665	0.611	0.682
Worker Commutes	Light-duty Auto/Truck	6	4	--	21.6	0.003	0.194	0.017	0.001	0.099	0.027	0.034	0.013	0.776	0.069	0.003	0.396	0.108	0.137
Manholes (1 Crew)																			
CAT 328 Excavator	Construction Equipment	1	120	5	--	0.151	0.955	1.732	0.004	0.052	0.048	0.183	18.150	114.617	207.887	0.513	6.255	5.742	21.948
CAT 928 Loader	Construction Equipment	1	120	5	--	0.144	1.824	1.418	0.003	0.072	0.066	0.125	17.337	218.841	170.177	0.352	8.598	7.893	14.945
JD 225 Excavator	Construction Equipment	1	120	5	--	0.154	2.055	1.517	0.003	0.073	0.068	0.143	18.462	246.633	182.090	0.400	8.791	8.152	17.121
RT 100 - Terex Rough Terrain Crane	Construction Equipment	1	10	5	--	0.269	2.228	3.235	0.004	0.130	0.119	0.180	2.688	22.281	32.349	0.042	1.298	1.189	1.795
2500 Dodge Ram Pickup	Light-duty Truck	2	120	10	110	0.006	0.386	0.036	0.001	0.168	0.046	0.065	0.766	46.265	4.279	0.173	20.182	5.487	7.835
3500 Dodge Ram Pickup	Light-duty Truck	2	120	10	110	0.006	0.386	0.036	0.001	0.168	0.046	0.065	0.766	46.265	4.279	0.173	20.182	5.487	7.835
T 880 Kenworth Dump Truck	Heavy-duty Diesel	1	120	5	6	0.001	0.018	0.063	0.000	0.202	0.062	0.011	0.166	2.125	7.521	0.026	24.268	7.493	1.374
Concrete Truck	Heavy-duty Diesel	2	30	8	60	0.028	0.354	1.253	0.004	0.110	0.034	0.229	0.828	10.625	37.605	0.130	3.309	1.022	6.869
Worker Commutes	Light-duty Auto/Truck	6	120	--	21.6	0.003	0.194	0.017	0.001	0.099	0.027	0.034	0.378	23.270	2.074	0.090	11.888	3.232	4.097
Trenching (2-3 Crews)																			
CAT 450 Backhoe	Construction Equipment	3	300	5	--	0.433	5.471	4.254	0.009	0.215	0.197	0.374	130.029	1641.309	1276.326	2.643	64.486	59.200	112.091
CAT 928 Loader	Construction Equipment	3	300	5	--	0.433	5.471	4.254	0.009	0.215	0.197	0.374	130.029	1641.309	1276.326	2.643	64.486	59.200	112.091
JD 225 Excavator	Construction Equipment	3	300	5	--	0.462	6.166	4.552	0.010	0.220	0.204	0.428	138.463	1849.745	1365.672	2.997	65.935	61.139	128.411
Doosan Air Compressor 185 CFM	Construction Equipment	3	300	5	--	0.605	4.578	4.210	0.007	0.277	0.277	0.319	181.629	1373.543	1262.857	2.229	83.200	83.200	95.747
T 880 Kenworth Dump Truck	Heavy-duty Diesel	3	300	5	6	0.004	0.053	0.188	0.001	0.017	0.005	0.034	1.241	15.937	56.407	0.195	4.964	1.533	10.303
1500 Dodge Ram Pickup	Light-duty Truck	3	300	10	110	0.010	0.578	0.053	0.002	0.034	0.014	0.098	2.874	173.493	16.045	0.649	10.102	4.183	29.381
2500 Dodge Ram Pickup	Light-duty Truck	3	300	10	110	0.010	0.578	0.053	0.002	0.252	0.069	0.098	2.874	173.493	16.045	0.649	75.683	20.578	29.381
3500 Dodge Ram Pickup	Light-duty Truck	3	300	5	6	0.001	0.032	0.003	0.000	0.252	0.069	0.005	0.157	9.463	0.875	0.035	75.683	20.578	1.603
Ingersoll Rand DD 24 Roller	Construction Equipment	1	300	5	--	0.124	0.633	0.608	0.001	0.303	0.094	0.032	37.236	190.002	182.330	0.201	91.004	28.100	9.592
Volvo VNX 300 Tractor	Construction Equipment	2	300	10	--	0.524	5.699	5.263	0.008	0.332	0.305	0.341	157.137	1709.745	1578.832	2.374	99.694	91.624	102.320
350 kW Generator	Construction Equipment	1	100	3	--	0.432	2.307	4.168	0.011	0.126	0.126	0.592	43.153	230.685	416.839	1.148	12.625	12.625	59.170
3500 Dodge Ram Pickup	Light-duty Truck	1	100	5	6	0.000	0.011	0.001	0.000	0.005	0.001	0.002	0.017	1.051	0.097	0.004	0.459	0.125	0.178
Welding Machine	Construction Equipment	1	100	3	--	0.128	0.663	0.589	0.001	0.033	0.033	0.035	12.828	66.262	58.924	0.096	3.258	3.258	3.529
Boom Truck	Heavy-duty Diesel	1	100	4	6	0.001	0.018	0.063	0.000	0.006	0.002	0.011	0.138	1.771	6.267	0.022	0.552	0.170	1.145
Concrete Truck	Heavy-duty Diesel	1	150	8	60	0.014	0.177	0.627	0.002	0.055	0.017	0.114	2.069	26.562	94.012	0.325	8.273	2.555	17.172
Fugitive Dust [e]	Truck Dumping/Loading	33,500	300	--	--	--	--	--	--	0.013	0.002	--	--	--	--	--	3.782	0.573	--
Fugitive Dust [f]	Grading	0.008	300	5	--	--	--	--	--	0.008	0.001	--	--	--	--	--	2.421	0.261	--
Fugitive Dust [g]	Grading	0.028	300	5	--	--	--	--	--	0.030	0.003	--	--	--	--	--	8.974	0.969	--
Worker Commutes	Light-duty Auto/Truck	24	300	--	21.6	0.013	0.776	0.069	0.003	0.396	0.108	0.137	3.776	232.702	20.736	0.905	118.880	32.316	40.966
Cable Installation & Splicing (2 Crews)																			
3500 Dodge Ram Pickup	Light-duty Truck	2	55	10	6	0.000	0.021	0.002	0.000	0.009	0.002	0.004	0.019	1.157	0.107	0.004	0.505	0.137	0.196
Semi Tractor	Construction Equipment	1	34	5	--	0.163	1.934	1.738	0.003	0.084	0.078	0.129	5.541	65.742	59.101	0.102	2.863	2.638	4.386
Cable Winch	Construction Equipment	1	55	5	--	0.147	0.124	1.339	0.002	0.098	0.090	0.070	8.090	6.840	73.660	0.091	5.369	4.934	3.867
1500 Dodge Ram Pickup	Light-duty Truck	2	90	10	6	0.000	0.021	0.002	0.000	0.009	0.002	0.004	0.031	1.893	0.175	0.007	0.826	0.224	0.321
Cable Reel Cart	Construction Equipment	1	55	5	--	0.147	0.124	1.339	0.002	0.098	0.090	0.070	8.090	6.840	73.660	0.091	5.369	4.934	3.867
2 kW Generator	Construction Equipment	1	90	10	--	0.028	0.155	0.197	0.000	0.009	0.009	0.011	2.542	13.953	17.770	0.031	0.834	0.834	1.014
Vacuum Truck	Heavy-duty Diesel	1	4	8	35	0.008	0.103	0.366	0.001	0.032	0.010	0.067	0.032	0.413	1.462	0.005	0.129	0.040	0.267
Worker Commutes	Light-duty Auto/Truck	32	90	--	21.6	0.017	1.034	0.092	0.004	0.528	0.144	0.182	1.510	93.081	8.294	0.362	47.552	12.927	16.386
Inspectors																			
Inspector Vehicles	Light-duty Auto/Truck	2	317	--	14.6	0.001	0.044	0.004	0.000	0.022	0.006	0.008	0.225	13.850	1.234	0.054	7.076	1.923	2.438
Truck Drivers																			
Material Haul Trucks	Heavy-duty Diesel	14	142	--	45.6	0.147	1.884	6.669	0.023	0.587	0.181	1.218	20.840	267.542	946.939	3.269	83.331	25.730	172.969
Long Haul Dump Truck	Heavy-duty Diesel	1	106	--	526	0.121	1.552	5.494	0.019	0.484	0.149	0.598	12.818	164.552	582.415	2.010	51.253	15.825	63.404

Table 6

Transmission Line Construction Emissions [a]

PG&E: Egbert Switching Station Project

						Emissions (lbs/day) [c]						Emissions (metric tons/day) [c]	Emissions (lbs/phase) [c]						Emissions (metric tons/phase) [c]
Equipment / Vehicle List	**Equipment / Vehicle Type**	**Quantity**	**Number of Days Used**	**Hours per Day**	**Miles per Day [b]**	**ROG**	**CO**	**NOx**	**SOx**	**PM_{10} [d]**	**$PM_{2.5}$ [d]**	**CO_2**	**ROG**	**CO**	**NOx**	**SOx**	**PM_{10} [d]**	**$PM_{2.5}$ [d]**	**CO_2**
Trenchless Installation																			
Bore Pit Excavation, Stage Equipment and Bore, Pull in Casing and Duct Bundle, Grouting Space Between Casing and Ducts, and Restoration																			
Auger Boring Machine Equipped with Specialized Boring Unit or Open Face TBM	Construction Equipment	1	30	10	--	0.346	2.601	4.403	0.012	0.127	0.117	0.516	10.378	78.027	132.083	0.365	3.800	3.508	15.476
100-Ton Crane	Construction Equipment	1	30	4	--	0.227	1.058	2.696	0.003	0.111	0.102	0.127	6.805	31.730	80.872	0.089	3.332	3.066	3.802
CAT 345 Excavator	Construction Equipment	1	30	6	--	0.183	2.451	1.809	0.004	0.087	0.081	0.170	5.504	73.524	54.283	0.119	2.621	2.430	5.104
Air Compressor 175 cfs	Construction Equipment	1	30	5	--	0.202	1.526	1.403	0.002	0.092	0.092	0.106	6.054	45.785	42.095	0.074	2.773	2.773	3.192
T 880 Kenworth Dump Truck	Heavy-duty Diesel	3	30	5	6	0.004	0.053	0.188	0.001	0.017	0.005	0.034	0.124	1.594	5.641	0.019	0.496	0.153	1.030
1500 Dodge Ram Pickup	Light-duty Truck	3	30	10	110	0.010	0.578	0.053	0.002	0.252	0.069	0.098	0.287	17.349	1.605	0.065	7.568	2.058	2.938
350 kW Generator	Construction Equipment	1	30	8	--	1.151	6.152	11.116	0.031	0.337	0.337	1.578	34.522	184.548	333.471	0.918	10.100	10.100	47.336
3500 Dodge Ram Pickup	Light-duty Truck	1	30	5	6	0.000	0.011	0.001	0.000	0.005	0.001	0.002	0.005	0.315	0.029	0.001	0.138	0.037	0.053
Welding Machine	Construction Equipment	1	30	3	--	0.128	0.663	0.589	0.001	0.033	0.033	0.035	3.848	19.879	17.677	0.029	0.978	0.978	1.059
Pavement Saw Cutting Equipment	Construction Equipment	1	2	5	--	0.261	2.304	2.062	0.004	0.124	0.124	0.168	0.523	4.608	4.123	0.008	0.248	0.248	0.336
Semi Tractor	Construction Equipment	2	30	10	--	0.652	7.734	6.953	0.012	0.337	0.310	0.516	19.558	232.032	208.592	0.361	10.104	9.310	15.481
Concrete Truck	Heavy-duty Diesel	2	10	8	60	0.028	0.354	1.253	0.004	0.110	0.034	0.229	0.276	3.542	12.535	0.043	1.103	0.341	2.290
Fugitive Dust [e]	Truck Dumping/Loading	425	7	--	--	--	--	--	--	0.007	0.001	--	--	--	--	--	0.048	0.007	--
Fugitive Dust [f]	Grading	0.001	30	6	--	--	--	--	--	0.001	0.000	--	--	--	--	--	0.017	0.002	--
Worker Commutes	Light-duty Auto/Truck	6	30	--	21.6	0.0031	0.1939	0.0173	0.0008	0.0991	0.0269	0.034	0.094	5.818	0.518	0.023	2.972	0.808	1.0241
Truck Drivers																			
Material Haul Trucks	Heavy-duty Diesel	2	13	--	45.6	0.021	0.269	0.953	0.003	0.084	0.026	0.174	0.273	3.499	12.385	0.043	1.090	0.337	2.262

Notes:

-- = Parameter not required for computing emissions.

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] Mileage was based on the following assumptions:

1) Mileage for Worker Commutes for the San Francisco Bay Area Air Basin from Table 4.2 of Appendix D of the *CalEEMod User's Guide* (Environ, 2016) assuming the H-W trip length.

2) Mileage for onsite dump trucks and pick-up trucks provided by PG&E.

3) Mileage for Inspector Vehicles for the San Francisco Bay Area Air Basin from Table 4.2 of Appendix D of the *CalEEMod User's Guide* (Environ, 2016) assuming the C-NW trip length.

4) Mileage for Material Haul Trucks and Long Haul Dump Trucks based on travel to Ox Mountain Sanitary Landfill (22.8 miles one way from site) and Buttonwillow Landfill Facility (263 miles one way from site). PG&E estimates that there will be a total of 1,988 trips to Ox Mountain and 106 trips to Buttonwillow during the Installation phase, and 26 trips to Ox Mountain during the Trenchless Installation phase. These trucks will haul away 33,500 yd^3 of material offsite, 16 yd^3 per truck.

[c] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs
1 yd^3 =	1.2641662	tons
Blade width of grading equipment =	12	ft
1 acre =	43,560	ft^2
1 mile =	5,280	ft

[d] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel.

[e] Fugitive Dust emissions from Truck Dumping/Loading activities are a result of trenching leading to the offhauling of excavated material. Volumes were provided by PG&E, as follows:

Activity	Volume (yd^3)	Comments
Trenching Volume	33,500	Associated with Manholes and Jefferson-Egbert, Martin-Egbert, and Embarcadero-Egbert lines.
Trenchless Volume	425	Associated with the Launching and Receiving Pits.

[f] Fugitive Dust emissions from Grading assume the following areas will be graded by the specified equipment during the specified construction activity, per PG&E guidance:

Activity	Area (ft^2)	Comments
CAT450 Backhoe during Trenching	99,425	Associated with Manholes and Jefferson-Egbert, Martin-Egbert, and Embarcadero-Egbert lines.
CAT 345 Excavator during Bore Pit Excavation	705	Associated with the Launching and Receiving Pits.

[g] Fugitive Dust emissions from Grading assume the following unpaved staging area may be graded by the specified equipment during the specified construction activity, per PG&E guidance. Although the use of this staging area is only being potentially considered, emissions associated with its area disturbance are conservatively being included for completeness.

Activity	Area (ft^2)	Comments
CAT450 Backhoe during Trenching	368,618	Associated with the unpaved staging area on Carter Street in Daly City.

Table 7

Transmission Line Construction Emissions with APMs AQ-1, AQ-2, and GHG-1 [a]

PG&E: Egbert Switching Station Project

Equipment / Vehicle List	Equipment / Vehicle Type	Quantity	Number of Days Used	Hours per Day [b]	Miles per Day [c]	Emissions (lbs/day) [d]						Emissions (metric tons/day) [d]	Emissions (lbs/phase) [d]						Emissions (metric tons/phase) [d]
						ROG	CO	NOx	SOx	PM_{10} [e]	$PM_{2.5}$ [e]	CO_2	ROG	CO	NOx	SOx	PM_{10} [e]	$PM_{2.5}$ [e]	CO_2
Installation																			
Mobilization																			
1500 Dodge Ram Pickup	Light-duty Truck	4	4	8	90	0.010	0.631	0.058	0.002	0.275	0.075	0.107	0.042	2.524	0.233	0.009	1.101	0.299	0.427
2500 Dodge Ram Pickup	Light-duty Truck	3	4	8	90	0.008	0.473	0.044	0.002	0.275	0.075	0.080	0.031	1.893	0.175	0.007	1.101	0.299	0.321
3500 Dodge Ram Pickup	Light-duty Truck	3	4	8	90	0.008	0.473	0.044	0.002	0.275	0.075	0.080	0.031	1.893	0.175	0.007	1.101	0.299	0.321
T 880 Kenworth Dump Truck	Heavy-duty Diesel	3	4	8	90	0.062	0.797	2.820	0.010	0.331	0.102	0.515	0.248	3.187	11.281	0.039	1.324	0.409	2.061
Volvo VNX 300 Tractor	Construction Equipment	1	4	8	--	0.210	2.280	2.105	0.003	0.133	0.122	0.136	0.838	9.119	8.420	0.013	0.532	0.489	0.546
Worker Commutes	Light-duty Auto/Truck	6	4	--	21.6	0.003	0.194	0.017	0.001	0.099	0.027	0.034	0.013	0.776	0.069	0.003	0.396	0.108	0.137
Manholes (1 Crew)																			
CAT 328 Excavator	Construction Equipment	1	120	3	--	0.091	0.573	1.039	0.003	0.031	0.029	0.110	10.890	68.770	124.732	0.308	3.753	3.445	13.169
CAT 928 Loader	Construction Equipment	1	120	3	--	0.087	1.094	0.851	0.002	0.043	0.039	0.075	10.402	131.305	102.106	0.211	5.159	4.736	8.967
JD 225 Excavator	Construction Equipment	1	120	3	--	0.092	1.233	0.910	0.002	0.044	0.041	0.086	11.077	147.980	109.254	0.240	5.275	4.891	10.273
RT 100 - Terex Rough Terrain Crane	Construction Equipment	1	10	3	--	0.161	1.337	1.941	0.003	0.078	0.071	0.108	1.613	13.369	19.409	0.025	0.779	0.714	1.077
2500 Dodge Ram Pickup	Light-duty Truck	2	120	8	110	0.006	0.386	0.036	0.001	0.168	0.046	0.065	0.766	46.265	4.279	0.173	20.182	5.487	7.835
3500 Dodge Ram Pickup	Light-duty Truck	2	120	8	110	0.006	0.386	0.036	0.001	0.168	0.046	0.065	0.766	46.265	4.279	0.173	20.182	5.487	7.835
T 880 Kenworth Dump Truck	Heavy-duty Diesel	1	120	3	6	0.001	0.018	0.063	0.000	0.202	0.062	0.011	0.166	2.125	7.521	0.026	24.268	7.493	1.374
Concrete Truck	Heavy-duty Diesel	2	30	6	60	0.028	0.354	1.253	0.004	0.110	0.034	0.229	0.828	10.625	37.605	0.130	3.309	1.022	6.869
Worker Commutes	Light-duty Auto/Truck	6	120	--	21.6	0.003	0.194	0.017	0.001	0.099	0.027	0.034	0.378	23.270	2.074	0.090	11.888	3.232	4.097
Trenching (2-3 Crews)																			
CAT 450 Backhoe	Construction Equipment	3	300	3	--	0.260	3.283	2.553	0.005	0.129	0.118	0.224	78.017	984.786	765.795	1.586	38.691	35.520	67.255
CAT 928 Loader	Construction Equipment	3	300	3	--	0.260	3.283	2.553	0.005	0.129	0.118	0.224	78.017	984.786	765.795	1.586	38.691	35.520	67.255
JD 225 Excavator	Construction Equipment	3	300	3	--	0.277	3.699	2.731	0.006	0.132	0.122	0.257	83.078	1109.847	819.403	1.798	39.561	36.684	77.046
Doosan Air Compressor 185 CFM	Construction Equipment	3	300	3	--	0.363	2.747	2.526	0.004	0.166	0.166	0.191	108.977	824.126	757.714	1.337	49.920	49.920	57.448
T 880 Kenworth Dump Truck	Heavy-duty Diesel	3	300	3	6	0.004	0.053	0.188	0.001	0.017	0.005	0.034	1.241	15.937	56.407	0.195	4.964	1.533	10.303
1500 Dodge Ram Pickup	Light-duty Truck	3	300	8	110	0.010	0.578	0.053	0.002	0.034	0.014	0.098	2.874	173.493	16.045	0.649	10.102	4.183	29.381
2500 Dodge Ram Pickup	Light-duty Truck	3	300	8	110	0.010	0.578	0.053	0.002	0.252	0.069	0.098	2.874	173.493	16.045	0.649	75.683	20.578	29.381
3500 Dodge Ram Pickup	Light-duty Truck	3	300	3	6	0.001	0.032	0.003	0.000	0.252	0.069	0.005	0.157	9.463	0.875	0.035	75.683	20.578	1.603
Ingersoll Rand DD 24 Roller	Construction Equipment	1	300	3	--	0.074	0.380	0.365	0.000	0.303	0.094	0.019	22.342	114.001	109.398	0.121	91.004	28.100	5.755
Volvo VNX 300 Tractor	Construction Equipment	2	300	8	--	0.419	4.559	4.210	0.006	0.266	0.244	0.273	125.710	1367.796	1263.066	1.899	79.756	73.299	81.856
350 kW Generator	Construction Equipment	1	100	1	--	0.144	0.769	1.389	0.004	0.042	0.042	0.197	14.384	76.895	138.946	0.383	4.208	4.208	19.723
3500 Dodge Ram Pickup	Light-duty Truck	1	100	3	6	0.000	0.011	0.001	0.000	0.005	0.001	0.002	0.017	1.051	0.097	0.004	0.459	0.125	0.178
Welding Machine	Construction Equipment	1	100	1	--	0.043	0.221	0.196	0.000	0.011	0.011	0.012	4.276	22.087	19.641	0.032	1.086	1.086	1.176
Boom Truck	Heavy-duty Diesel	1	100	2	6	0.001	0.018	0.063	0.000	0.006	0.002	0.011	0.138	1.771	6.267	0.022	0.552	0.170	1.145
Concrete Truck	Heavy-duty Diesel	3	150	6	60	0.041	0.531	1.880	0.006	0.165	0.051	0.343	6.207	79.685	282.036	0.974	24.819	7.664	51.517
Fugitive Dust [f]	Truck Dumping/Loading	33,500	300	--	--	--	--	--	--	0.004	0.001	--	--	--	--	--	1.172	0.178	--
Fugitive Dust [g]	Grading	0.008	300	3	--	--	--	--	--	0.001	0.000	--	--	--	--	--	0.387	0.042	--
Fugitive Dust [h]	Grading	0.028	300	3	--	--	--	--	--	0.005	0.001	--	--	--	--	--	1.436	0.155	--
Worker Commutes	Light-duty Auto/Truck	24	300	--	21.6	0.013	0.776	0.069	0.003	0.396	0.108	0.137	3.776	232.702	20.736	0.905	118.880	32.316	40.966
Cable Installation & Splicing (2 Crews)																			
3500 Dodge Ram Pickup	Light-duty Truck	2	55	8	6	0.000	0.021	0.002	0.000	0.009	0.002	0.004	0.019	1.157	0.107	0.004	0.505	0.137	0.196
Semi Tractor	Construction Equipment	1	34	3	--	0.098	1.160	1.043	0.002	0.051	0.047	0.077	3.325	39.445	35.461	0.061	1.718	1.583	2.632
Cable Winch	Construction Equipment	1	55	3	--	0.088	0.075	0.804	0.001	0.059	0.054	0.042	4.854	4.104	44.196	0.054	3.222	2.960	2.320
1500 Dodge Ram Pickup	Light-duty Truck	2	90	8	6	0.000	0.021	0.002	0.000	0.009	0.002	0.004	0.031	1.893	0.175	0.007	0.826	0.224	0.321
Cable Reel Cart	Construction Equipment	1	55	3	--	0.088	0.075	0.804	0.001	0.059	0.054	0.042	4.854	4.104	44.196	0.054	3.222	2.960	2.320
2 kW Generator	Construction Equipment	1	90	8	--	0.023	0.124	0.158	0.000	0.007	0.007	0.009	2.034	11.163	14.216	0.025	0.667	0.667	0.811
Vacuum Truck	Heavy-duty Diesel	1	4	6	35	0.008	0.103	0.366	0.001	0.032	0.010	0.067	0.032	0.413	1.462	0.005	0.129	0.040	0.267
Worker Commutes	Light-duty Auto/Truck	32	90	--	21.6	0.017	1.034	0.092	0.004	0.528	0.144	0.182	1.510	93.081	8.294	0.362	47.552	12.927	16.386
Inspectors																			
Inspector Vehicles	Light-duty Auto/Truck	2	317	--	14.6	0.001	0.044	0.004	0.000	0.022	0.006	0.008	0.225	13.850	1.234	0.054	7.076	1.923	2.438
Truck Drivers																			
Material Haul Trucks	Heavy-duty Diesel	14	142	--	45.6	0.147	1.884	6.669	0.023	0.587	0.181	1.218	20.840	267.542	946.939	3.269	83.331	25.730	172.969
Long Haul Dump Truck	Heavy-duty Diesel	1	106	--	526	0.121	1.552	5.494	0.019	0.484	0.149	0.598	12.818	164.552	582.415	2.010	51.253	15.825	63.404

Table 7

Transmission Line Construction Emissions with APMs AQ-1, AQ-2, and GHG-1 [a]

PG&E: Egbert Switching Station Project

Equipment / Vehicle List	Equipment / Vehicle Type	Quantity	Number of Days Used	Hours per Day [b]	Miles per Day [c]	Emissions (lbs/day) [d] ROG	CO	NOx	SOx	PM_{10} [e]	$PM_{2.5}$ [e]	Emissions (metric tons/day) [d] CO_2	Emissions (lbs/phase) [d] ROG	CO	NOx	SOx	PM_{10} [e]	$PM_{2.5}$ [e]	Emissions (metric tons/phase) [d] CO_2
Trenchless Installation																			
Bore Pit Excavation, Stage Equipment and Bore, Pull in Casing and Duct Bundle, Grouting Space Between Casing and Ducts, and Restoration																			
Auger Boring Machine Equipped with Specialized Boring Unit OR Open Face TBM	Construction Equipment	1	30	8	--	0.277	2.081	3.522	0.010	0.101	0.094	0.413	8.302	62.421	105.666	0.292	3.040	2.806	12.380
100-Ton Crane	Construction Equipment	1	30	2	--	0.113	0.529	1.348	0.001	0.056	0.051	0.063	3.403	15.865	40.436	0.044	1.666	1.533	1.901
CAT 345 Excavator	Construction Equipment	1	30	4	--	0.122	1.634	1.206	0.003	0.058	0.054	0.113	3.669	49.016	36.189	0.079	1.747	1.620	3.403
Air Compressor 175 cfs	Construction Equipment	1	30	3	--	0.121	0.916	0.842	0.001	0.055	0.055	0.064	3.633	27.471	25.257	0.045	1.664	1.664	1.915
T 880 Kenworth Dump Truck	Heavy-duty Diesel	3	30	3	6	0.004	0.053	0.188	0.001	0.017	0.005	0.034	0.124	1.594	5.641	0.019	0.496	0.153	1.030
1500 Dodge Ram Pickup	Light-duty Truck	3	30	8	110	0.010	0.578	0.053	0.002	0.252	0.069	0.098	0.287	17.349	1.605	0.065	7.568	2.058	2.938
350 kW Generator	Construction Equipment	1	30	6	--	0.863	4.614	8.337	0.023	0.252	0.252	1.183	25.892	138.411	250.104	0.689	7.575	7.575	35.502
3500 Dodge Ram Pickup	Light-duty Truck	1	30	3	6	0.000	0.011	0.001	0.000	0.005	0.001	0.002	0.005	0.315	0.029	0.001	0.138	0.037	0.053
Welding Machine	Construction Equipment	1	30	1	--	0.043	0.221	0.196	0.000	0.011	0.011	0.012	1.283	6.626	5.892	0.010	0.326	0.326	0.353
Pavement Saw Cutting Equipment	Construction Equipment	1	2	3	--	0.157	1.382	1.237	0.002	0.074	0.074	0.101	0.314	2.765	2.474	0.005	0.149	0.149	0.202
Semi Tractor	Construction Equipment	2	30	8	--	0.522	6.188	5.562	0.010	0.269	0.248	0.413	15.646	185.626	166.874	0.289	8.083	7.448	12.385
Concrete Truck	Heavy-duty Diesel	2	10	6	60	0.028	0.354	1.253	0.004	0.110	0.034	0.229	0.276	3.542	12.535	0.043	1.103	0.341	2.290
Fugitive Dust [f]	Truck Dumping/Loading	425	7	--	--	--	--	--	--	0.002	0.000	--	--	--	--	--	0.015	0.002	--
Fugitive Dust [g]	Grading	0.001	30	4	--	--	--	--	--	0.000	0.000	--	--	--	--	--	0.003	0.000	--
Worker Commutes	Light-duty Auto/Truck	6	30	--	21.6	0.003	0.194	0.017	0.001	0.099	0.027	0.034	0.094	5.818	0.518	0.023	2.972	0.808	1.024
Truck Drivers																			
Material Haul Trucks	Heavy-duty Diesel	2	13	--	45.6	0.021	0.269	0.953	0.003	0.084	0.026	0.174	0.273	3.499	12.385	0.043	1.090	0.337	2.262

Notes:

-- = Parameter not required for computing emissions.

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] Hours of operation for all construction equipment were reduced by 2 hours per day to minimize equipment idling time per APM AQ-2, Minimize Construction Exhaust Emissions, and APM GHG-1, Minimize GHG Emissions, which are described in Sections 3.3.4.2 and 3.7.4.2 of the Egbert Switching Station Project PEA. The other reduction measures of APMs AQ-2 and GHG-1 were not quantified as their extent of implementation is currently unknown.

[c] Mileage was based on the following assumptions:

1) Mileage for Worker Commutes for the San Francisco Bay Area Air Basin from Table 4.2 of Appendix D of the *CalEEMod User's Guide* (Environ, 2016) assuming the H-W trip length.
2) Mileage for onsite dump trucks and pick-up trucks provided by PG&E.
3) Mileage for Inspector Vehicles for the San Francisco Bay Area Air Basin from Table 4.2 of Appendix D of the *CalEEMod User's Guide* (Environ, 2016) assuming the C-NW trip length.
4) Mileage for Material Haul Trucks and Long Haul Dump Trucks based on travel to Ox Mountain Sanitary Landfill (22.8 miles one way from site) and Buttonwillow Landfill Facility (263 miles one way from site). PG&E estimates that there will be a total of 1,988 trips to Ox Mountain and 106 trips to Buttonwillow during the Installation phase, and 26 trips to Ox Mountain during the Trenchless Installation phase. These trucks will haul away 33,500 yd^3 of material offsite, 16 yd^3 per truck.

[d] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs
1 yd^3 =	1.2641662	tons
Blade width of grading equipment =	12	ft
1 acre =	43,560	ft^2
1 mile =	5,280	ft

[e] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel.

[f] Fugitive Dust emissions from Truck Dumping/Loading activities are a result of trenching leading to the offhauling of excavated material and account for APM AQ-1, Minimize Fugitive Dust, as described in Section 3.3.4.2 of the Egbert Switching Station Project PEA. Volumes were provided by PG&E, as

Activity	Volume (yd^3)	Comments
Trenching Volume	33,500	Associated with Manholes and Jefferson-Egbert, Martin-Egbert, and Embarcadero-Egbert lines.
Trenchless Volume	425	Associated with the Launching and Receiving Pits.

[g] Fugitive Dust emissions from Grading assume the following areas will be graded by the specified equipment during the specified construction activity, per PG&E guidance, and account for APM AQ-1, Minimize Fugitive Dust, as described in Section 3.3.4.2 of the Egbert Switching Station Project PEA.

Activity	Area (ft^2)	Comments
CAT450 Backhoe during Trenching	99,425	Associated with Manholes and Jefferson-Egbert, Martin-Egbert, and Embarcadero-Egbert lines.
CAT 345 Excavator during Bore Pit Excavatio	705	Associated with the Launching and Receiving Pits.

[h] Fugitive Dust emissions from Grading assume the following unpaved staging area may be graded by the specified equipment during the specified construction activity, per PG&E guidance, and account for APM AQ-1, Minimize Fugitive Dust, as described in Section 3.3.4.2 of the Egbert Switching Station Project PEA. Although the use of this staging area is only being potentially considered, emissions associated with its area disturbance are conservatively being included for completeness.

Activity	Area (ft^2)	Comments
CAT450 Backhoe during Trenching	368,618	Associated with the unpaved staging area on Carter Street in Daly City.

Table 8

Switching Station Construction Emissions [a]

PG&E: Egbert Switching Station Project

Equipment / Vehicle List	Equipment / Vehicle Type	Quantity	Number of Days Used	Hours per Day	Usage per Day (%) [b]	Miles per Day [c]	Emissions (lbs/day) [d]						Emissions (metric tons/day) [d]	Emissions (lbs/phase) [d]						Emissions (metric tons/phase) [d]
							ROG	CO	NOx	SOx	PM_{10} [e]	$PM_{2.5}$ [e]	CO_2	ROG	CO	NOx	SOx	PM_{10} [e]	$PM_{2.5}$ [e]	CO_2
General Construction																				
Mechanics Truck	Medium-duty Diesel	1	440	--	--	6	0.001	0.007	0.021	0.000	0.006	0.002	0.007	0.447	2.862	9.169	0.063	2.779	0.973	3.002
Worker Commutes	Light-duty Auto/Truck	12	440	--	--	21.6	0.006	0.388	0.035	0.002	0.198	0.054	0.068	2.769	170.648	15.206	0.663	87.179	23.699	30.042
Civil Site Preparation																				
3/4-Ton Pick-up Truck	Light-duty Truck	4	25	--	--	6	0.001	0.042	0.004	0.000	0.018	0.005	0.007	0.017	1.051	0.097	0.003	0.459	0.125	0.178
1-Ton Truck	Medium-duty Diesel	1	25	--	--	6	0.001	0.007	0.021	0.000	0.006	0.002	0.007	0.025	0.163	0.521	0.004	0.158	0.055	0.171
Crawler Backhoe	Construction Equipment	1	25	10	25%	--	0.065	0.712	0.658	0.001	0.042	0.038	0.043	1.637	17.810	16.446	0.025	1.038	0.954	1.066
Bulldozer	Construction Equipment	1	5	10	25%	--	0.065	0.712	0.658	0.001	0.042	0.038	0.043	0.327	3.562	3.289	0.005	0.208	0.191	0.213
Front Loader	Construction Equipment	1	15	10	25%	--	0.065	0.712	0.658	0.001	0.042	0.038	0.043	0.982	10.686	9.868	0.015	0.623	0.573	0.639
Short Haul Dump Truck	Heavy-duty Diesel	4	5	--	--	45.6	0.042	0.538	1.905	0.007	0.168	0.052	0.348	0.210	2.692	9.527	0.033	0.838	0.259	1.740
Long Haul Dump Truck	Heavy-duty Diesel	5	10	--	--	526	0.605	7.762	27.472	0.095	2.418	0.746	5.018	6.046	77.619	274.724	0.948	24.176	7.465	50.181
Compactor	Construction Equipment	1	15	10	25%	--	0.173	1.360	1.187	0.002	0.075	0.075	0.094	2.593	20.401	17.808	0.033	1.129	1.129	1.413
Worker Commutes	Light-duty Auto/Truck	6	25	--	--	21.6	0.003	0.194	0.017	0.001	0.099	0.027	0.034	0.079	4.848	0.432	0.019	2.477	0.673	0.853
Fugitive Dust [f]	Bulldozing	1	5	10	25%	--	--	--	--	--	1.882	1.034	--	--	--	--	--	9.410	5.172	--
Fugitive Dust [g]	Truck Dumping/Loading	1,700	25	--	--	--	--	--	--	--	0.008	0.001	--	--	--	--	--	0.192	0.029	--
Fugitive Dust [h]	Grading	0.07	25	10	25%	--	--	--	--	--	0.073	0.008	--	--	--	--	--	1.835	0.198	--
Building Foundations, Excavation, and Install																				
3/4-Ton Pick-up Truck	Light-duty Truck	4	60	--	--	6	0.001	0.042	0.004	0.000	0.018	0.005	0.007	0.042	2.524	0.233	0.008	1.101	0.299	0.427
1-Ton Truck	Medium-duty Diesel	1	60	--	--	6	0.001	0.007	0.021	0.000	0.006	0.002	0.007	0.061	0.390	1.250	0.009	0.379	0.133	0.409
Crawler Backhoe	Construction Equipment	1	60	10	90%	--	0.236	2.565	2.368	0.004	0.150	0.137	0.153	14.142	153.877	142.095	0.214	8.973	8.246	9.209
Concrete Truck	Heavy-duty Diesel	14	15	--	--	4	0.013	0.165	0.585	0.002	0.051	0.016	0.107	0.193	2.479	8.774	0.030	0.772	0.238	1.603
Front Loader	Construction Equipment	1	60	10	10%	--	0.026	0.285	0.263	0.000	0.017	0.015	0.017	1.571	17.097	15.788	0.024	0.997	0.916	1.023
Short Haul Dump Truck	Heavy-duty Diesel	4	16	--	--	45.6	0.042	0.538	1.905	0.007	0.168	0.052	0.348	0.671	8.613	30.485	0.105	2.683	0.828	5.568
Long Haul Dump Truck	Heavy-duty Diesel	2	8	--	--	526	0.242	3.105	10.989	0.038	0.967	0.299	2.007	1.935	24.838	87.912	0.303	7.736	2.389	16.058
Compactor	Construction Equipment	1	60	10	5%	--	0.035	0.272	0.237	0.000	0.015	0.015	0.019	2.074	16.321	14.247	0.026	0.903	0.903	1.130
Worker Commutes	Light-duty Auto/Truck	8	60	--	--	21.6	0.004	0.259	0.023	0.001	0.132	0.036	0.046	0.252	15.513	1.382	0.060	7.925	2.154	2.731
Fugitive Dust [g]	Truck Dumping/Loading	2,500	60	--	--	--	--	--	--	--	0.005	0.001	--	--	--	--	--	0.282	0.043	--
Remaining Equipment Foundations																				
3/4-Ton Pick-up Truck	Light-duty Truck	4	40	--	--	6	0.001	0.042	0.004	0.000	0.018	0.005	0.007	0.028	1.682	0.156	0.005	0.734	0.200	0.285
1-Ton Truck	Medium-duty Diesel	1	40	--	--	6	0.001	0.007	0.021	0.000	0.006	0.002	0.007	0.041	0.260	0.834	0.006	0.253	0.088	0.273
Crawler Backhoe	Construction Equipment	1	40	10	90%	--	0.236	2.565	2.368	0.004	0.150	0.137	0.153	9.428	102.585	94.730	0.142	5.982	5.497	6.139
Concrete Truck	Heavy-duty Diesel	1	3	--	--	4	0.001	0.012	0.042	0.000	0.004	0.001	0.008	0.003	0.035	0.125	0.000	0.011	0.003	0.023
Dump Truck	Heavy-duty Diesel	4	2	--	--	45.6	0.042	0.538	1.905	0.007	0.168	0.052	0.348	0.084	1.077	3.811	0.013	0.335	0.104	0.696
Compactor	Construction Equipment	1	3	10	5%	--	0.035	0.272	0.237	0.000	0.015	0.015	0.019	0.104	0.816	0.712	0.001	0.045	0.045	0.057
Worker Commutes	Light-duty Auto/Truck	6	40	--	--	21.6	0.003	0.194	0.017	0.001	0.099	0.027	0.034	0.126	7.757	0.691	0.030	3.963	1.077	1.366
Ground Grid and Conduits																				
3/4-Ton Pick-up Truck	Light-duty Truck	4	20	--	--	6	0.001	0.042	0.004	0.000	0.018	0.005	0.007	0.014	0.841	0.078	0.003	0.367	0.100	0.142
1-Ton Truck	Medium-duty Diesel	1	20	--	--	6	0.001	0.007	0.021	0.000	0.006	0.002	0.007	0.020	0.130	0.417	0.003	0.126	0.044	0.136
Crawler Backhoe	Construction Equipment	1	20	10	50%	--	0.131	1.425	1.316	0.002	0.083	0.076	0.085	2.619	28.496	26.314	0.040	1.662	1.527	1.705
Trencher	Construction Equipment	1	20	10	25%	--	0.131	0.824	1.186	0.001	0.089	0.082	0.046	2.622	16.477	23.728	0.021	1.775	1.634	0.926
Dump Truck	Heavy-duty Diesel	4	2	--	--	45.6	0.042	0.538	1.905	0.007	0.168	0.052	0.348	0.084	1.077	3.811	0.013	0.335	0.104	0.696
Compactor	Construction Equipment	1	20	10	5%	--	0.035	0.272	0.237	0.000	0.015	0.015	0.019	0.691	5.440	4.749	0.009	0.301	0.301	0.377
Worker Commutes	Light-duty Auto/Truck	6	20	--	--	21.6	0.003	0.194	0.017	0.001	0.099	0.027	0.034	0.063	3.878	0.346	0.015	1.981	0.539	0.683
Building Delivery and Erection																				
3/4-Ton Pick-up Truck	Light-duty Truck	2	60	--	--	6	0.000	0.021	0.002	0.000	0.009	0.002	0.004	0.021	1.262	0.117	0.004	0.550	0.150	0.214
Manlift	Construction Equipment	1	60	10	80%	--	0.040	1.094	0.644	0.002	0.014	0.013	0.074	2.377	65.654	38.618	0.103	0.868	0.785	4.426
Forklift	Construction Equipment	1	60	10	60%	--	0.108	0.885	0.973	0.001	0.073	0.067	0.050	6.484	53.111	58.387	0.071	4.351	3.998	3.022
Boom Truck	Heavy-duty Diesel	1	60	--	--	6	0.001	0.018	0.063	0.000	0.006	0.002	0.011	0.083	1.062	3.760	0.013	0.331	0.102	0.687
Mobile Crane	Construction Equipment	1	60	10	90%	--	0.510	2.380	6.065	0.007	0.250	0.230	0.285	30.624	142.784	363.922	0.399	14.993	13.797	17.109
Worker Commutes	Light-duty Auto/Truck	10	60	--	--	21.6	0.005	0.323	0.029	0.001	0.165	0.045	0.057	0.315	19.392	1.728	0.075	9.907	2.693	3.414
Set Series and Shunt Reactors on Pads																				
3/4-Ton Pick-up Truck	Light-duty Truck	2	5	--	--	6	0.000	0.021	0.002	0.000	0.009	0.002	0.004	0.002	0.105	0.010	0.000	0.046	0.012	0.018
Boom Truck	Heavy-duty Diesel	1	5	--	--	6	0.001	0.018	0.063	0.000	0.006	0.002	0.011	0.007	0.089	0.313	0.001	0.028	0.009	0.057
Mobile Crane	Construction Equipment	1	5	10	90%	--	0.510	2.380	6.065	0.007	0.250	0.230	0.285	2.552	11.899	30.327	0.033	1.249	1.150	1.426
Worker Commutes	Light-duty Auto/Truck	8	5	--	--	21.6	0.004	0.259	0.023	0.001	0.132	0.036	0.046	0.021	1.293	0.115	0.005	0.660	0.180	0.228
Screen Walls																				
Rigging Truck	Heavy-duty Diesel	1	10	--	--	6	0.001	0.018	0.063	0.000	0.006	0.002	0.011	0.014	0.177	0.627	0.002	0.055	0.017	0.114
Forklift	Construction Equipment	1	10	10	80%	--	0.144	1.180	1.297	0.002	0.097	0.089	0.067	1.441	11.802	12.975	0.016	0.967	0.888	0.671
Manlift	Construction Equipment	1	10	10	80%	--	0.040	1.094	0.644	0.002	0.014	0.013	0.074	0.396	10.942	6.436	0.017	0.145	0.131	0.738
Mobile Crane	Construction Equipment	1	10	10	80%	--	0.454	2.115	5.391	0.006	0.222	0.204	0.253	4.537	21.153	53.914	0.059	2.221	2.044	2.535
1-Ton Truck	Medium-duty Diesel	1	10	--	--	6	0.001	0.007	0.021	0.000	0.006	0.002	0.007	0.010	0.065	0.208	0.001	0.063	0.022	0.068
3/4-Ton Pick-up Truck	Light-duty Truck	2	10	--	--	6	0.000	0.021	0.002	0.000	0.009	0.002	0.004	0.003	0.210	0.019	0.001	0.092	0.025	0.036
Worker Commutes	Light-duty Auto/Truck	6	10	--	--	21.6	0.003	0.194	0.017	0.001	0.099	0.027	0.034	0.031	1.939	0.173	0.008	0.991	0.269	0.341

Table 8

Switching Station Construction Emissions [a]

PG&E: Egbert Switching Station Project

Equipment / Vehicle List	Equipment / Vehicle Type	Quantity	Number of Days Used	Hours per Day	Usage per Day (%) [b]	Miles per Day [c]	Emissions (lbs/day) [d]						Emissions (metric tons/day) [d]	Emissions (lbs/phase) [d]						Emissions (metric tons/phase) [d]
							ROG	CO	NOx	SOx	PM_{10} [e]	$PM_{2.5}$ [e]	CO_2	ROG	CO	NOx	SOx	PM_{10} [e]	$PM_{2.5}$ [e]	CO_2
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																				
Rigging Truck	Heavy-duty Diesel	1	10	--	--	6	0.001	0.018	0.063	0.000	0.006	0.002	0.011	0.014	0.177	0.627	0.002	0.055	0.017	0.114
Forklift	Construction Equipment	1	120	10	80%	--	0.144	1.180	1.297	0.002	0.097	0.089	0.067	17.291	141.629	155.698	0.188	11.603	10.661	8.057
Manlift	Construction Equipment	2	120	10	80%	--	0.079	2.188	1.287	0.003	0.029	0.026	0.148	9.507	262.615	154.470	0.413	3.472	3.141	17.703
Boom Truck	Heavy-duty Diesel	1	30	--	--	6	0.001	0.018	0.063	0.000	0.006	0.002	0.011	0.041	0.531	1.880	0.006	0.165	0.051	0.343
1-Ton Truck	Medium-duty Diesel	1	120	--	--	6	0.001	0.007	0.021	0.000	0.006	0.002	0.007	0.122	0.781	2.501	0.017	0.758	0.265	0.819
3/4-Ton Pick-up Truck	Light-duty Truck	4	120	--	--	6	0.001	0.042	0.004	0.000	0.018	0.005	0.007	0.084	5.047	0.467	0.016	2.202	0.599	0.855
Worker Commutes	Light-duty Auto/Truck	34	120	--	--	21.6	0.018	1.099	0.098	0.004	0.561	0.153	0.193	2.140	131.865	11.750	0.513	67.366	18.313	23.214
Install and Test Oil Pump House, SSVTs																				
3/4-Ton Pick-up Truck	Light-duty Truck	2	40	--	--	6	0.000	0.021	0.002	0.000	0.009	0.002	0.004	0.014	0.841	0.078	0.003	0.367	0.100	0.142
1-Ton Truck	Medium-duty Diesel	2	40	--	--	6	0.002	0.013	0.042	0.000	0.013	0.004	0.014	0.081	0.520	1.667	0.012	0.505	0.177	0.546
Mobile Crane	Construction Equipment	1	40	10	5%	--	0.028	0.132	0.337	0.000	0.014	0.013	0.016	1.134	5.288	13.479	0.015	0.555	0.511	0.634
Worker Commutes	Light-duty Auto/Truck	6	40	--	--	21.6	0.003	0.194	0.017	0.001	0.099	0.027	0.034	0.126	7.757	0.691	0.030	3.963	1.077	1.366
Testing and Commissioning																				
3/4-Ton Pick-up Truck	Light-duty Truck	2	60	--	--	6	0.000	0.011	0.001	0.000	0.005	0.001	0.004	0.010	0.631	0.058	0.002	0.275	0.075	0.214
1-Ton Truck	Medium-duty Diesel	2	60	--	--	6	0.001	0.007	0.021	0.000	0.006	0.002	0.014	0.061	0.390	1.250	0.009	0.379	0.133	0.819
Manlift	Construction Equipment	1	60	10	80%	--	0.040	1.094	0.644	0.002	0.014	0.013	0.074	2.377	65.654	38.618	0.103	0.868	0.785	4.426
Worker Commutes	Light-duty Auto/Truck	4	60	--	--	21.6	0.002	0.129	0.012	0.001	0.066	0.018	0.023	0.126	7.757	0.691	0.030	3.963	1.077	1.366
Exterior Walls, Final Grading, and Paving																				
2-Ton Flat Bed Truck	Heavy-duty Diesel	2	15	--	--	6	0.003	0.035	0.125	0.000	0.011	0.003	0.023	0.041	0.531	1.880	0.006	0.165	0.051	0.343
3/4-Ton Pick-up Truck	Light-duty Truck	2	47	--	--	6	0.000	0.021	0.002	0.000	0.009	0.002	0.004	0.016	0.988	0.091	0.003	0.431	0.117	0.167
Boom Truck	Heavy-duty Diesel	2	47	--	--	6	0.003	0.035	0.125	0.000	0.011	0.003	0.023	0.130	1.665	5.891	0.020	0.518	0.160	1.076
Small Backhoe	Construction Equipment	1	47	10	90%	--	0.210	2.280	2.105	0.003	0.133	0.122	0.153	9.847	107.144	98.940	0.149	6.248	5.742	7.214
Concrete Truck	Heavy-duty Diesel	15	5	--	--	4	0.014	0.177	0.627	0.002	0.055	0.017	0.114	0.069	0.885	3.134	0.011	0.276	0.085	0.572
Worker Commutes	Light-duty Auto/Truck	6	47	--	--	21.6	0.003	0.194	0.017	0.001	0.099	0.027	0.034	0.148	9.114	0.812	0.035	4.656	1.266	1.604
Cleanup and Landscaping																				
2-Ton Flat Bed Truck	Heavy-duty Diesel	2	20	--	--	6	0.003	0.035	0.125	0.000	0.011	0.003	0.023	0.055	0.708	2.507	0.009	0.221	0.068	0.458
3/4-Ton Pick-up Truck	Light-duty Truck	2	20	--	--	6	0.000	0.021	0.002	0.000	0.009	0.002	0.004	0.007	0.421	0.039	0.001	0.183	0.050	0.071
1-Ton Truck	Medium-duty Diesel	2	20	--	--	6	0.002	0.013	0.042	0.000	0.013	0.004	0.014	0.041	0.260	0.834	0.006	0.253	0.088	0.273
Small Backhoe	Construction Equipment	1	20	10	90%	--	0.236	2.565	2.368	0.004	0.150	0.137	0.153	4.714	51.292	47.365	0.071	2.991	2.749	3.070
Concrete Truck	Heavy-duty Diesel	2	20	--	--	4	0.002	0.024	0.084	0.000	0.007	0.002	0.015	0.037	0.472	1.671	0.006	0.147	0.045	0.305
Worker Commutes	Light-duty Auto/Truck	8	20	--	--	21.6	0.004	0.259	0.023	0.001	0.132	0.036	0.046	0.084	5.171	0.461	0.020	2.642	0.718	0.910
Truck Drivers																				
Material Haul Trucks	Heavy-duty Diesel	1	97	--	--	45.6	0.010	0.135	0.476	0.002	0.042	0.013	0.087	1.017	13.054	46.204	0.159	4.066	1.255	8.440
Inspectors																				
Inspector Vehicles	Light-duty Auto/Truck	2	440	--	--	14.6	0.001	0.044	0.004	0.000	0.022	0.006	0.008	0.312	19.224	1.713	0.075	9.821	2.670	3.384
Construction Trailers [i]	8 feet by 28 feet	2	730	--	--	--	--	--	--	--	--	--	--	0.00	0.00	0.00	0.00	0.00	0.00	0.71

Notes:

-- = Parameter not required for computing emissions.

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] Usage per Day is only necessary for the construction equipment which would operate on an hourly basis; vehicles would make specific trips each day per the assumptions noted below.

[c] Mileage was based on the following assumptions:

1) Mileage for Worker Commutes for the San Francisco Bay Area Air Basin from Table 4.2 of Appendix D of the *CalEEMod User's Guide* (Environ, 2016) assuming the H-W trip length.
2) Mileage for onsite service or construction vehicles and pick-up trucks provided by PG&E.
3) Mileage for Dump Trucks, Short Haul Dump Trucks, and Material Haul Trucks based on travel to Ox Mountain Sanitary Landfill (22.8 miles from site). PG&E estimates that there will be a total of 197 trips to Ox Mountain throughout the entire Switching Station construction timeframe.
4) Mileage for Long Haul Dump Trucks based on travel to Button Willow Clean Harbors.
5) Mileage for Concrete Trucks based on travel to Central Concrete at 450 Amador Street in San Francisco.
6) Mileage for Inspector Vehicles for the San Francisco Bay Area Air Basin from Table 4.2 of Appendix D of the *CalEEMod User's Guide* (Environ, 2016) assuming the C-NW trip length.
7) Mileage for Long Haul Dump Trucks base on travel to Buttonwillow Landfill Facility (263 miles from site). PG&E estimates that there will be a total of 66 trips to Buttonwillow throughout the entire Switching Station Construction timeframe.

[d] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs
1 yd^3 =	1.2641662	tons
Blade width of grading equipment =	12	ft
1 acre =	43,560	ft^2
1 mile =	5,280	ft

[e] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel.

[f] Fugitive Dust emissions from Bulldozing are based on the hours of operation of the Bulldozer, consistent with methodology in Appendix A of the *CalEEMod User's Guide* (Environ, 2016).

[g] Fugitive Dust emissions from Truck Dumping/Loading activities are a result of trenching leading to the offhauling of excavated material. Volumes were provided by PG&E, as follows:

Activity	Volume (yd^3)
Site Grading/Soil Removal	1,700
Foundation/Pads	2,500

[h] Fugitive Dust emissions from Grading assume the Crawler Backhoe will grade up to 75,359 ft^2 during Civil Site Preparation, per PG&E guidance. This equates to approximately 0.07 acres graded per day.

[i] Construction trailer CO2 emissions based on electrical use of 5 kilowatt-hour/square foot/year electrical use from PG&E and PG&E's electrical system's CO2 emission rate of 349 lb CO2/MWh and assume trailers are in place for 2 years (https://www.pge.com/includes/docs/pdfs/shared/environment/calculator/pge_ghg_emission_factor_info_sheet.pdf).

Table 9

Switching Station Construction Emissions with APMs AQ-1, AQ-2, and GHG-1 [a]

PG&E: Egbert Switching Station Project

							Emissions (lbs/day) [e]						Emissions (metric tons/day) [e]	Emissions (lbs/phase) [e]						Emissions (metric tons/phase) [e]
Equipment / Vehicle List	**Equipment / Vehicle Type**	**Quantity**	**Number of Days Used**	**Hours per Day [b]**	**Usage per Day (%) [c]**	**Miles per Day [d]**	**ROG**	**CO**	**NOx**	**SOx**	**PM_{10} [f]**	**$PM_{2.5}$ [f]**	**CO_2**	**ROG**	**CO**	**NOx**	**SOx**	**PM_{10} [f]**	**$PM_{2.5}$ [f]**	**CO_2**
General Construction																				
Mechanics Truck	Medium-duty Diesel	1	440	--	--	6	0.001	0.007	0.021	0.000	0.006	0.002	0.007	0.447	2.862	9.169	0.063	2.779	0.973	3.002
Worker Commutes	Light-duty Auto/Truck	12	440	--	--	21.6	0.006	0.388	0.035	0.002	0.198	0.054	0.068	2.769	170.648	15.206	0.663	87.179	23.699	30.042
Civil Site Preparation																				
3/4-Ton Pick-up Truck	Light-duty Truck	4	25	--	--	6	0.001	0.042	0.004	0.000	0.018	0.005	0.007	0.017	1.051	0.097	0.003	0.459	0.125	0.178
1-Ton Truck	Medium-duty Diesel	1	25	--	--	6	0.001	0.007	0.021	0.000	0.006	0.002	0.007	0.025	0.163	0.521	0.004	0.158	0.055	0.171
Crawler Backhoe	Construction Equipment	1	25	8	25%	--	0.052	0.570	0.526	0.001	0.033	0.031	0.034	1.309	14.248	13.157	0.020	0.831	0.764	0.853
Bulldozer	Construction Equipment	1	5	8	25%	--	0.052	0.570	0.526	0.001	0.033	0.031	0.034	0.262	2.850	2.631	0.004	0.166	0.153	0.171
Front Loader	Construction Equipment	1	15	8	25%	--	0.052	0.570	0.526	0.001	0.033	0.031	0.034	0.786	8.549	7.894	0.012	0.498	0.458	0.512
Short Haul Dump Truck	Heavy-duty Diesel	4	5	--	--	45.6	0.042	0.538	1.905	0.007	0.168	0.052	0.348	0.210	2.692	9.527	0.033	0.838	0.259	1.740
Long Haul Dump Truck	Heavy-duty Diesel	5	10	--	--	526	0.605	7.762	27.472	0.095	2.418	0.746	5.018	6.046	77.619	274.724	0.948	24.176	7.465	50.181
Compactor	Construction Equipment	1	15	8	25%	--	0.138	1.088	0.950	0.002	0.060	0.060	0.075	2.074	16.321	14.247	0.026	0.903	0.903	1.130
Worker Commutes	Light-duty Auto/Truck	6	25	--	--	21.6	0.003	0.194	0.017	0.001	0.099	0.027	0.034	0.079	4.848	0.432	0.019	2.477	0.673	0.853
Fugitive Dust [g]	Bulldozing	1	5	8	25%	--	--	--	--	--	0.241	0.132	--	--	--	--	--	1.204	0.662	--
Fugitive Dust [h]	Truck Dumping/Loading	1,700	25	--	--	--	--	--	--	--	0.002	0.000	--	--	--	--	--	0.059	0.009	--
Fugitive Dust [i]	Grading	0.07	25	8	25%	--	--	--	--	--	0.012	0.001	--	--	--	--	--	0.294	0.032	--
Building Foundations, Excavation, and Install																				
3/4-Ton Pick-up Truck	Light-duty Truck	4	60	--	--	6	0.001	0.042	0.004	0.000	0.018	0.005	0.007	0.042	2.524	0.233	0.008	1.101	0.299	0.427
1-Ton Truck	Medium-duty Diesel	1	60	--	--	6	0.001	0.007	0.021	0.000	0.006	0.002	0.007	0.061	0.390	1.250	0.009	0.379	0.133	0.409
Crawler Backhoe	Construction Equipment	1	60	8	90%	--	0.189	2.052	1.895	0.003	0.120	0.110	0.123	11.314	123.102	113.676	0.171	7.178	6.597	7.367
Concrete Truck	Heavy-duty Diesel	14	15	--	--	4	0.013	0.165	0.585	0.002	0.051	0.016	0.107	0.193	2.479	8.774	0.030	0.772	0.238	1.603
Front Loader	Construction Equipment	1	60	8	10%	--	0.021	0.228	0.211	0.000	0.013	0.012	0.014	1.257	13.678	12.631	0.019	0.798	0.733	0.819
Short Haul Dump Truck	Heavy-duty Diesel	4	16	--	--	45.6	0.042	0.538	1.905	0.007	0.168	0.052	0.348	0.671	8.613	30.485	0.105	2.683	0.828	5.568
Long Haul Dump Truck	Heavy-duty Diesel	2	8	--	--	526	0.242	3.105	10.989	0.038	0.967	0.299	2.007	1.935	24.838	87.912	0.303	7.736	2.389	16.058
Compactor	Construction Equipment	1	60	8	5%	--	0.028	0.218	0.190	0.000	0.012	0.012	0.015	1.659	13.057	11.397	0.021	0.723	0.723	0.904
Worker Commutes	Light-duty Auto/Truck	8	60	--	--	21.6	0.004	0.259	0.023	0.001	0.132	0.036	0.046	0.252	15.513	1.382	0.060	7.925	2.154	2.731
Fugitive Dust [h]	Truck Dumping/Loading	2,500	60	--	--	--	--	--	--	--	0.001	0.000	--	--	--	--	--	0.087	0.013	--
Remaining Equipment Foundations																				
3/4-Ton Pick-up Truck	Light-duty Truck	4	40	--	--	6	0.001	0.042	0.004	0.000	0.018	0.005	0.007	0.028	1.682	0.156	0.005	0.734	0.200	0.285
1-Ton Truck	Medium-duty Diesel	1	40	--	--	6	0.001	0.007	0.021	0.000	0.006	0.002	0.007	0.041	0.260	0.834	0.006	0.253	0.088	0.273
Crawler Backhoe	Construction Equipment	1	40	8	90%	--	0.189	2.052	1.895	0.003	0.120	0.110	0.123	7.543	82.068	75.784	0.114	4.785	4.398	4.911
Concrete Truck	Heavy-duty Diesel	1	3	--	--	4	0.001	0.012	0.042	0.000	0.004	0.001	0.008	0.003	0.035	0.125	0.000	0.011	0.003	0.023
Dump Truck	Heavy-duty Diesel	4	2	--	--	45.6	0.042	0.538	1.905	0.007	0.168	0.052	0.348	0.084	1.077	3.811	0.013	0.335	0.104	0.696
Compactor	Construction Equipment	1	3	8	5%	--	0.028	0.218	0.190	0.000	0.012	0.012	0.015	0.083	0.653	0.570	0.001	0.036	0.036	0.045
Worker Commutes	Light-duty Auto/Truck	6	40	--	--	21.6	0.003	0.194	0.017	0.001	0.099	0.027	0.034	0.126	7.757	0.691	0.030	3.963	1.077	1.366
Ground Grid and Conduits																				
3/4-Ton Pick-up Truck	Light-duty Truck	4	20	--	--	6	0.001	0.042	0.004	0.000	0.018	0.005	0.007	0.014	0.841	0.078	0.003	0.367	0.100	0.142
1-Ton Truck	Medium-duty Diesel	1	20	--	--	6	0.001	0.007	0.021	0.000	0.006	0.002	0.007	0.020	0.130	0.417	0.003	0.126	0.044	0.136
Crawler Backhoe	Construction Equipment	1	20	8	50%	--	0.105	1.140	1.053	0.002	0.066	0.061	0.068	2.095	22.797	21.051	0.032	1.329	1.222	1.364
Trencher	Construction Equipment	1	20	8	25%	--	0.105	0.659	0.949	0.001	0.071	0.065	0.037	2.098	13.181	18.982	0.017	1.420	1.307	0.741
Dump Truck	Heavy-duty Diesel	4	2	--	--	45.6	0.042	0.538	1.905	0.007	0.168	0.052	0.348	0.084	1.077	3.811	0.013	0.335	0.104	0.696
Compactor	Construction Equipment	1	20	8	5%	--	0.028	0.218	0.190	0.000	0.012	0.012	0.015	0.553	4.352	3.799	0.007	0.241	0.241	0.301
Worker Commutes	Light-duty Auto/Truck	6	20	--	--	21.6	0.003	0.194	0.017	0.001	0.099	0.027	0.034	0.063	3.878	0.346	0.015	1.981	0.539	0.683
Building Delivery and Erection																				
3/4-Ton Pick-up Truck	Light-duty Truck	2	60	--	--	6	0.000	0.021	0.002	0.000	0.009	0.002	0.004	0.021	1.262	0.117	0.004	0.550	0.150	0.214
Manlift	Construction Equipment	1	60	8	80%	--	0.032	0.875	0.515	0.001	0.012	0.010	0.059	1.901	52.523	30.894	0.083	0.694	0.628	3.541
Forklift	Construction Equipment	1	60	8	60%	--	0.086	0.708	0.778	0.001	0.058	0.053	0.040	5.187	42.489	46.709	0.057	3.481	3.198	2.417
Boom Truck	Heavy-duty Diesel	1	60	--	--	6	0.001	0.018	0.063	0.000	0.006	0.002	0.011	0.083	1.062	3.760	0.013	0.331	0.102	0.687
Mobile Crane	Construction Equipment	1	60	8	90%	--	0.408	1.904	4.852	0.005	0.200	0.184	0.228	24.499	114.228	291.138	0.319	11.994	11.037	13.687
Worker Commutes	Light-duty Auto/Truck	10	60	--	--	21.6	0.005	0.323	0.029	0.001	0.165	0.045	0.057	0.315	19.392	1.728	0.075	9.907	2.693	3.414
Set Series and Shunt Reactors on Pads																				
3/4-Ton Pick-up Truck	Light-duty Truck	2	5	--	--	6	0.000	0.021	0.002	0.000	0.009	0.002	0.004	0.002	0.105	0.010	0.000	0.046	0.012	0.018
Boom Truck	Heavy-duty Diesel	1	5	--	--	6	0.001	0.018	0.063	0.000	0.006	0.002	0.011	0.007	0.089	0.313	0.001	0.028	0.009	0.057
Mobile Crane	Construction Equipment	1	5	8	90%	--	0.408	1.904	4.852	0.005	0.200	0.184	0.228	2.042	9.519	24.261	0.027	1.000	0.920	1.141
Worker Commutes	Light-duty Auto/Truck	8	5	--	--	21.6	0.004	0.259	0.023	0.001	0.132	0.036	0.046	0.021	1.293	0.115	0.005	0.660	0.180	0.228
Screen Walls																				
Rigging Truck	Heavy-duty Diesel	1	10	--	--	6	0.001	0.018	0.063	0.000	0.006	0.002	0.011	0.014	0.177	0.627	0.002	0.055	0.017	0.114
Forklift	Construction Equipment	1	10	8	80%	--	0.115	0.944	1.038	0.001	0.077	0.071	0.054	1.153	9.442	10.380	0.013	0.774	0.711	0.537
Manlift	Construction Equipment	1	10	8	80%	--	0.032	0.875	0.515	0.001	0.012	0.010	0.059	0.317	8.754	5.149	0.014	0.116	0.105	0.590
Mobile Crane	Construction Equipment	1	10	8	80%	--	0.363	1.692	4.313	0.005	0.178	0.164	0.203	3.630	16.923	43.132	0.047	1.777	1.635	2.028
1-Ton Truck	Medium-duty Diesel	1	10	--	--	6	0.001	0.007	0.021	0.000	0.006	0.002	0.007	0.010	0.065	0.208	0.001	0.063	0.022	0.068
3/4-Ton Pick-up Truck	Light-duty Truck	2	10	--	--	6	0.000	0.021	0.002	0.000	0.009	0.002	0.004	0.003	0.210	0.019	0.001	0.092	0.025	0.036
Worker Commutes	Light-duty Auto/Truck	6	10	--	--	21.6	0.003	0.194	0.017	0.001	0.099	0.027	0.034	0.031	1.939	0.173	0.008	0.991	0.269	0.341

Table 9

Switching Station Construction Emissions with APMs AQ-1, AQ-2, and GHG-1 [a]

PG&E: Egbert Switching Station Project

Equipment / Vehicle List	Equipment / Vehicle Type	Quantity	Number of Days Used	Hours per Day [b]	Usage per Day (%) [c]	Miles per Day [d]	Emissions (lbs/day) [e]						Emissions (metric tons/day) [e]	Emissions (lbs/phase) [e]						Emissions (metric tons/phase) [e]
							ROG	CO	NOx	SOx	PM_{10} [f]	$PM_{2.5}$ [f]	CO_2	ROG	CO	NOx	SOx	PM_{10} [f]	$PM_{2.5}$ [f]	CO_2
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																				
Rigging Truck	Heavy-duty Diesel	1	10	--	--	6	0.001	0.018	0.063	0.000	0.006	0.002	0.011	0.014	0.177	0.627	0.002	0.055	0.017	0.114
Forklift	Construction Equipment	1	120	8	80%	--	0.115	0.944	1.038	0.001	0.077	0.071	0.054	13.833	113.303	124.558	0.151	9.282	8.529	6.446
Manlift	Construction Equipment	2	120	8	80%	--	0.063	1.751	1.030	0.003	0.023	0.021	0.118	7.605	210.092	123.576	0.331	2.778	2.513	14.163
Boom Truck	Heavy-duty Diesel	1	30	--	--	6	0.001	0.018	0.063	0.000	0.006	0.002	0.011	0.041	0.531	1.880	0.006	0.165	0.051	0.343
1-Ton Truck	Medium-duty Diesel	1	120	--	--	6	0.001	0.007	0.021	0.000	0.006	0.002	0.007	0.122	0.781	2.501	0.017	0.758	0.265	0.819
3/4-Ton Pick-up Truck	Light-duty Truck	4	120	--	--	6	0.001	0.042	0.004	0.000	0.018	0.005	0.007	0.084	5.047	0.467	0.016	2.202	0.599	0.855
Worker Commutes	Light-duty Auto/Truck	34	120	--	--	21.6	0.018	1.099	0.098	0.004	0.561	0.153	0.193	2.140	131.865	11.750	0.513	67.366	18.313	23.214
Install and Test Oil Pump House, SSVTs																				
3/4-Ton Pick-up Truck	Light-duty Truck	2	40	--	--	6	0.000	0.021	0.002	0.000	0.009	0.002	0.004	0.014	0.841	0.078	0.003	0.367	0.100	0.142
1-Ton Truck	Medium-duty Diesel	2	40	--	--	6	0.002	0.013	0.042	0.000	0.013	0.004	0.014	0.081	0.520	1.667	0.012	0.505	0.177	0.546
Mobile Crane	Construction Equipment	1	40	8	5%	--	0.023	0.106	0.270	0.000	0.011	0.010	0.013	0.907	4.231	10.783	0.012	0.444	0.409	0.507
Worker Commutes	Light-duty Auto/Truck	6	40	--	--	21.6	0.003	0.194	0.017	0.001	0.099	0.027	0.034	0.126	7.757	0.691	0.030	3.963	1.077	1.366
Testing and Commissioning																				
3/4-Ton Pick-up Truck	Light-duty Truck	2	60	--	--	6	0.000	0.011	0.001	0.000	0.005	0.001	0.004	0.010	0.631	0.058	0.002	0.275	0.075	0.214
1-Ton Truck	Medium-duty Diesel	2	60	--	--	6	0.001	0.007	0.021	0.000	0.006	0.002	0.014	0.061	0.390	1.250	0.009	0.379	0.133	0.819
Manlift	Construction Equipment	1	60	8	80%	--	0.032	0.875	0.515	0.001	0.012	0.010	0.059	1.901	52.523	30.894	0.083	0.694	0.628	3.541
Worker Commutes	Light-duty Auto/Truck	4	60	--	--	21.6	0.002	0.129	0.012	0.001	0.066	0.018	0.023	0.126	7.757	0.691	0.030	3.963	1.077	1.366
Exterior Walls, Final Grading, and Paving																				
2-Ton Flat Bed Truck	Heavy-duty Diesel	2	15	--	--	6	0.003	0.035	0.125	0.000	0.011	0.003	0.023	0.041	0.531	1.880	0.006	0.165	0.051	0.343
3/4-Ton Pick-up Truck	Light-duty Truck	2	47	--	--	6	0.000	0.021	0.002	0.000	0.009	0.002	0.004	0.016	0.988	0.091	0.003	0.431	0.117	0.167
Boom Truck	Heavy-duty Diesel	2	47	--	--	6	0.003	0.035	0.125	0.000	0.011	0.003	0.023	0.130	1.665	5.891	0.020	0.518	0.160	1.076
Small Backhoe	Construction Equipment	1	47	8	90%	--	0.168	1.824	1.684	0.003	0.106	0.098	0.123	7.878	85.715	79.152	0.119	4.998	4.593	5.771
Concrete Truck	Heavy-duty Diesel	15	5	--	--	4	0.014	0.177	0.627	0.002	0.055	0.017	0.114	0.069	0.885	3.134	0.011	0.276	0.085	0.572
Worker Commutes	Light-duty Auto/Truck	6	47	--	--	21.6	0.003	0.194	0.017	0.001	0.099	0.027	0.034	0.148	9.114	0.812	0.035	4.656	1.266	1.604
Cleanup and Landscaping																				
2-Ton Flat Bed Truck	Heavy-duty Diesel	2	20	--	--	6	0.003	0.035	0.125	0.000	0.011	0.003	0.023	0.055	0.708	2.507	0.009	0.221	0.068	0.458
3/4-Ton Pick-up Truck	Light-duty Truck	2	20	--	--	6	0.000	0.021	0.002	0.000	0.009	0.002	0.004	0.007	0.421	0.039	0.001	0.183	0.050	0.071
1-Ton Truck	Medium-duty Diesel	2	20	--	--	6	0.002	0.013	0.042	0.000	0.013	0.004	0.014	0.041	0.260	0.834	0.006	0.253	0.088	0.273
Small Backhoe	Construction Equipment	1	20	8	90%	--	0.189	2.052	1.895	0.003	0.120	0.110	0.123	3.771	41.034	37.892	0.057	2.393	2.199	2.456
Concrete Truck	Heavy-duty Diesel	2	20	--	--	4	0.002	0.024	0.084	0.000	0.007	0.002	0.015	0.037	0.472	1.671	0.006	0.147	0.045	0.305
Worker Commutes	Light-duty Auto/Truck	8	20	--	--	21.6	0.004	0.259	0.023	0.001	0.132	0.036	0.046	0.084	5.171	0.461	0.020	2.642	0.718	0.910
Truck Drivers																				
Material Haul Trucks	Heavy-duty Diesel	1	97	--	--	45.6	0.010	0.135	0.476	0.002	0.042	0.013	0.087	1.017	13.054	46.204	0.159	4.066	1.255	8.440
Inspectors																				
Inspector Vehicles	Light-duty Auto/Truck	2	440	--	--	14.6	0.001	0.044	0.004	0.000	0.022	0.006	0.008	0.312	19.224	1.713	0.075	9.821	2.670	3.384
Construction Trailers[j]	8 feet by 28 feet	2	730	--	--	--	--	--	--	--	--	--	--	0.00	0.00	0.00	0.00	0.00	0.00	0.71

Notes:

-- = Parameter not required for computing emissions.

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] Hours of operation for all construction equipment were reduced by 2 hours per day to minimize equipment idling time per APM AQ-2, Minimize Construction Exhaust Emissions, and APM GHG-1, Minimize GHG Emissions, which are described in Sections 3.3.4.2 and 3.7.4.2 of the Egbert Switching Station Project PEA. The other reduction measures of APMs AQ-2 and GHG-1 were not quantified as their extent of implementation is currently unknown.

[c] Usage per Day is only necessary for the construction equipment which would operate on an hourly basis; vehicles would make specific trips each day per the assumptions noted below.

[d] Mileage was based on the following assumptions:

1) Mileage for Worker Commutes for the San Francisco Bay Area Air Basin from Table 4.2 of Appendix D of the *CalEEMod User's Guide* (Environ, 2016) assuming the H-W trip length.
2) Mileage for onsite service or construction vehicles and pick-up trucks provided by PG&E.
3) Mileage for Dump Trucks, Short Haul Dump Trucks, and Material Haul Trucks based on travel to Ox Mountain Sanitary Landfill (22.8 miles from site). PG&E estimates that there will be a total of 197 trips to Ox Mountain throughout the entire Switching Station construction timeframe.
4) Mileage for Long Haul Dump Trucks based on travel to Button Willow Clean Harbors.
5) Mileage for Concrete Trucks based on travel to Central Concrete at 450 Amador Street in San Francisco.
6) Mileage for Inspector Vehicles for the San Francisco Bay Area Air Basin from Table 4.2 of Appendix D of the *CalEEMod User's Guide* (Environ, 2016) assuming the C-NW trip length.
7) Mileage for Long Haul Dump Trucks base on travel to Buttonwillow Landfill Facility (263 miles from site). PG&E estimates that there will be a total of 66 trips to Buttonwillow throughout the entire Switching Station Construction timeframe.

[e] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs
1 yd^3 =	1.2641662	tons
Blade width of grading equipment =	12	ft
1 acre =	43,560	ft^2
1 mile =	5,280	ft

[f] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel.

[g] Fugitive Dust emissions from Bulldozing are based on the hours of operation of the Bulldozer, consistent with methodology in Appendix A of the CalEEMod User's Guide (Environ, 2016) and account for APM AQ-1, Minimize Fugitive Dust, as described in Section 3.3.4.2 of the Egbert Switching Station Project PEA.

[h] Fugitive Dust emissions from Truck Dumping/Loading activities are a result of trenching leading to the offhauling of excavated material and account for APM AQ-1, Minimize Fugitive Dust, as described in Section 3.3.4.2 of the Egbert Switching Station Project PEA. Volumes were provided by PG&E, as follows:

Activity	Volume (yd^3)
Site Grading/Soil Removal	1,700
Foundation/Pads	2,500

[i] Fugitive Dust emissions from Grading assume the Crawler Backhoe will grade up to 75,359 ft^2 during Civil Site Preparation, per PG&E guidance, and account for APM AQ-1, Minimize Fugitive Dust, as described in Section 3.3.4.2 of the Egbert Switching Station Project PEA. This equates to approximately 0.07 acres graded per day.

[j] Construction trailer CO2 emissions based on electrical use of 5 kilowatt-hour/square foot/year electrical use from PG&E and PG&E's electrical system's CO2 emission rate of 349 lb CO2/MWh and assume trailers are in place for 2 years (https://www.pge.com/includes/docs/pdfs/shared/environment/calculator/pge_ghg_emission_factor_info_sheet.pdf).

Table 10

Substation-Remote Ends Construction Emissions [a]

PG&E: Egbert Switching Station Project

Equipment / Vehicle List	Equipment / Vehicle Type	Quantity	Number of Days Used	Hours per Day	Miles per Day [b]	Emissions (lbs/day) [c]						Emissions (metric tons/day) [c]	Emissions (lbs/phase) [c]						Emissions (metric tons/phase) [c]
						ROG	CO	NOx	SOx	PM_{10} [d]	$PM_{2.5}$ [d]	CO_2	ROG	CO	NOx	SOx	PM_{10} [d]	$PM_{2.5}$ [d]	CO_2
General Construction																			
Mechanics Truck	Medium-duty Diesel	1	100	--	6	0.001	0.007	0.021	0.000	0.006	0.002	0.007	0.102	0.651	2.084	0.014	0.632	0.221	0.682
Worker Commutes	Light-duty Auto/Truck	10	100	--	21.6	0.005	0.323	0.029	0.001	0.165	0.045	0.057	0.524	32.320	2.880	0.126	16.511	4.488	5.690
Martin Substation Series and Shunt Reactor Removal																			
3/4-Ton Pick-up Truck	Light-duty Truck	4	60	--	20	0.002	0.140	0.013	0.000	0.061	0.017	0.024	0.139	8.412	0.778	0.027	3.669	0.998	1.425
1-Ton Truck	Medium-duty Diesel	1	60	--	20	0.003	0.022	0.069	0.000	0.021	0.007	0.023	0.203	1.301	4.168	0.029	1.263	0.442	1.365
Manlift	Construction Equipment	1	10	5	--	0.025	0.684	0.402	0.001	0.009	0.008	0.046	0.248	6.839	4.023	0.011	0.090	0.082	0.461
Dump Truck	Heavy-duty Diesel	1	20	--	6	0.001	0.018	0.063	0.000	0.006	0.002	0.011	0.028	0.354	1.253	0.004	0.110	0.034	0.229
Boom Truck	Heavy-duty Diesel	1	25	--	6	0.001	0.018	0.063	0.000	0.006	0.002	0.011	0.034	0.443	1.567	0.005	0.138	0.043	0.286
Mobile Crane	Construction Equipment	1	15	6	--	0.340	1.586	4.044	0.004	0.167	0.153	0.190	5.104	23.797	60.654	0.066	2.499	2.299	2.851
Jack Hammer	Construction Equipment	1	15	6	--	0.030	0.158	0.188	0.000	0.007	0.007	0.012	0.451	2.368	2.827	0.005	0.110	0.110	0.176
Small Backhoe	Construction Equipment	1	5	5	--	0.131	1.425	1.316	0.002	0.083	0.076	0.085	0.655	7.124	6.578	0.010	0.415	0.382	0.426
Oil Truck	Heavy-duty Diesel	1	2	--	14.6	0.003	0.043	0.153	0.001	0.013	0.004	0.028	0.007	0.086	0.305	0.001	0.027	0.008	0.056
Semi Truck	Heavy-duty Diesel	1	4	--	14.6	0.003	0.043	0.153	0.001	0.013	0.004	0.028	0.013	0.172	0.610	0.002	0.054	0.017	0.111
Worker Commutes	Light-duty Auto/Truck	6	60	--	21.6	0.003	0.194	0.017	0.001	0.099	0.027	0.034	0.189	11.635	1.037	0.045	5.944	1.616	2.048
Fugitive Dust [e]	Grading	0.35	5	5	--	--	--	--	--	0.371	0.040	--	--	--	--	--	1.856	0.200	--
Jefferson, Martin, and Embarcadero Indoor Work																			
3/4-Ton Pick-up Truck	Light-duty Truck	3	40	--	20	0.002	0.105	0.010	0.000	0.046	0.012	0.018	0.070	4.206	0.389	0.013	1.835	0.499	0.712
Worker Commutes	Light-duty Auto/Truck	3	40	--	21.6	0.002	0.097	0.009	0.000	0.050	0.013	0.017	0.063	3.878	0.346	0.015	1.981	0.539	0.683
Inspectors																			
Inspector Vehicles	Light-duty Auto/Truck	1	60	--	14.6	0.000	0.022	0.002	0.000	0.011	0.003	0.004	0.021	1.311	0.117	0.005	0.670	0.182	0.231
Truck Drivers																			
Material Haul Trucks	Heavy-duty Diesel	1	8	--	45.6	0.010	0.135	0.476	0.002	0.042	0.013	0.087	0.084	1.077	3.811	0.013	0.335	0.104	0.696
Construction Trailers [f]	12 feet by 56 feet	1	730	--	--	--	--	--	--	--	--	--	0.00	0.00	0.00	0.00	0.00	0.00	1.06

Notes:

-- = Parameter not required for computing emissions.

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] Mileage was based on the following assumptions:

1) Mileage for Worker Commutes and Vendor Trips/Inspector Vehicles for the San Francisco Bay Area Air Basin from Table 4.2 of Appendix D of the *CalEEMod User's Guide* (Environ, 2016) assuming the H-W and C-NW trip lengths, respectively.

2) Mileage for onsite service or construction vehicles and pick-up trucks provided by PG&E.

3) Mileage for the Material Haul Trucks based on travel to Ox Mountain Sanitary Landfill (22.8 miles one way from site). PG&E estimates that there will be 8 trips to Ox Mountain during the Substation-Remote Ends construction timeframe.

[c] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs
1 yd^3 =	1.2641162	tons
Blade width of grading equipment =	12	ft
1 acre =	43,560	ft^2
1 mile =	5,280	ft

[d] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel.

[e] Fugitive Dust emissions from Grading assume the Small Backhoe will grade up to 0.35 acres per day, per PG&E guidance.

[f] Construction trailer CO2 emissions based on electrical use of 5 kilowatt-hour/square foot/year electrical use from PG&E and PG&E's electrical system's CO2 emission rate of 349 lb CO2/MWh and assume trailers are in place for 2 years (https://www.pge.com/includes/docs/pdfs/shared/environment/calculator/pge_ghg_emission_factor_info_sheet.pdf).

Table 11

Substation-Remote Ends Construction Emissions with APMs AQ-1, AQ-2, and GHG-1 [a]

PG&E: Egbert Switching Station Project

Equipment / Vehicle List	Equipment / Vehicle Type	Quantity	Number of Days Used	Hours per Day [b]	Miles per Day [c]	Emissions (lbs/day) [d]						Emissions (metric tons/day) [d]	Emissions (lbs/phase) [d]						Emissions (metric tons/phase) [d]
						ROG	CO	NOx	SOx	PM_{10} [e]	$PM_{2.5}$ [e]	CO_2	ROG	CO	NOx	SOx	PM_{10} [e]	$PM_{2.5}$ [e]	CO_2
General Construction																			
Mechanics Truck	Medium-duty Diesel	1	100	--	6	0.001	0.007	0.021	0.000	0.006	0.002	0.007	0.102	0.651	2.084	0.014	0.632	0.221	0.682
Worker Commutes	Light-duty Auto/Truck	10	100	--	21.6	0.005	0.323	0.029	0.001	0.165	0.045	0.057	0.524	32.320	2.880	0.126	16.511	4.488	5.690
Martin Substation Series and Shunt Reactor Removal																			
3/4-Ton Pick-up Truck	Light-duty Truck	4	60	--	20	0.002	0.140	0.013	0.000	0.061	0.017	0.024	0.139	8.412	0.778	0.027	3.669	0.998	1.425
1-Ton Truck	Medium-duty Diesel	1	60	--	20	0.003	0.022	0.069	0.000	0.021	0.007	0.023	0.203	1.301	4.168	0.029	1.263	0.442	1.365
Manlift	Construction Equipment	1	10	3	--	0.015	0.410	0.241	0.001	0.005	0.005	0.028	0.149	4.103	2.414	0.006	0.054	0.049	0.277
Dump Truck	Heavy-duty Diesel	1	20	--	6	0.001	0.018	0.063	0.000	0.006	0.002	0.011	0.028	0.354	1.253	0.004	0.110	0.034	0.229
Boom Truck	Heavy-duty Diesel	1	25	--	6	0.001	0.018	0.063	0.000	0.006	0.002	0.011	0.034	0.443	1.567	0.005	0.138	0.043	0.286
Mobile Crane	Construction Equipment	1	15	4	--	0.227	1.058	2.696	0.003	0.111	0.102	0.127	3.403	15.865	40.436	0.044	1.666	1.533	1.901
Jack Hammer	Construction Equipment	1	15	4	--	0.020	0.105	0.126	0.000	0.005	0.005	0.008	0.301	1.578	1.885	0.004	0.073	0.073	0.117
Small Backhoe	Construction Equipment	1	5	3	--	0.079	0.855	0.789	0.001	0.050	0.046	0.051	0.393	4.274	3.947	0.006	0.249	0.229	0.256
Oil Truck	Heavy-duty Diesel	1	2	--	14.6	0.003	0.043	0.153	0.001	0.013	0.004	0.028	0.007	0.086	0.305	0.001	0.027	0.008	0.056
Semi Truck	Heavy-duty Diesel	1	4	--	14.6	0.003	0.043	0.153	0.001	0.013	0.004	0.028	0.013	0.172	0.610	0.002	0.054	0.017	0.111
Worker Commutes	Light-duty Auto/Truck	6	60	--	21.6	0.003	0.194	0.017	0.001	0.099	0.027	0.034	0.189	11.635	1.037	0.045	5.944	1.616	2.048
Fugitive Dust [f]	Grading	0.35	5	3	--	--	--	--	--	0.059	0.006	--	--	--	--	--	0.297	0.032	--
Jefferson, Martin, and Embarcadero Indoor Work																			
3/4-Ton Pick-up Truck	Light-duty Truck	3	40	--	20	0.002	0.105	0.010	0.000	0.046	0.012	0.018	0.070	4.206	0.389	0.013	1.835	0.499	0.712
Worker Commutes	Light-duty Auto/Truck	3	40	--	21.6	0.002	0.097	0.009	0.000	0.050	0.013	0.017	0.063	3.878	0.346	0.015	1.981	0.539	0.683
Inspectors																			
Inspector Vehicles	Light-duty Auto/Truck	1	60	--	14.6	0.000	0.022	0.002	0.000	0.011	0.003	0.004	0.021	1.311	0.117	0.005	0.670	0.182	0.231
Truck Drivers																			
Material Haul Trucks	Heavy-duty Diesel	1	8	--	45.6	0.010	0.135	0.476	0.002	0.042	0.013	0.087	0.084	1.077	3.811	0.013	0.335	0.104	0.696
Construction Trailers [g]	12 feet by 56 feet	1	730	--	--	--	--	--	--	--	--	--	0.00	0.00	0.00	0.00	0.00	0.00	1.06

Notes:

-- = Parameter not required for computing emissions.

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

b Hours of operation for all construction equipment were reduced by 2 hours per day to minimize equipment idling time per APM AQ-2, Minimize Construction Exhaust Emissions, and APM GHG-1, Minimize GHG Emissions, which are described in Sections 3.3.4.2 and 3.7.4.2 of the Egbert Switching Station Project PEA. The other reduction measures of APMs AQ-2 and GHG-1 were not quantified as their extent of implementation is currently unknown.

[c] Mileage was based on the following assumptions:

1) Mileage for Worker Commutes and Vendor Trips/Inspector Vehicles for the San Francisco Bay Area Air Basin from Table 4.2 of Appendix D of the *CalEEMod User's Guide* (Environ, 2016) assuming the H-W and C-NW trip lengths, respectively.

2) Mileage for onsite service or construction vehicles and pick-up trucks provided by PG&E.

3) Mileage for the Material Haul Trucks based on travel to Ox Mountain Sanitary Landfill (22.8 miles one way from site). PG&E estimates that there will be 8 trips to Ox Mountain during the Substation-Remote Ends construction timeframe.

[d] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs
1 yd^3 =	1.2641162	tons
Blade width of grading equipment =	12	ft
1 acre =	43,560	ft^2
1 mile =	5,280	ft

[e] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel.

[f] Fugitive Dust emissions from Grading assume the Small Backhoe will grade up to 0.35 acres per day, per PG&E guidance, and account for APM AQ-1, Minimize Fugitive Dust, as described in Section 3.3.4.2 of the Egbert Switching Station Project PEA.

[g] Construction trailer CO2 emissions based on electrical use of 5 kilowatt-hour/square foot/year electrical use from PG&E and PG&E's electrical system's CO2 emission rate of 349 lb CO2/MWh and assume trailers are in place for 2 years (https://www.pge.com/includes/docs/pdfs/shared/environment/calculator/pge_ghg_emission_factor_info_sheet.pdf).

Table 12

Construction Equipment Emission Factors

PG&E: Egbert Switching Station Project

Equipment [a]	OFFROAD Equipment Category	Horsepower [b]	Load Factor [b]	Emission Factors (g/bhp-hr) [c]						
				ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2
CAT 328 Excavator [d]	Excavator	204	0.38	0.177	1.118	2.027	0.005	0.061	0.056	471.883
CAT 928 Loader [d]	Tractor/Loader/Backhoe	144	0.37	0.246	3.105	2.415	0.005	0.122	0.112	467.513
JD 225 Excavator [d]	Excavator	159	0.38	0.231	3.086	2.278	0.005	0.110	0.102	472.289
CAT 450 Backhoe [d]	Tractor/Loader/Backhoe	144	0.37	0.246	3.105	2.415	0.005	0.122	0.112	467.513
RT 100 - Terex Rough Terrain Crane [d]	Crane	262	0.29	0.321	2.660	3.862	0.005	0.155	0.142	472.558
Ingersoll Rand DD 24 Roller [d]	Roller	32	0.38	0.926	4.725	4.534	0.005	0.329	0.303	525.880
Volvo VNX 300 Tractor	Tractor/Loader/Backhoe	97	0.37	0.331	3.601	3.326	0.005	0.210	0.193	475.154
Doosan Air Compressor 185 CFM, Air Compressor 175 cfs	Air Compressor	78	0.48	0.489	3.698	3.400	0.006	0.224	0.224	568.299
Semi Tractor	Off-Highway Tractor	124	0.44	0.271	3.215	2.890	0.005	0.140	0.129	472.917
Cable Winch	Other General Industrial Equipment	88	0.34	0.446	0.377	4.061	0.005	0.296	0.272	470.000
Cable Reel Cart	Other General Industrial Equipment	88	0.34	0.446	0.377	4.061	0.005	0.296	0.272	470.000
2 kW Generator [e]	Generator Set	2.7	0.74	0.646	3.546	4.516	0.008	0.212	0.212	568.299
350 kW Generator [e]	Generator Set	469	0.74	0.188	1.005	1.816	0.005	0.055	0.055	568.299
Auger Boring	Bore/Drill Rig	221	0.50	0.142	1.068	1.807	0.005	0.052	0.048	466.834
100-Ton Crane, Mobile Crane	Crane	231	0.29	0.384	1.790	4.563	0.005	0.188	0.173	472.949
CAT 345 Excavator	Excavator	158	0.38	0.231	3.086	2.278	0.005	0.110	0.102	472.289
Welding Machine	Welder	46	0.45	0.937	4.840	4.304	0.007	0.238	0.238	568.299
Pavement Saw Cutting Equipment	Concrete/Industrial Saw	81	0.73	0.401	3.535	3.163	0.006	0.190	0.190	568.299
Small Backhoe, Crawler Backhoe	Tractor/Loader/Backhoe	97	0.37	0.331	3.601	3.326	0.005	0.210	0.193	475.154
Bulldozer	Tractor/Loader/Backhoe	97	0.37	0.331	3.601	3.326	0.005	0.210	0.193	475.154
Front Loader	Tractor/Loader/Backhoe	97	0.37	0.331	3.601	3.326	0.005	0.210	0.193	475.154
Compactor	Crushing Equipment	85	0.78	0.473	3.722	3.249	0.006	0.206	0.206	568.299
Manlift	Aerial Lift	63	0.31	0.115	3.177	1.869	0.005	0.042	0.038	472.114
Forklift	Forklift	89	0.20	0.459	3.760	4.133	0.005	0.308	0.283	471.529
Trencher	Trencher	78	0.50	0.610	3.833	5.520	0.005	0.413	0.380	475.127
Jack Hammer	Plate Compactor	8	0.43	0.661	3.469	4.142	0.008	0.161	0.161	568.299

Notes:

[a] The BTI Breaker, Hoe Ram, and HPSI 100 Sheet Driver for Excavator were not included in the above table, or resulting emissions estimates, as they are expected to be hydraulically-powered with negligible emissions.

[b] Unless otherwise noted, Horsepower and Load Factors taken as the default, average values provided in Table 3.3 of Appendix D of the *CalEEMod User's Guide* (Environ, 2016).

[c] Emission Factors in grams per brake-horsepower-hour (g/bhp-hr) taken as the defaults for the year 2020 provided in Table 3.4 of Appendix D of the *CalEEMod User's Guide* (Environ, 2016).

[d] Horsepower ratings for these equipment were provided by PG&E.

[e] Horsepower (hp) ratings for the 2 kW and 350 kW Generators estimated using the following conversion factor:

1 kW = 1.34 hp

Table 13
Vehicle Emission Factors
PG&E: Egbert Switching Station Project

Vehicle	Vehicle Class [a]	Exhaust Emission Factors (g/mile) [b]							Paved Road Emission Factors (g/mile) [c]	
		ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2	PM_{10}	$PM_{2.5}$
Rigging Truck, Material Haul Truck	Heavy-duty Diesel	0.104	1.339	4.738	0.016355	0.116	0.054	1,908.037	0.300	0.075
Mechanics Truck	Medium-duty Diesel	0.077	0.492	1.575	0.011	0.177	0.092	1,137.169	0.300	0.075
Worker Commutes, Inspector Vehicles	Light-duty Auto/Truck	0.011	0.679	0.060	0.003	0.046	0.019	263.411	0.300	0.075
3/4-Ton Pick-up Truck	Light-duty Truck	0.013	0.795	0.074	0.003	0.046	0.019	296.782	0.300	0.075
1-Ton Truck	Medium-duty Diesel	0.077	0.492	1.575	0.011	0.177	0.092	1,137.169	0.300	0.075
Concrete Truck	Heavy-duty Diesel	0.104	1.339	4.738	0.016355	0.116	0.054	1,908.037	0.300	0.075
Boom Truck	Heavy-duty Diesel	0.104	1.339	4.738	0.016355	0.116	0.054	1,908.037	0.300	0.075
2-Ton Flat Bed Truck	Heavy-duty Diesel	0.104	1.339	4.738	0.016355	0.116	0.054	1,908.037	0.300	0.075
Oil Truck	Heavy-duty Diesel	0.104	1.339	4.738	0.016355	0.116	0.054	1,908.037	0.300	0.075
Dump Truck	Heavy-duty Diesel	0.104	1.339	4.738	0.016355	0.116	0.054	1,908.037	0.300	0.075
Semi Truck	Heavy-duty Diesel	0.104	1.339	4.738	0.016355	0.116	0.054	1,908.037	0.300	0.075
Short Haul Dump Truck	Heavy-duty Diesel	0.104	1.339	4.738	0.016355	0.116	0.054	1,908.037	0.300	0.075
Long Haul Dump Truck	Heavy-duty Diesel	0.104	1.339	4.738	0.016355	0.116	0.054	1,908.037	0.300	0.075
1500 Dodge Ram Pickup	Light-duty Truck	0.013	0.795	0.074	0.003	0.046	0.019	296.782	0.300	0.075
2500 Dodge Ram Pickup	Light-duty Truck	0.013	0.795	0.074	0.003	0.046	0.019	296.782	0.300	0.075
3500 Dodge Ram Pickup	Light-duty Truck	0.013	0.795	0.074	0.003	0.046	0.019	296.782	0.300	0.075
T 880 Kenworth Dump Truck	Heavy-duty Diesel	0.104	1.339	4.738	0.016355	0.116	0.054	1,908.037	0.300	0.075
Vacuum Truck	Heavy-duty Diesel	0.104	1.339	4.738	0.016355	0.116	0.054	1,908.037	0.300	0.075

Notes:

[a] The vehicle classes are represented as follows:

Light-duty Truck: Assumed to be 50% LDT1 Gas and 50% LDT2 Gas values.
Heavy-duty Diesel: Assumed to be 100% HHDT DSL values, per Section 4.5 of Appendix A of the *CalEEMod User's Guide* (Environ, 2016).
Medium-duty Diesel: 100% MHDT DSL values, per Section 4.5 of Appendix A of the *CalEEMod User's Guide* (Environ, 2016).
Light-duty Auto/Truck: 50% LDA Gas, 25% LDT1 Gas, and 25% LDT2 Gas values, per Section 4.5 of Appendix A of the *CalEEMod User's Guide* (Environ, 2016).

b Exhaust Emission Factors in grams per mile (g/mile) from EMFAC2014 for the San Francisco Bay Area Air Basin, calendar year 2020. A speed of 40 miles per hour (mph) was assumed for onroad vehicles, which is consistent with the CalEEMod default; because the project site is so small, it was assumed that all vehicles would be considered offsite, onroad vehicles and that no vehicles would travel onsite. An average temperature of 62 degrees Fahrenheit (°F) and humidity of 63% were used per Table 1 of CT-EMFAC: A Computer Model to Estimate Transportation Project Emissions (UC-Davis, 2007).

[c] Paved road emission factors calculated using CalEEMod methodology, as described below.

Derivation of Paved Road Emission Factors

Parameter	PM_{10}	$PM_{2.5}$
Average Weight [a]	2.4	2.4
k [b]	1	0.25
sL [a]	0.1	0.1
Emission Factor (g/mile) [c]	**0.300**	**0.075**

[a] Average Weight and sL taken as the default value from CalEEMod.

[b] k taken from Table 13.2.1-1 of Section 13.2.1 of *AP-42* (USEPA, 2011).

[c] Emission factor calculated using Equation 1 from Section 13.2.1 of *AP-42* (USEPA, 2011), which is generally consistent with Section 5.3 of Appendix A of the *CalEEMod User's Guide* (Environ, 2016):

Emission Factor (g/mile) = k (g/mile) x [sL (g/m^2)]$^{0.91}$ x [Average Weight (tons)]$^{1.02}$

Table 14

Fugitive Dust Emission Factors

PG&E: Egbert Switching Station Project

Fugitive Dust Emission Factors for Truck Dumping/Loading

Truck Dumping on a Pile or Loading to a Truck from a Pile

Parameter	PM_{10}	$PM_{2.5}$
k [a]	0.35	0.053
U [b]	4.9	4.9
M [a]	12.0	12.0
Emission Factor (lb/ton) [c]	0.0001	0.00001
Reduction from Watering to Maintain 12% Moisture [d]	69%	69%
Emission Factor (Controlled, lb/ton)	0.00003	0.000004

Notes:

[a] k and M taken from Section 4.3 of Appendix A of the *CalEEMod User's Guide* (Environ, 2016).

[b] U taken as the CalEEMod default for the San Francisco climate region of the San Francisco Bay Area Air Basin. Value converted from units of m/s to mph.

[c] Emission factor calculated using the following equation from Section 4.3 of Appendix A of the *CalEEMod User's Guide* (Environ, 2016):

Emission Factor (lb/ton) = $k \times 0.0032 \times [U\ (mph) / 5]^{1.3} / [M\ (\%) / 2]^{1.4}$

[d] Control efficiency taken from Table XI-A of the *SCAQMD CEQA Air Quality Analysis Handbook* for Scraper Loading and Unloading (SCAQMD, 2007).

Fugitive Dust Emission Factors for Grading

Grading Equipment Passes

Parameter	PM_{10}	$PM_{2.5}$
S [a]	7.1	7.1
F [a]	0.6	0.031
Emission Factor (lb/VMT) [b]	1.543	0.167
Reduction from Applying Soil Stabilizers [c]	84%	84%
Emission Factor (Controlled, lb/VMT)	0.247	0.027

Notes:

[a] S and F taken from Section 4.3 of Appendix A of the *CalEEMod User's Guide* (Environ, 2016).

[b] Emission factor calculated using the following equation from Section 4.3 of Appendix A of the *CalEEMod User's Guide* (Environ, 2016):

PM_{10} Emission Factor (lb/VMT) = $0.051 \times [S\ (mph)]^{2.0} \times F_{PM10}$

$PM_{2.5}$ Emission Factor (lb/VMT) = $0.04 \times [S\ (mph)]^{2.5} \times F_{PM2.5}$

[c] Control efficiency taken from Table XI-A of the *SCAQMD CEQA Air Quality Analysis Handbook* for Post-demolition Stabilization (SCAQMD, 2007).

Fugitive Dust Emission Factors for Bulldozing

Bulldozing Equipment Passes

Parameter	PM_{10}	$PM_{2.5}$
C [a]	1.0	5.7
	7.9	7.9
s [a]	6.9	6.9
F [a]	0.75	0.105
Emission Factor (lb/hr) [b]	0.753	0.414
Reduction from Applying Soil Stabilizers [c]	84%	84%
Emission Factor (Controlled, lb/hr)	0.120	0.066

Notes:

[a] C, M, s, and F taken from Section 4.3 of Appendix A of the *CalEEMod User's Guide* (Environ, 2016). These values are consistent with the CalEEMod defaults for the San Francisco Bay Area Air Basin.

[b] Emission factor calculated using the following equation from Section 4.3 of Appendix A of the *CalEEMod User's Guide* (Environ, 2016):

PM_{10} Emission Factor (lb/hr) = $\{[C \times s\ (\%)^{1.5}] / [M\ (\%)^{1.4}]\} \times F_{PM10}$

$PM_{2.5}$ Emission Factor (lb/hr) = $\{[C \times s\ (\%)^{1.2})] / [M\ (\%)^{1.3}]\} \times F_{PM2.5}$

[c] Control efficiency taken from Table XI-A of the *SCAQMD CEQA Air Quality Analysis Handbook* for Post-demolition Stabilization (SCAQMD, 2007).

Table 15

Egbert Switching Station

PG&E: Egbert Switching Station Project

Location	Number of Circuit Breakers [a]	SF_6 Capacity per Breaker (lbs) [b]	Leakage Rate [c]	SF_6 Emissions (metric tons/year) [d]	CO_2e Emissions (metric tons/year) [e]
Without APM [f]					
Switching Station	7	175	1.00%	0.0056	126.69
With APM GHG-2 [f]					
Switching Station	7	175	0.50%	0.0028	63.34

Notes:

[a] Number of circuit breakers was provided by PG&E.

[b] Assumed each circuit breaker would contain 175 pounds of SF_6, which is similar to the circuit breakers at Cressey Substation.

[c] It was conservatively assumed that the leakage rate would be one percent without implementation of APMs.

[d] The following conversion factor was used to estimate SF_6 emissions:

1 metric ton = 2,204.62 lbs

[e] The following Global Warming Potential (GWP) was used to estimate CO_2e emissions, per 40 CFR 98, Subpart A: 22,800.

f Emissions were estimated assuming no implementation of APMs, and assuming the implementation of APM GHG-2, Minimize SF6 Emissions, which is described in Section 3.7.4.2 of the Egbert Switching Station Project PEA.

PG&E: Egbert Switching Station Project
Vehicle Trip Generation Summary

Construction Phase	2020												2021												2022
Workforce Trips	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**
Transmission Line	-	-	-	0	8	20	46	64	54	47	47	41	40	33	26	26	42	30	20	20	24	8	0	0	0
Switching Station	-	-	-	21	21	23	23	23	27	26	24	24	24	28	24	34	42	48	54	58	38	24	0	0	0
Substation-Remote Ends	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	8	8	8
Subtotal	-	-	-	21	29	43	69	87	81	73	71	65	64	61	50	60	84	78	74	78	64.5	34.5	8	8	8
Workforce Trips [1]	-	-	-	**42**	**58**	**86**	**138**	**174**	**162**	**146**	**142**	**130**	**128**	**122**	**100**	**120**	**168**	**156**	**148**	**156**	**129**	**69**	**16.5**	**16**	**17**
Truck Trips																									
Transmission Line	-	-	-	0	155	191	220	248	220	192	192	119	118	118	118	118	122	122	122	122	13	9	0	0	0
Switching Station	-	-	-	9	9	9	9	9	13	13	7	7	7	9	9	11	9	9	9	15	11	9	0	0	0
Substation-Remote Ends	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10	15	15	15
Subtotal	-	-	-	9	164	200	229	257	233	205	199	126	125	127	127	129	131	131	131	137	34	28	15	15	15
Truck Trips per Day [2]	-	-	-	**9**	**164**	**200**	**229**	**257**	**233**	**205**	**199**	**126**	**125**	**127**	**127**	**129**	**131**	**131**	**131**	**137**	**34**	**28**	**15**	**15**	**15**
Heavy Haul Trips																									
Transmission Line	-	-	-	0	45	4	30	40	58	50	35	34	32	26	19	12	11	4	4	4	1	1	0	0	0
Switching Station	-	-	-	3	25	23	23	23	4	3	2	2	2	4	3	2.5	4	3	3	6	12	18	0	0	0
Substation-Remote Ends	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	5	5	4
Subtotal	-	-	-	3	70	27	53	63	62	53	37	36	34	30	22	14.5	15	7	7	10	14	20	5	5	4
Truck Trips per Day [3]	-	-	-	**3**	**70**	**27**	**53**	**63**	**62**	**53**	**37**	**36**	**34**	**30**	**22**	**14.5**	**15**	**7**	**7**	**10**	**14**	**20**	**5**	**5**	**4**
Passenger Car Equiv (PCE, 1.5)	-	-	-	**5**	**105**	**40.5**	**79.5**	**94.5**	**93**	**79.5**	**55.5**	**54**	**51**	**45**	**33**	**21.8**	**22**	**10**	**10**	**15**	**21**	**30**	**8**	**8**	**6**
TOTAL COMBINED DAILY TRIPS [4]				**56**	**327**	**327**	**447**	**526**	**488**	**431**	**397**	**310**	**304**	**294**	**260**	**271**	**321**	**297**	**289**	**308**	**184**	**127**	**39**	**38.5**	**38**

NOTES

Schedule assumes 20 work days per month; where truck duration of use was less than 20 days, truck trips were rounded up for the month except if less than 5 days of use.

[1] Assumes 2 workforce trips per day (1 incoming and 1 outgoing)

[2] Assumes conservative average trips based on duration of use from AQ-GHG workbook

[3] Assumes conservative average trips based on duration of use from AQ-GHG workbook

[4] Total workforce and truck trips (combined) peak in 2020, Month 8.
Workforce trips peak in 2020, Month 8
Pick-up trips peak in 2020, Month 8
Heavy haul trips peak in 2020, Month 5

Peak Construction Trip Generation - Average Daily Total (ADT)

Trip Type	ADT	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Workers	174	17	0	17	0	35	35
Trucks	257	10	10	21	10	0	10
Heavy Haul Trucks (PCE)	95	4	4	8	4	0	4
Total Construction Traffic in PCE	**526**	**31**	**14**	**46**	**14**	**35**	**49**

TABLE B-1

San Francisco County Holocene Fossil Localities

Location ID	Locality Name	County	State	Country	Continent	Period	Epoch	Formation	Member	Storage Age	Flora/Fauna	Collection
2393-	Mission Creek	San Francisco County	California	United States	North America	Quaternary	Recent					I
2394-	San Francisco Bay	San Francisco County	California	United States	North America	Quaternary	Recent					I
2397-	Farallon Island	San Francisco County	California	United States	North America	Quaternary	Recent					I
2436-	Golden Gate	San Francisco County	California	United States	North America	Quaternary	Recent					I
2447-	Mountain Lake	San Francisco County	California	United States	North America	Quaternary	Recent					I
2465-	Lake Merced	San Francisco County	California	United States	North America	Quaternary	Recent					I
2898-	Fort Point	San Francisco County	California	United States	North America	Quaternary	Recent					I
7215-	San Francisco Bay	San Francisco County	California	United States	North America	Quaternary	Recent					I
A4484	Fort Funston	San Francisco County	California	United States	North America	Quaternary	Recent					I
A7606		San Francisco County	California	United States	North America	Quaternary	Recent					I
B3508		San Francisco County	California	United States	North America	Quaternary	Recent					I
B6886		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8628		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8629		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8630	Farallon Islands	San Francisco County	California	United States	North America	Quaternary	Recent					IM
B8631	Farallon Islands	San Francisco County	California	United States	North America	Quaternary	Recent					IM
B8632		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8633		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8634		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8635		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8636		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8637		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8638		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8639		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8640		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8641		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8642		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8643	Farallon Islands	San Francisco County	California	United States	North America	Quaternary	Recent					IM
B8644		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8645		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8646	Farallon Islands	San Francisco County	California	United States	North America	Quaternary	Recent					IM
B8647		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8648	Farallon Islands	San Francisco County	California	United States	North America	Quaternary	Recent					I
B8649		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8650		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8651		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8652	Farallon Islands	San Francisco County	California	United States	North America	Quaternary	Recent					IM
B8653	Farallon Islands	San Francisco County	California	United States	North America	Quaternary	Recent					I
B8654		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8655		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8656		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8657		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8658		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8659		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8660		San Francisco County	California	United States	North America	Quaternary	Recent					I
B8661	Farallon Islands	San Francisco County	California	United States	North America	Quaternary	Recent					I
B8662	Farallon Islands	San Francisco County	California	United States	North America	Quaternary	Recent					I

TABLE B-1

San Francisco County Holocene Fossil Localities

Location ID	Locality Name	County	State	Country	Continent	Period	Epoch	Formation	Member	Storage Age	Flora/Fauna	Collection
B8663		San Francisco County	California	United States	North America	Quaternary	Recent					I
D196	Fleishackers Beach	San Francisco County	California	United States	North America	Quaternary	Recent					I
D6011		San Francisco County	California	United States	North America	Quaternary	Recent					I
D6255	Islais Creek	San Francisco County	California	United States	North America	Quaternary	Recent					I
D6266		San Francisco County	California	United States	North America	Quaternary	Recent					I
D8933	Golden Gate	San Francisco County	California	United States	North America	Quaternary	Recent					I
D9340	Southeast Farallon Island	San Francisco County	California	United States	North America	Quaternary	Recent					I
D9386	San Francisco	San Francisco County	California	United States	North America	Quaternary	Recent					I
E5088	Farallon Island	San Francisco County	California	United States	North America	Quaternary	Recent					I
E5089	Farallon Island	San Francisco County	California	United States	North America	Quaternary	Recent					I
E5090	Farallon Island	San Francisco County	California	United States	North America	Quaternary	Recent					I
E5091	Farallon Island	San Francisco County	California	United States	North America	Quaternary	Recent					I
E6365	San Francisco Bay	San Francisco County	California	United States	North America	Quaternary	Recent					I
E6759	Farallon Island	San Francisco County	California	United States	North America	Quaternary	Recent					I
R514	San Francisco Market	San Francisco County	California	United States	North America	Quaternary	Recent					I
R584	Marine Lake	San Francisco County	California	United States	North America	Quaternary	Recent					I
R1003	Lobos Creek	San Francisco County	California	United States	North America	Quaternary	Recent					I
R1018	Mussel Rock	San Francisco County	California	United States	North America	Quaternary	Recent					I
R1022	Presidio	San Francisco County	California	United States	North America	Quaternary	Recent					I
R1033	Hunters Point	San Francisco County	California	United States	North America	Quaternary	Recent					I
R1051	San Francisco	San Francisco County	California	United States	North America	Quaternary	Recent					I
R1053	Jewish cemetary, San Francisco	San Francisco County	California	United States	North America	Quaternary	Recent					I
R1204	Presidio Lake	San Francisco County	California	United States	North America	Quaternary	Recent					I
R1209	San Francisco	San Francisco County	California	United States	North America	Quaternary	Recent					I
R1267	Cliff House	San Francisco County	California	United States	North America	Quaternary	Recent					I
R1270	Fort Point	San Francisco County	California	United States	North America	Quaternary	Recent					I
R1285	Mission Creek	San Francisco County	California	United States	North America	Quaternary	Recent					I
R1294	McAllister Street	San Francisco County	California	United States	North America	Quaternary	Recent					I
R1295	Mission Hills	San Francisco County	California	United States	North America	Quaternary	Recent					I
R1298	Mission	San Francisco County	California	United States	North America	Quaternary	Recent					I
R1301	Black Hills	San Francisco County	California	United States	North America	Quaternary	Recent					I
R1685	Golden Gate	San Francisco County	California	United States	North America	Quaternary	Recent					I
R2523	Crab House Rock	San Francisco County	California	United States	North America	Quaternary	Recent					I
R5046	Hunter's Point	San Francisco County	California	United States	North America	Quaternary	Recent					I
R7215		San Francisco County	California	United States	North America	Quaternary	Recent					I

Source: UCMP, 2017

I = invertebrate

V = vertebrate

P = plant

TABLE B-2

San Francisco County Pleistocene Fossil Localities

Location ID	Locality Name	County	State	Country	Continent	Period	Epoch	Formation	Member	Storage Age	Flora/Fauna	Collection
D1619		San Francisco County	California	United States	North America	Quaternary	Pleistocene	Thornton Beach				I
PA238	Fort Funston	San Francisco County	California	United States	North America	Quaternary	Pleistocene	Westlake		Pleistocene		P
V3410	Islais	San Francisco County	California	United States	North America	Quaternary	Pleistocene			Rancholabrean		V
V3411	Bay Bridge 1	San Francisco County	California	United States	North America	Quaternary	Pleistocene			Rancholabrean		V
V3901	Fleishhacker Beach	San Francisco County	California	United States	North America	Quaternary	Pleistocene			Rancholabrean		V
V6344	Fort Funston 6	San Francisco County	California	United States	North America	Quaternary	Pleistocene	Merced		Irvingtonian		V
V6423	Fort Funston Beach 1	San Francisco County	California	United States	North America	Quaternary	Pleistocene	Merced		Irvingtonian		V
V6424	Fort Funston Beach 2	San Francisco County	California	United States	North America	Quaternary	Pleistocene	Merced		Irvingtonian		V
V6425	Fort Funston Beach 3	San Francisco County	California	United States	North America	Quaternary	Pleistocene	Merced		Irvingtonian		V
V6441	Fort Funston Beach 4	San Francisco County	California	United States	North America	Quaternary	Pleistocene	Merced		Irvingtonian		V
V6444	Fort Funston Beach 5	San Francisco County	California	United States	North America	Quaternary	Pleistocene	Merced		Irvingtonian		V
V65243	Twin Peaks Tunnel	San Francisco County	California	United States	North America	Quaternary	Pleistocene			Rancholabrean		V
V69186	Bay Bridge 2	San Francisco County	California	United States	North America	Quaternary	Pleistocene			Rancholabrean		V
V75047	Fort Funston Beach 6	San Francisco County	California	United States	North America	Quaternary	Pleistocene	Merced		Irvingtonian		V
V75048	Fort Funston Beach 7	San Francisco County	California	United States	North America	Quaternary	Pleistocene	Merced		Irvingtonian		V

Source: UCMP, 2017

I = invertebrate

V = vertebrate

P = plant

TABLE B-3

San Mateo County Pleistocene Fossil Localities

Location ID	Locality Name	County	State	Country	Continent	Period	Epoch	Formation	Member	Storage Age	Flora/Fauna	Collection
165A	San Bruno I	San Mateo County	California	United States	North America	Quaternary	Pleistocene			Pleistocene		P
165B	San Bruno II	San Mateo County	California	United States	North America	Quaternary	Pleistocene			Pleistocene		P
1781-		San Mateo County	California	United States	North America	Quaternary	Pleistocene					I
A3408	Mateo Siding	San Mateo County	California	United States	North America	Quaternary	Pleistocene					I
B366		San Mateo County	California	United States	North America	Quaternary	Pleistocene					I
D1617		San Mateo County	California	United States	North America	Quaternary	Pleistocene	Thornton Beach				I
D1618		San Mateo County	California	United States	North America	Quaternary	Pleistocene	Thornton Beach				I
IP6848	Point Ano Nuevo	San Mateo County	California	United States	North America	Quaternary	Pleistocene			Late Pleistocene		I
IP7120	Green Oaks Creek	San Mateo County	California	United States	North America	Quaternary	Pleistocene			Late Pleistocene		I
IP8983	San Mateo County	San Mateo County	California	United States	North America	Quaternary	Pleistocene					I
IP9625	Ano Nuevo terrace	San Mateo County	California	United States	North America	Quaternary	Pleistocene					I
V3505	Mussel Beach	San Mateo County	California	United States	North America	Quaternary	Pleistocene			Rancholabrean		V
V3606	Seven Mile Beach	San Mateo County	California	United States	North America	Quaternary	Pleistocene			Rancholabrean		V
V4018	Mussel Rock 2	San Mateo County	California	United States	North America	Quaternary	Pleistocene			Rancholabrean		V
V6203	Skyline Drive	San Mateo County	California	United States	North America	Quaternary	Pleistocene			Rancholabrean		V
V6319	South San Francisco	San Mateo County	California	United States	North America	Quaternary	Pleistocene			Rancholabrean		V
V6422	Thornton Beach 1	San Mateo County	California	United States	North America	Quaternary	Pleistocene	Merced		Irvingtonian		V
V74164	Middlefield Road	San Mateo County	California	United States	North America	Quaternary	Pleistocene			Rancholabrean		V
V81094	Franklin Point S	San Mateo County	California	United States	North America	Quaternary	Pleistocene	Merced		Irvingtonian		V
V83054	Ely's San Mateo County loc	San Mateo County	California	United States	North America	Quaternary	Pleistocene					V
V83098	Miramontes Bird	San Mateo County	California	United States	North America	Quaternary	Pleistocene			Rancholabrean		V
V92009	El Granada Beach	San Mateo County	California	United States	North America	Quaternary	Pleistocene			Rancholabrean		V
V92100	San Mateo (Mountain View) Dump	San Mateo County	California	United States	North America	Quaternary	Pleistocene			Rancholabrean		V
V99892	Bivalve Point	San Mateo County	California	United States	North America	Quaternary	Pleistocene	Merced		Irvingtonian		V

Source: UCMP, 2017

I = invertebrate

V = vertebrate

P = plant

TABLE B-4

San Francisco County Cretaceous and Jurassic Fossil Localities

Location ID	Locality Name	County	State	Country	Continent	Period	Epoch	Formation	Member	Storage Age	Flora/Fauna	Collection
A1434	Alcatraz Island	San Francisco County	California	United States	North America	Cretaceous						I
A6583	Golden Gate Bridge	San Francisco County	California	United States	North America	Cretaceous		Marin				I
B2633		San Francisco County	California	United States	North America	Jurassic		Franciscan				I
D9859	Alcatraz Island	San Francisco County	California	United States	North America	Cretaceous	Early Cretaceous					I
D9890		San Francisco County	California	United States	North America	Cretaceous		Chico				I

Source: UCMP, 2017

I = invertebrate

V = vertebrate

P = plant

TABLE B-5

San Mateo County Cretaceous and Jurassic Fossil Localities

Location ID	Locality Name	County	State	Country	Continent	Period	Epoch	Formation	Member	Storage Age	Flora/Fauna	Collection
A4687		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
A6463		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
A6881		San Mateo County	California	United States	North America	Cretaceous						I
A7601	Butano Creek	San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
B2607		San Mateo County	California	United States	North America	Cretaceous		Calera				I
B2635		San Mateo County	California	United States	North America	Jurassic		Franciscan				I
B3252		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
B5787		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
B6358		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP2795	Bolsa Point	San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4009		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4010		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4011		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4012		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4013		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4014		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4015		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4016		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4017		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4018		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4019		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4020		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4021		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4022		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4023		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4024		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4025		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4026		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4027		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4028		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4029		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4030		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4031		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4032		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4033		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4034		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4035		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4036		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4037		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4038		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4039		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4040		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4041		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4042		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I

TABLE B-5

San Mateo County Cretaceous and Jurassic Fossil Localities

Location ID	Locality Name	County	State	Country	Continent	Period	Epoch	Formation	Member	Storage Age	Flora/Fauna	Collection
IP4043		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4046		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4047		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4048		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4050		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4095		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4097		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4100		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP4101		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous	Pigeon Point				I
IP5329	Point San Bruno	San Mateo County	California	United States	North America							I
IP5727		San Mateo County	California	United States	North America	Cretaceous	Late Cretaceous					I
IP12508		San Mateo County	California	United States	North America	Cretaceous		Pigeon Point?				I
IP12509		San Mateo County	California	United States	North America	Cretaceous		Pigeon Point				I

Source: UCMP, 2017

I = invertebrate

V = vertebrate

P = plant

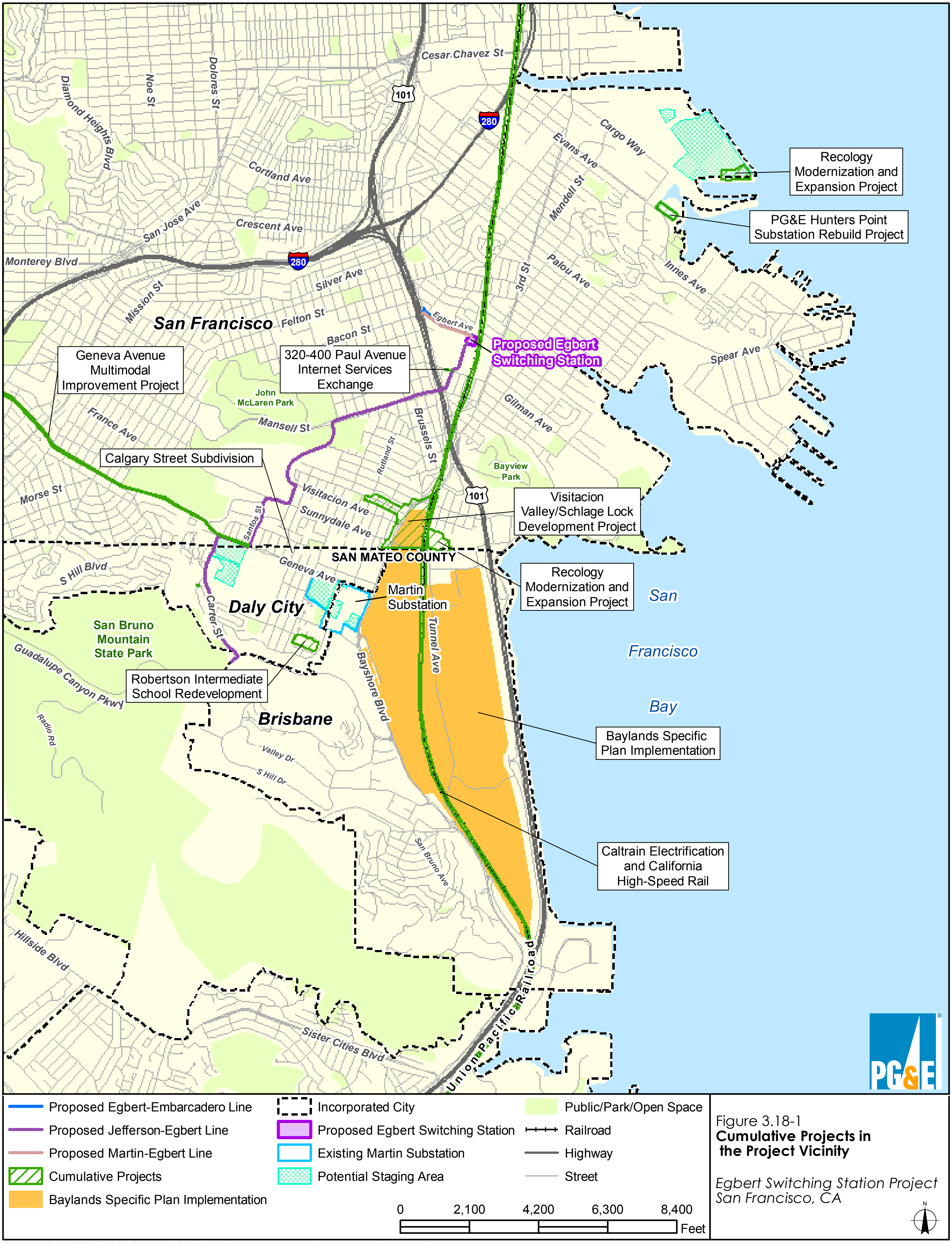

Figure 3.18-1
Cumulative Projects in the Project Vicinity

Egbert Switching Station Project
San Francisco, CA

\\brookside\GIS_SHARE\ENBG\00_Proj\P\PGE\MartinExtensionProject\Maps\Report\PEA\CumulativeProjects_170808.mxd VM048279 2/14/2018